Case I

Ward 23

Name of Patient – Alex. Jack

Disease – Chronic Meningo-encephalitis

J. S. Manson.

Ward 23 R.I.E. Bed 23 Admitted Sept 14th 1905
Name Alex Jack. Age 38 years Occupation Grocer
Married. Place of Birth Inverness
Address 6 Bristo Place Edinburgh.
Complaint General weakness and shooting cramp like sensations from both knees towards toes.
Duration Since January 1905.
Recommended by Dr Matheson of George Sq Edinburgh.
Examined Oct 18th 1905

History

Present Illness

In January of the present year patient began to feel weak & physically unfit for work. He consulted his doctor who prescribed a "tonic" for him. This tonic treatment was continued up to May & he felt slightly improved by it. About the middle of May he caught a 'cold' & a cough mixture was substituted for the tonic. At this time he went to Inverness & during his stay there he became worse lost his appetite & also he thinks some weight. He returned to Edinburgh at end of May & resumed work not feeling any better. He worked for 3 weeks then became so bad that his doctor was again called to him. Treatment was continued for 10 days then he was sent to see Dr Gibson of the R.I.E. who examined him and notified the result of the examination to his doctor.

after this he was treated by powders which gave him severe headaches. The powders were stopped but he was given a mixture in which the powders were incorporated. This treatment was continued for 6 weeks and he improved considerably. He was then put on tonic treatment. During the whole of this period he was off work but went out for a walk during the day. He resumed work about middle of August & continued for 10 days. He began then to have extreme weakness in his legs and had great difficulty in standing or walking. On Wednesday morning Aug 30th he left his work and with difficulty reached home. His doctor tested him for the Romberg sign of incoordination and patient says he swayed while standing with his eyes shut, but that he had never noticed swaying movements while washing his face. He was advised to go to the Infirmary for treatment. He was admitted to Ward 23 on Sept 4th

During the whole of the period mentioned his chief symptoms have been general weakness with weakness and fidgetty feelings in the legs. His appetite for food has been good and his bowels were irregular often costive for 2 or 3 days at a time

Previous Illnesses

Measles in childhood. When 20 years of age had a left sided pleurisy treated in Ward 29 R.I.E. 2 years later had another attack of left sided pleurisy which was treated at home by fly blister & rest.

10 years ago had syphilis Hard sore on glans penis body rash sore throat and ulcerated tongue. Was treated by his doctor for 2 years
No other illnesses or accidents.
General Surroundings

Patient works as a Shopman in a grocers shop & has long hours from 8 am to 9 pm He lives at home with his wife and family. There is a room & kitchen which are well aired clean & comfortable.
Habits as to Food and Drink

Has always had good food 3 or 4 meals a day. The midday meal is hurried and irregular. The other meals are at regular hours.
Breakfast Porridge Milk Tea Bread
Dinner Meat Soups. Potatoes.
Tea. Bread & Tea.
Suppers Sometimes bottle of beer or glass of whisky with bread & fish.
Smokes 2 & 3 oz of strong tobacco. About 10 or 12 years ago he had occasional drinking bouts. Beer & whisky being his favourite beverages. During the past 5 or 6 years he has been very temperate & drank nothing during day, only taking a bottle of beer or glass of whisky at night. Drinks 2 or 3 cups of tea per diem.
Family History. Hereditary Tendencies
Father died act 60 Cancer of Tongue
Mother " " 75 Hemiplegia

2 Brothers alive & healthy both are older than patient
No sisters. None dead. Has 2 sons one 5 years old the other 12 both alive & well None dead.
His wife has always had pretty good health.

General Facts

Height 5' 11" Weight 9st 0½lb.

Patient is a well developed man with fair muscularity but there is evidence of some wasting in the thighs & flabby condition of the muscles, which is especially marked in the lower limbs & in the gluteal regions of both sides. There is a small boil over upper part of left buttock, & on posterior aspect of left forearm about its middle there is a brownish patch of old ulceration or eczema measuring 2" x 1". On his back there are 4 small pigmented moles. There is no dropsy cyanosis or jaundice, & no evidence of injury. The hair is rather scanty & skin is soft and moist. The face is thin & drawn with malar flush on both sides & the expression is anxious & concerned. Patient lies easily in any position but is unable to walk or stand. He is slightly deaf and has been so for over a year. He is rather restless and fidgetty in bed & is inclined to be querulous. Temp 98·6 Pulse 96.

Nervous System

Sensory Functions. Patient has feelings of numbness & 'pins & needles' from knees downwards on both legs also fidgetty feelings which cause jerking movements of legs He has no pain & no sensations of heat & cold.

The sensibility to touch is unimpaired, but the sensibility to pain seems much increased over all parts of the body & it is especially marked in the lower limbs. Patient describes a slight pinch as giving pain similar to that caused by pulling a hair out. Temperature sense is unimpaired also the muscular sense.

The pupils are equal & circular & react sharply to light & accommodation. His vision is good but at night after reading some time the letters seem to run together. Taste and Smell are unimpaired. Hearing is considerably impaired on both sides & has been so for over a year. The fundus oculi was found to be healthy on examination.

Motor Functions

Organic reflexes. Deglutition is unimpaired. Defaecation. no loss of control.

Micturition after the act he has some dribbling which he cannot control & when the desire to micturate comes on him he must obey at once but he has no difficulty in emptying his bladder.

Superficial Reflexes

The plantar reflex on both sides is extremely sharp, & a dorsal response of the great toe & the smaller toes occurs. The cremasteric & abdominal reflexes are absent.

Tendon Reflexes.

The knee jerks are absent on both sides but now & again a tap on the patellar tendon causes a slow

contraction of the hamstring muscles & a jerking of the leg. Similar jerking movements occur at irregular intervals independent of the will or external stimulus and have been observed while patient was asleep.
The achilles arm & jaw jerks are absent.
Voluntary movements are unimpaired while patient is in bed but there is a very great loss of power in lower limbs. Muscular power in arms also diminished
Nat grasp by the dynamometer R. 90 L 96.
Coordination in bed is good he can touch his nose with tip of finger & can tell position of lower limbs when placed in unusual positions. When he puts his feet on to the floor he cannot tell the position of his feet. He cannot stand nor walk now although he was able to do this when he came in first.
The electrical tests showed a diminution of response to faradic stimulus & to galvanic stimulus in muscles of lower limbs. The reaction of degeneration was not obtained. There is considerable wasting of thigh & leg muscles & those in gluteal region
Cerebral & Mental. Patient is intelligent attentive to a degree but is inclined to wander from the point & the facts of his case were only elicited with some difficulty.
Memory is good. Speech shows slight slurring in 'British Constitution' & there is some syllable stumbling in 'West Regent Street'. In utterance he has considerable amount hesitancy. He sleeps for 2 or 3 hours at a time & then wakes up. Cranium & Spine show no abnormality.

Locomotory System all joints are mobile & present no abnormal feature. Muscles are flaccid but myotatic irritability is not present.

Alimentary System

Teeth are in fair condition Tongue is flabby tremulous covered with slight white fur. Appetite good no digestive disturbances. Bowels irregularly active. Requires purgatives every third day.

Haemopoietic System

a few enlarged shotty glands in each groin. No enlarged glands elsewhere. Spleen & Thyroid not enlarged.

Blood H.B.-C. 9350 { Poly. 60%, Lymph 20%, Mono 11%, Eosinophils 2% }

Circulatory System

No pain dyspnoea or cough.

Pulse 96 per min regular small in volume & easily compressible between beats. Arterial walls slightly thickened. Cardiac impulse in normal position in 5th left interspace. Cardiac sounds pure slight accentuation of 2nd sound in pulmonary area. No bruits

Respiratory System Healthy.

Urinary System Urine - amber coloured moderate flocculent deposit acid S.G. 1025. No albumin blood bile or sugar. Amount 56 Oz per diem. Microscopically. Few granular debris & a few bladder epithelial cells.

Reproductive System Nothing abnormal to note.

Provisional Diagnosis Chronic Lymphoma Myelitis

Course and Treatment

Sept 4th Put on light diet & allowed up for part of day

Sept 8th Cascara m xxx

Glycerini m xxv at night

Sept 27th Ung Hydrarg Iodid - a piece the size of a bean to be rubbed in at night.

Oct 10th Stop Ung Hydrarg Iodid. Rx. Pot. Iodid 5 ds.

Oct 20th Rx. Pot Iodid gr xl Ung Hydrarg Iodid ℥j tds.

Oct 24th Patient not improving getting very much weaker has difficulty in sitting up in bed & cannot get up at all now. He complains that his legs have been jerking badly to day.

Oct 28th Much weaker. Has some loss of control over defaecation as he passed motion in bed 2 days ago Is peevish & complaining. Pot Iodid increased to gr xxx tds

Nov 3rd No change Pulse 110 Temp averaging 97·8.

Nov 7th Patient much weaker Has to be propped in bed to take food Has incontinence of urine & motions are sometimes passed in bed. Pulse 104 easily compressible volume good.

Nov 14th Patient making no progress complains he has no feeling in left leg. Pulse 120 Temp 97·8

Nov 16th Patient now almost completely paralyzed in both the limbs. Tested muscles of lower limbs for electrical reactions, faradic diminution of response & faradic & galvanic currents, but there was great difficulty in getting any definite result as jerking movements occurred very often when the electrode was applied to the skin

Nov 17 Patient much the same Passed faeces in bed
The urine now almost constantly contains stellar phosphates
& there is a marked deposit of phosphates on heating.
a few bladder epithelium cells are present. Hæmaturia ceased.
Nov 21st Patient is more cheerful today the jerking
movements have not troubled him so much as usual
Urine shows deposit of phosphates on heating but no
stellar phosphates microscopically. Pulse 108.
Nov 23rd Patient complains of sharp pains in hip &
knee joints. Her legs gradually become flexed on the
thigh & the thigh becomes partly flexed on the abdomen
The limbs become adducted & patient is powerless
to separate them A bed sore has developed on
right buttock, on sige it is about 1½" × 1" it looks
much inflamed & it has bled some.
Pulse 112 Bromal gr X at night
Nov 24th Had a bleeding from nose this afternoon
Complains that he cannot sleep for pain in joints
Urine shows deposit of phosphates on heating.
Nov 27th Patient has arms & legs drawn up
Incontinence of urine & faeces Pulse 126.
Nov 28th Temp 100·2 Pulse 132 Rspt easily compressible
Cheeks flushed
Dec 1st Patient complains of numbness in hands
Tactile sensibility in lower limbs much impaired
Lower limbs drawn up and adducted Is very weak
Bed sores are getting deeper & have now become
septic. Temp 102° Pulse 132 Rsp 34

Dec^r 4^th. Clinique in patient. Small fibrillary twitchings round mouth noted. Large bilateral bed sore over sacrum covering an area of 6" x 6". This is made up of two roughly areas one on each side of middle line with an area of inflammation round each. Is being treated by codede of starch poultices. The lower limbs are flexed & abducted. Temp 100·4 Pulse 116

Dec 7th. Tested patient for tactile temperature & pain senses.

Right Leg Tactile & Temperature senses absent as high as knee, also pain sense. Above knee Tactile sensibility is present but very much deminished almost lost Temperature sense is confused & lost & sense of pain is very much blunted.

Left lower limb. The conditions are similar to those on the right side with the exception that tactile sensibility commences about 4 inches below knee.

Trunk Tactile sensibility is practically absent from level of lower end of sternum downwards. Over this area the temperature sense is absent, & at this level there is a zone of confused sensation to heat & cold. Below this same level the pain sense is present but very much blunted above this level tactile senses are quite sharp and the pain sense is somewhat increased The bed sores are increasing in width & depth.

Patient complains of pain in left side.

Temp 99·5° ranging irregularly Pulse 120

Dec^r 8^th Urine shows a large amount of pus cells &

mucus fronting & some inflammatory condition of bladder.

℞ Urotropin gr X
Tinct Hyosey. m XXX
Glycerin m XX
Inf Buchu ad ℥ss Sig ℥ss t d. s

Temp 101 Pulse 122.

Dec 15th Patient lies very helpless with both lower limbs abducted. Face flushed appetite lost. Urine still shows pus cells though they have deminished somewhat. Temp 100 Pulse 120

Dec 19th Patient continuing to get worse. Urine shows large amount of pus. Temperature irregularly from 98·4 to 99·6 Pulse 120 – 140

Dec 20th ℞ Brandy ℥ss 4 hourly.

From this date patient continuously became weaker falling into a comatose state from which he could with difficulty be roused to a state of semi consciousness A bad odour came from his breath & from the large bed sore over the sacrum.

Jan 2nd 1906 Patient became moribund in the morning & died at 0 30 pm.

Result of Post Mortem Examination

Body very much emaciated. Rigor Mortis absent in lower limbs present in upper limbs. Large bed sore over sacrum which emits a putrefactive odour.

Heart Rept cavities filled with post mortem clot

Slight dilatation of right ventricle. Acute endocarditis with vegetations on mitral valve which have become organised and adherent. Some degree of mitral stenosis. Diffuse thickening of aortic cusps. Minute patches of atheroma in aorta. Coronary arteries slightly dilated. No atheroma in them. No fatty degeneration of myocardium. No pericarditis.

Lungs Left pleural sac obliterated. Lower lobe of right lung adherent to diaphragm

In Right lung Some general emphysema & oedema of upper & middle lobes. Purulent secretion in bronchi with acute congestion of mucous membrane Lower lobe shows some fibrous bands growing in from pleura.

Left lung Some emphysema in upper lobe Bronchi as in right lung Some nodules of fibrous tissue at apex. In lower lobe some patches of broncho pneumonia some of which are gangrenous but they exhibit all stages of sepsis. Evidence of overgrowth of fibrous tissue along the interlobular septa from pleura. No infarcts.

Liver Large. No cicatrices No thickening of Glisson's Capsule except at anterior border Gall bladder contains dark viscid bile. The periphery of the lobules are slightly pale Liver firm. Other parts of liver show more extensive fatty change.

Spleen Dark soft No infarcts

R. kidney Capsule strips readily except at parts over infarcts. The substance shows numerous infarcts some of which are necrotic others are septic. Tubules show acute change. Congestion of mucous membrane of calices No evidence of spread from pelvis of kidney
L. kidney shows similar appearances.
Bladder Marked cystitis. Bladder full of pus with marked injection of mucous membrane.
Prostate shows numerous small abscesses
Ureters are dilated
Intestines Meckel's diverticulum 2" long is present 2½ feet from the ileo-caecal valve. Mucous membrane of ileum & jejunum shows numerous patches of congestion
Stomach Nothing abnormal
Brain shows marked oedema of pia-arachnoid also atrophy of convolutions on both sides. Small penetrantes of the basilar artery. a patch of fibrous thickening of pia-arachnoid on right side just over upper part of motor area.
Brain not opened. Sent to Path Department for examination after hardening
Spinal cord seems prominent. No gross lesion
Sent to Path Department for examination.
Summary Septic broncho-pneumonia in left lower lobe. acute endocarditis affecting mitral valve. septic infarcts in both kidneys Suppurative cystitis & prostatitis. These septic changes being immediate causes of death.

Morbid Histology.

s of the heart liver and kidneys were taken and fixed in
ohol for 4 days then put through chloroform and paraffin
d finally embedded in paraffin and cut. Some sections
e stained with haematoxylin and eosin, others in Haematein
d picro fuchsin.

tions of Heart showed slight degree of cloudy swelling the
ardiac cells were rather granular and the striations faint.
here was no interstitial changes and the vessels were
ut slightly thickened.

Liver showed early chronic venous congestion. No
interstitial change and no cirrhosis in the portal spaces

Kidneys showed pyaemic abscesses and some hyaline
swelling of the glomeruli; around some glomeruli were
even areas infiltrated with blood pointing to
infarction from the endocarditis. The tubules showed
some degree of cloudy swelling and there was a moderate
degree of interstitial change. Sections stained with thionin
blue did not show any organisms in the areas of
abscess formation

ions from the posterior ganglia of the 1st lumbar nerve
e stained by Nissl's method, by picro carmine, and the
ewsa stain, after fixation in formalin and then put
ough alcohol chloroform and paraffin

e cells showed Nissl granules very well, the faint nucleus
d deeply stained nucleolus showed up well, as also did
e granules of pigment in the nerve cells. Beyond the rather
ual amount of pigment, nothing much abnormal could be made out.

Commentary on Case I

This is a case of disease of the central nervous system presenting a rather anomalous group of symptoms. Some of these symptoms point to tabes dorsalis others to transverse myelitis, while a few point to a more general + diffuse meningo encephalitis & myelitis. The case was sent in as one of tabes, but while in hospital it has not been regarded as such, but rather as one of sub-acute myelitis with some chronic meningo encephalitis in addition. The patient was a man 38 years of age - a grocer by trade. His family history shows nothing relevant to his present disease. His personal history reveals that he had a left sided pleurisy 18 years ago (an item which was confirmed at the P.M. examination) and that he had a severe attack of syphilis 10 years ago. He was also given to drinking bouts at this time but for the last 10 years he has been temperate in the use of alcohol, although by no means a total abstainer. His syphilis was treated by his doctor for 2 years, and although there is no evidence on the point, one may justly assume that he had had a regular course of mercurial treatment. He is a married man and was married at the time of contracting the syphilis which he says was the result of a drunken bout. But as far as careful enquiry of the patient can elucidate the point, he died

not infect his wife. She had no miscarriages and 5 years later she gave birth to a healthy son - now living. He also had good health until the first manifestations of his present illness began 12 months ago. This consisted in weakness of the legs which progressed until he was forced to give up work, & seek admittance to the Infirmary. In hospital the weakness gradually passed into complete paralysis of the lower limbs, with loss of sensation and development of bed sores, as already described in the history of the case. On Nov.r 28th his temperature began to rise and pulse & respirations increased, probably due to the septic bed sore, and consequent invasion of heart lungs and kidneys from which he died on January 2nd.

<u>Diagnosis</u> The diagnosis presented many points of difficulty. The group of symptoms presented did not fit into any of the usually described clinical entities of nervous disease. A topical diagnosis based on the functions of the nervous system affected showed that the disease must have been fairly diffuse, and that no local lesion would account for the whole of the symptoms. Considered from the point of view of etiology it is undoubtedly one of the parasyphilitic lesions of Fournier. As to its nature Tabes Dorsalis must first be considered. In this case two of the most prominent signs of Tabes were present viz absence of knee jerks and achilles jerks. The incoordination which seemed

to shew itself while patient was walking, was probably not true incoordination but really an effect of weakness of lower limbs. The other prominent signs & symptoms of tabes were not present. There was no Argyll Robertson pupil gastric crises or lightning pains, and no optic atrophy. The bladder symptoms in this case was one of precipitate micturition. In the earlier stages of tabes the bladder symptom is that of difficulty in emptying the bladder;- the patient has to force & strain to perform the act of micturition. The muscles of the lower limbs were very much wasted, while in tabes the nutrition & power of these muscles are maintained. Thus by reason of absence of the prominent signs and symptoms of tabes, such diagnosis must be put out of account. A diagnosis of transverse myelitis of a sub acute nature most nearly accounts for the group of symptoms. The points in favour of this diagnosis are (1) the Babinski sign - the dorsal response to plantar stimulation (2) the jerking movements of legs (3) the tendency of the legs to assume the flexed position - to be adducted or abducted as was seen in the later stages of the disease. (4) the precipitate micturition (5) the paralysis. Against it (1) the absence of knee jerks (2) the marked wasting of the muscles. While a sub acute transverse myelitis accounts for most of the symptoms in the lower limbs there are other symptoms pointing to cerebral degeneration

These symptoms of defective cerebration, hesitancy and stuttering of speech deafness and fibrillary tremors round mouth point to a chronic meningo-encephalitis By exclusion we are thus driven to a typical diagnosis in which are considered the various nerve functions affected. The bilateral Babinski sign and the precipitate micturition point to some lesion in the pyramidal tracts.

The next question is to decide the site of this lesion Is it in the cord or in the brain? To decide this the gradual progressive nature of disease helps one. If in the cord then this gradual cutting off of the cerebral impulses to the lower limbs and centres of micturition and defaecation, could only be accounted for by a gradual cutting off of the blood supply to the fibres of the pyramidal tracts and a consequent progressive degeneration. That such a limited defect in the blood supply of the cord should occur is highly improbable. Thus we are compelled to conclude that the lesion is most likely to be in the large pyramidal cells of the cortex, from which the pyramidal fibres spring It is easy to imagine the gradual degeneration of one cell after another so producing the gradual onset of symptoms pointing to loss of cerebral control. The cortical cells of the motor system being thus affected it is easy to see how other cerebral cells may have also been similarly affected giving rise to the defects in speech, intelligence deafness, and the fibrillary tremors round mouth.

Coming now to the lower neurone we have the integrity of reflex arc interfered with as evidenced by the loss of knee jerks. The question arises as to the site of the lesion. The marked trophic disturbance shewn in the wasting of the muscles and the bed sores here point a clue. Undoubtedly the lesion here is primarily in the large motor cells of the anterior horn which send the out going stimulus of the reflex arc, and which control the nutrition of the parts supplied. The sensory phenomena exhibited in the case would be explained by the degeneration of the cerebral cells receiving impulses from the periphery, & by the sensory nerve fibres themselves becoming involved in the areas of trophic disturbance. Thus the case presents itself as one of gradual degeneration of the parenchymatous elements of the central nervous system. A progressive degeneration picking out the more vulnerable cells, and curious to note those cells chiefly involved in giving expression to voluntary power. Thus while the voluntary muscles of both upper & lower limbs wasted and lost their powers as also to some extent the muscles of the trunk, the appetite and digestion remained in good condition and the only symptom of visceral disturbance was the rather fast rate of the heart. The case is thus one (in colloquial terms) of 'creeping paralysis'. It differs in many ways from the General Paralysis of the alienist

Could the patient have been kept aseptic he would have gradually degenerated into a living automaton - ingesting secreting and excreting, until in time the nerve cells presiding over these functions also succumbed to the fate of the higher units of the central nervous system. Mercifully however organisms entered the blood stream through the door of the bed sore, and set up acute endocarditis bronchopneumonia and cystitis and so saved the patient from so dire a fate.

Etiology From this point of view the most important factor is the previous attack of syphilis 10 years ago. The great affinity of the syphilitic poison for the central nervous system is strongly emphasized by all teachers and in all text-books. But large numbers of humanity have had syphilis without presenting sequelae as seen in this case. On the other hand such cases of central nervous disease nearly always give a history of syphilis or a possibility of infection, so that syphilis must be considered as a prime etiological factor. But is it the only one? This can hardly be since such diseases do not always follow syphilis. In this case there is a very distinct alcoholic history so that one would be justified by including the abuse of alcohol as an additional factor in the etiology. And ~~in this~~ this should be so since it is now fully recognised that one of the

chief pharmacological actions of alcohol is to cause cell degeneration in the nervous system. Then it follows as far as this case is concerned that syphilis and alcohol are efficient causative agents. In cases where both such agents are present and no such disease follows, explanations can take refuge in a fog and say that such nervous systems effectually resist their baneful actions. While in the present case syphilis and alcohol are to be considered the chief facts in the history bearing on the etiology, and that no other fact in the history has much weight from this point of view, it is important to keep in mind that the syphilis was recognised and treated by a medical man for 2 years. This according to some great authorities should have sufficient to purge the system of the syphilitic poison. And that the treatment had to some extent been efficient is borne out by the fact that no disease had been communicated to his wife or to his offspring. Again no syphilitic lesions were found post mortem in the organs or blood vessels of the thorax and abdomen. The aorta showed hardly any atheroma and the liver no cicatrices though these facts are in favour of the success of the treatment, yet if we are to account for the disease at all we cannot assume that the syphilitic poison was thoroughly eradicated. For the patient

after the space by which he contracted the disease lived a more temperate life, and no circumstance between that period and the first manifestations of the disease occurred, to which experience would attribute a malign influence. Thus in spite of the treatment we may assume that the syphilitic poison still remained in the system, and only after a period of ten years did it manifest those evil effects which constituted the disease of this patient.

It is hard to understand how this poison could remain dormant for so long a period. It would be expected that the defensive forces of the body would have either overcome the poison or the poison would have overcome them in that time, and that signs of the combat would have been apparent as symptoms of ill health. But no such signs had appeared since the disappearance of the initial stages of the disease - a period of nearly ten years. Yet the poison lurked in the recesses of the nervous system ready to do its fell work when opportunity offered.

It is in such cases as this that speculation as to the nature of the syphilitic poison comes most ready. Is it of the nature of a chemical toxine? One can hardly understand how such a toxine could remain permanently in the tissues and withstand for so long a period the ever-changing vicissitudes of metabolic activity. This great improbability puts it early out of account.

Is it then an organised toxine either of a bacterial or protozoal nature - a micro-parasite in fact? If bacterial then the long quiescence points to a resting stage in its life history - a period of spore formation with returning activity as resistance is diminished. Analogous forms of chronic bacterial disease show that such bacterial foci are likely to become sterile in a period of 10 years. Is it then protozoal in origin? The latest organism of syphilis - the spirochaete pallidum - is of this nature, and has been thought to be a stage in the life history of a trypanosome. Now the great feature of trypanosomiasis is its chronicity with more or less long periods of quiescence, so that it is within the bounds of possibility that the alleged organism may penetrate to the depths of the nervous system from the site of infection, & there become as it were encysted until suitable conditions for its activity occurred. In many of the parasyphilitic lesions of the nervous system there are exhibited periods of relapse & partial recovery just as in trypanosomiasis. And even in this case similar changes seemed to have occurred in the earliest stages of the patient's illness.

Again remembering the specific beneficial effect of mercury and iodides in syphilis generally, and watching the hopelessness of such treatment in this case, one is compelled to ask if there was in reality any syphilitic poison present for these to act on.

May it not be that the trauma when present acted unduly on the nerve cells already lowered in function by alcohol, and so left them prone to premature decay as time advanced?
While speculation thus offers no satisfactory solution it is hardly idle.

Morbid Anatomy The naked eye morbid anatomy has already been described. Comment is chiefly directed to the state of central nervous system which presented two or three features usually described as effects of syphilis. The most prominent of these was the large area of thickening of the pia-arachnoid over the upper part of the right motor area. There was atrophy of the convolutions on both sides and lastly there was some periarteritis of the basilar artery. In the cord no gross lesion was visible. As the brain was not opened, the result of its section and microscopical appearances together with that of the cord will be described later, if these can be obtained. The general oedema of brain and cord was undoubtedly a result of the progressive asthenia and septic invasion of the kidneys, heart, and lungs, and had nothing to do with the primary disease.
Of the other Post Mortem appearances the completely adherent left pleura may be mentioned as corroborating the history of pleurisy given by the patient. There were also some healed nodules at the left apex, showing

that patient had a considerable power of resistance to the tubercle bacillus. The slight degree of mitral stenosis was not recognised clinically probably because of the rapid rate of heart while in hospital, & probably also to the small degree of the narrowing. The freedom of the coronary arteries from atheroma, and the very slight degree of atheroma in the aorta is noteworthy in a case with a distinct history of syphilis. The absence of perihepatitis is also noteworthy in such a case. The presence of a Meckel's diverticulum due to imperfect obliteration of the omphalo-mesenteric duct is also of some interest. Of the secondary complications following septic invasion from the bed sore the presence of an acute endocarditis of two or three weeks standing shows that the heart must have been the first organ affected through the blood stream. Septic infarcts in the kidney then followed the heart affection, and thus infected urine set up cystitis. This is the most likely way in which the cystitis had been set up, for no instrument had been passed by the urethra and so introducing organisms from without. The septic broncho-pneumonia and acute bronchitis were the terminal phenomena of the organismal invasion. The microscopical appearances will be described when these are obtained. (I am doing the heart liver and kidneys and also the posterior ganglia of the 1st lumbar nerve on both sides myself. The brain & cord are in the Path. Dep. of the Univ.)

Course of the disease was one of progressive weakness with gradual paralysis of lower limbs, and loss of control over micturition and defaecation. There was also progressive sensory disturbances - loss of sensation to touch, heat & cold, and to pain. Later there were some subjective sensations in hands showing that these were also involved, and would likely follow the same course as lower limbs in course of time. The mental condition also became very much impaired patient passing into a feebly emotional and a dazed condition.

The muscles of the lower limbs were tested for their electrical reactions, there was a slow response to the faradic current and also to the galvanic, but the examination was incomplete as it had to be given up because of patients complaints.

The constant rapid rate of the heart often reaching 120 beats per minute without any rise in temperature pointed either to defective inhibition of the vagus or more likely to some irritative condition of the accelerator fibres. Even after the temperature rose the heart's rate did not increase proportionately and on some days with hyperpexia the heart's rate was slower than on a previous period when the temperature was normal.

The urine during the first 3 weeks of November constantly showed excess of phosphates, and crystals of stellar phosphates were easily

demonstrated under the microscope. When pus appeared in the urine the phosphaturia disappeared In the later stages the urine showed excess of mucin and a distinct trace of albumin.

Treatment At first patient was allowed up for a little during the day but was finally compelled to keep his bed. When bed sores threatened he was put on a water bed. He was given light diet and was kept on this, until the later stages of his illness when a fluid stimulating diet was ordered. He required constant and assiduous attention on the part of the nurses to keep him clean & to dress the bed sores with Iodide of starch poultices.

Medicinal Treatment consisted in the administration of Mercury and Iodides with the hope of counteracting the syphilitic poison. But these had not the slightest effect in altering the course of the disease. The administration commenced by rubbing in a piece of the Ung Hydrarg. Iodid. about the size of a pea into the abdomen. This was discontinued after 13 days' use for the oral administration of Pot Iodid gr XX and Hydrarg Perchlor ℥j. three times a day. After a fortnight of this the Pot. Iodid was increased to gr XXX three times a day, and this was continued throughout the illness. The action of the mercury would have been to

antagonise the syphilitic poison, and that of the iodide would have been remove the overgrowth of tissue which follows the action of that poison. In this case no good resulted from this use, and at the most no harm can be said to have resulted from this use. This is the usual result in nervous diseases, unless there be a definite gummatous growth for the iodides to act on, or some endarteritis obliterans on which the same drug may perform its debridement action. The result in treatment of any disease depends largely on the regenerative and recuperative powers of the system affected. Drugs which stimulate these powers thus accelerate the favourable course of the disease. In this case then, strychnine and caffeine would be indicated did the nervous system have much power of regeneration. But it has little or none being a very highly specialised form of tissue. Accordingly, if a law of compensation operates in vital functions, the nervous system should have a correspondingly high power of resistance to harmful agencies. And generally speaking there seems to be some evidence of this, for organic diseases of the nervous system form but a small proportion of the diseases which afflict humanity. This may also help to explain why the nervous sequelae of syphilis are so long in appearing, and why they are so hopeless in treatment.

For the syphilitic patient was given a mixture containing

10 grs of Bromipine and 30 mins of Tinct Hyoscyamus
For a short period this lessened the inflammatory
process in the bladder, but gradually the condition
became as bad as ever, which is only to be
expected when its origin in the septic infarcts of
the kidney is considered.
For sleeplessness and restlessness at night 10 grains
of Veronal was given, and for the last 2 weeks of
the illness half an ounce of Brandy was given
every 4 hours.

Case II

Ward 24

Name of Patient – Maggie Innis

Case III

Ward 23

Name of Patient – Alexander Deck

Disease Chorea.

J. S. Mawson

Case II

Ward 24 Bed I.

Name Maggie Muir 11 years Schoolgirl

Born at Leith. Address 42 Buchanan St. Leith

Admitted Nov 22nd 1905 Examined Nov 22nd 1905

Complaint Restlessness & uncontrollable movements of arms & legs.

Duration Since July 1905.

History

Present Illness

In July of the present year uncontrollable movements commenced in the left arm. This was during the summer vacation of the schools. Later these movements appeared in the right arm and then passed to both legs. Still later her speech became difficult. She can say nothing definite as to the times when these steps in the progress of her trouble occurred. In August she resumed her work at school & was at school up to Monday Nov 20th two days before admission. She has had no pain or other discomfort apart from the movements already noted. Her appetite has always been good & her bowels regular. She has had no cough or breathlessness. No doctor has attended or been consulted about her. Her mother has given her an 'herb' tincture and as no improvement resulted she was taken to the R.I.E and admitted on Nov 22nd.

Previous Health. Patient has had measles & whooping cough

Previous Health (cont) and has suffered from frontal neuralgia one year ago which lasted for a fortnight about this time She had also sharp pains over the praecordia which came on at irregular periods & were most marked after meals. These were relieved by medicine & disappeared after a time. She has had measles scarlet nor rheumatic fever. No previous attacks of chorea. No fright No accidents.
Her mother says she (the patient) had a tonsilitis 2 years ago & that she works hard at school. Patient will not admit the truth of these statements.
Social Conditions & Habits Patient has a clean comfortable home of 2 rooms & kitchen and lives with her parents and two brothers and a sister. She sleeps with her sister in a well aired bedroom. At school she keeps well abreast of her fellows but does not work too hard She is in the 5th Standard.
Family Health Father & Mother are alive and healthy Patient is the 2nd child & has 2 brothers and 1 sister alive and healthy. There are none dead.
Examination of Patient. General fact.
Patient is a healthy looking well developed well nourished girl. Her muscularity is fair. There is no dropsy cyanosis or jaundice. Skin is thin & moist. There are involuntary twitchings & irregular grimacing movements round the mouth. The tongue is clean & shows some slight movements. Similar irregular movements are

seen in the arms, but are best marked in the left arm
The right leg moved most when under observation
but she says both are equally affected. There are
no evidences of injury to cranium or Spine. There is a
small pigmented mole about the middle of the back
slightly to left of Spine. Pulse 90 per min. Temp 97°.

Nervous System

Sensory functions No pain or abnormal
sensations except an occasional sharp pain in left arm
The tactual & temperature senses are healthy.
Pupils react sharply to light and accommodation
No nystagmus. Hearing Vision Smell & Taste - Healthy.
Motor functions Organic reflexes - unimpaired
Superficial reflexes. The abdominal reflexes are absent
Plantar reflex difficult to elicit on both sides but
when elicited is flexor in nature.
Deep Reflexes Both knee jerks present & active.
No ankle clonus No arm jerks no jaw jerk.
Voluntary muscles all voluntary movements are
unimpaired. There are irregular jerky movements
round mouth. The tongue also shows similar movements
but to a slighter degree. Similar short jerky irregular
movements are seen in both arms, also nodding
& swaying movements of head due to contractions of
the sterno mastoid and muscles of neck. The
muscles of the trunk are unaffected or but slightly
affected. The breathing at times is jerky and irregular
grunting & some irregular contractions of the muscles of

respiration. The lower limbs are but slightly affected and the movements there are chiefly jerky contractions of the quadriceps extensor groups. Over all these movements patient has a considerable amount of control, which seems strengthened in the presence of strangers & when patient is conscious of being under observation. All the movements do not occur simultaneously, when one set of muscles are active, other groups are at rest.
Coordination and the power of the muscles are unimpaired
Vaso motor and Trophic Functions. – The palms of the hands show some excess of perspiration.
There is no wasting or nutritional disturbance
Cerebral and Mental.– Patient is bright & attentive with good memory. At present her speech is quite good, though she says that she had some difficulty in utterance before admission to hospital. She sleeps well.
Cranium & Spine Show no abnormal features
Locomotory System Healthy.
Circulatory System No pain over praecordia no cough or shortness of breath. Pulse 92 per min rise fairly rapid apex not sustained fall more gradual. Easily compressible. Both radial pulses equal. Arterial walls not thickened.
Inspection No bulging of the praecordia. Pulsation visibly visible in the 4th interspace to internal to the mammillary

line. No pulsation in the aortic area. Some pulsation in the carotids at root of neck, but no distended or pulsating veins.

Palpation Apex beat 3 3/8" from the mid sternal line in the 5th interspace. The impulse is somewhat diffuse; there is no thrill. No pulsation in the aortic area, but pulsation in carotids at root of neck.

Percussion Right border of heart lies along right lateral sternal line. Upper border at level of upper border of 3rd rib. Left border 2 3/4" from mid sternal line at level of 4th rib where it crosses the mammillary line

Auscultation Mitral area 1st sound is loudly heard over the point of maximum impulse in 4th interspace 1/2" internal to the mammillary line where it is preceded by a short rough bruit. Further down this bruit is not so well heard and at the apex the post mural is preceded by this bruit but ends with soft blowing faint murmur. The 2nd sound is pure and distinct. Aortic area — 1st sound is distinct but faint 2nd sound distinct no murmurs.

Pulmonary area — 1st sound distinct. 2nd sound markedly accentuated and reduplicated.

Tricuspid area. Both sounds are distinct no murmurs.

Haemopoietic System W.B.C 7900 No enlargement of Spleen and thyroid

Alimentary System Tongue clean Appetite good

bowels regular Nothing abnormal in abdomen on inspection or palpation

Respiratory System — Healthy.

Integumentary System — No eruptions Skin soft + moist.

Urinary System — No pain or frequency in micturition Urine — Pale amber slight flocculent deposit. S G 1013 acid no albumen blood bile or sugar Quantity 21 Z per diem.

Provisional Diagnosis — Chorea

Course and Treatment.

Nov 22nd — Rest in bed

Nov 26th — Rx Ammon Bromid gr X
Liq Arsen m I t d s.

Nov 28th — Patient put in side room with screens round bed for isolation purposes. The movements are more evident than they have been since she entered hospital

Dec[r] 2nd — Liq Arsen. increased to m VII t.d.s.

Dec[r] 5th — No diminution in movements. patient does not speak with readiness owing to movements round mouth & of tongue.

Dec[r] 9th — Liq Arsen increased to m IX t.d.s.

Dec[r] 14th — The movements have ceased in arms and legs, but still occur round mouth

Dec[r] 17th Liq Arsen m XI t.d.s. H6 corpuscles 6000 Reds 4·700,000 Hb. 74%

Jan 3rd 1906 Patient is now quite free from movements and her general condition is excellent. The heart murmurs remain as when she entered hospital

Jan 8th. Patient sick vomited once after breakfast, and after dinner. Some injection of conjunctiva.

Jan 9th Vomited once after each meal. Put on milk diet, and the Leg Arsen and Ammon Brom stopped. Patient has thus had 2½ of the Leg Arsen in a period of 44 days.

Jan 10th Vomited after evening meal conjunctiva still injected

Jan 11th Vomited twice to day conjunctival injection more marked. Vomites greenish coloured watery looking with some curdled milk floating in it.

Jan 15th Vomited once yesterday but not today.

Jan 16th Patient does not vomit now takes milk & bread without discomfort. Urine for past 3 days has been very concentrated & full of urates small in quantity varying from 11 – 16 ℥.

Jan 23rd Patient well & taking food without discomfort. Pulse 76

Jan 26th Patient allowed up weight 4 st 13 lbs

Feb 5th Patient up every day keeps well as movements.

Feb 9th Patient went home today all choleic movements have disappeared and general health excellent. Patient has been in hospital exactly 11 weeks

Case III

Ward 23 Bed 13.

Patient's Name – Alexander Duck Age – 13 years
Birthplace – Leith occupation – School Boy
Address – 16 Broad Wynd Shore Leith
Admitted – Jan 2nd 1906
Examined – Jan 4th 1906
Complaint – Choreic movements of left upper and lower limbs
Duration – Since beginning of December 1905.

History

Present Illness – One night during the first week of last December while patient was reading a newspaper, his father noticing movements of the paper asked him if he was 'commencing his old capers again.' This remark ~~was~~ repeated & jerking movements of the left arm. A fortnight later his left leg began to show similar jerky movements. He says that his articulation is not so good as it was. At the time mentioned when the jerking movements appeared in the left lower limb, he had shooting pains down the back of the left thigh from the hip towards the knee. A lady doctor was called to see him, and she prescribed cod liver oil emulsion, and another medicine which was clear like water but nauseous to the taste. After this treatment and a week in bed the pains left him but the jerky movements remained. He was then advised to go to Leith Hospital, but he

came up to Ward 23 instead and consulted Dr McIntyre. A prescription was given him, and he was advised if he got no better to call back in a fortnight. No improvement followed, and thinking he was getting worse came up on January 2nd and was admitted to Ward 23. If patient exerts himself a little beyond usual he gets short of breath. Beyond those mentioned he has had no pain or other discomfort. His appetite has been good and his bowels regular.

Previous Illnesses and accidents — Had whooping cough and measles when he was 3 or 4 years old. Has had no scarlet or other fever. Had one previous attack of chorea which commenced last May and ended in the following August. This attack affected his right side and was treated in Ward 23. Previous to this he had long been troubled with severe frontal headaches which came on every week or so and lasted for a day or two. Since the first attack of Chorea he has had no more headaches. Had a slight injury to head as result of a football accident. A very indefinite history of occasional sore throat.

No other illnesses or accidents.

Social Surroundings. — Patient lives with his parents in a 2 roomed house. He sleeps in one of the rooms in a bed with 5 younger brothers and sisters. The room is well ventilated by holes in a badly fitting window frame, so that there

is no need he says of opening the window in order to ventilate the room.
He works fairly hard at his school work but it does not give him much worry.
Habits as to food and drink – Has meals at regular intervals.
Breakfast – Porridge and Milk Tea and Bread
Dinner – Broth vegetables Potatoes but very little meat.
Tea – Tea bread and cheese
Supper – Porridge and Milk.
Patient does not smoke cigarettes.
Family Health – Father and mother alive and well Has father was treated for myocarditis 3 years ago in Ward 26. He is the eldest of 5 brothers and 2 sisters all alive and well None dead.
General appearances

Patient is a healthy looking well-developed well-nourished boy. He shows jerking movements of left leg and arm and to some extent on left side of mouth. There are 2 small septic wounds on right foot, one below external malleolus and one on inner side of foot near head of 1st metatarsal bone. On left foot there is a small septic wound below outer malleolus, and another over inner malleolus. all these wounds are now almost healed There is an undescended left testicle which can be felt in the inguinal canal. The right testicle is unusually high up in the scrotum. There is a hard

nodule about size of pea at lower end of sternum
In both sclerotics there is an icteric tinge. Tongue is covered with a slight white fur and shows irregular jerky movements. When arms are held out in front, the left arm shows marked jerky uncontrollable movements. No dropsy or cyanosis
Temperament — Cheerful active. Temp 97·8 Pulse 76.

Nervous System.

Sensory Functions No abnormal sensations.
all sensory functions are healthy. Pupils react sharply to light and accommodation. No nystagmus.
Special senses are all healthy.
Motor Functions Organic reflexes - healthy.
Superficial reflexes - Plantar reflex is sluggish on both sides - the response is flexor. Cremasteric reflex is sharp abdominal reflexes could not be elicited
Deep reflexes Knee jerks present on both sides
no ankle clonus Arm jerks not present
Voluntary Movements are all well performed and Coordination is unimpaired.
In left arm there are jerky involuntary movements which can only to a very slight extent be controlled. The movements are best seen at the wrist and fingers. The left lower limb shows similar movements best seen round the knee, and to some extent in flexor movements of the toes
The left side of face & tongue are also affected.
The left scapula and spine also show jerky movements

which appear from time to time

Vaso-motor and Trophic Functions Soles of feet and palms of hands are unusually moist. No other abnormal feature.

Cerebral and Mental Functions Patient is bright sharp and active. Memory and intelligence good Sleeps well.

Cranium and Spine No pain or tenderness on percussion.

Locomotory System The left leg jerks when he walks Bones and joints are healthy. The muscles show the involuntary contractions causing the movements already mentioned. No fibrillary twitchings.

Circulatory System

Subjective Phenomena – No pain or palpitation. No dyspnoea but a short run causes some difficulty in breathing. Has a slight cough which troubles him at night.

Pulse – 80 per min regular in time and force easily compressible. The rise is rapid apex not sustained fall fairly rapid. Arteries not thickened.

Inspection – No bulging of praecordia. Apex beat diffuse visible in the 4th and 5th interspaces just internal to the mamillary line. No epigastric pulsation No pulsation or bulging over the aortic area. Slight pulsation in episternal notch, and at root of neck. No venous pulsation or engorgement.

Palpation. The apex beat is felt in the left 5th interspace

3¼" from the mid sternal line. The point of maximum impulse lies in the 4th interspace 3" from the mid sternal line. The apex beat lies ½" outside the mammillary line. The impulse is diffuse and forcible, & preceded by a short presystolic thrill. In the left 3rd interspace close to the sternum distinct pulsation is felt. Faint pulsation in the episternal notch and at root of neck done in the epigastrium.

Percussion upper border of heart at level of 3rd rib
Left border at the mammillary line at level of 4th rib. Right border lies along the right lateral sternal line

Transverse diameter of heart at level of 4th costal cartilage 4". Vertical diameter in left para-sternal line 2¾"

Auscultation Mitral area Both sounds are heard The 1st sound is loud and booming over the area of the cardiac impulse and is preceded by a short high presystolic murmur. 2nd sound is pure.

Pulmonary area The 1st sound distinct and pure. 2nd sound is markedly accentuated and reduplicated

Aortic area 1st sound faintly heard no murmur 2nd sound pure and distinct

Tricuspid area Both sounds are pure and distinct.

Respiratory System.

Breathing 20 per min regular abdomino thoracic in type. Slight short cough. No Sputum. No obstruction in upper air passages

Chest Inspection Fairly well formed somewhat narrower in front than normal showing slight tendency to pigeon breast. Moves equal and well on both sides no indrawing of the intercostal spaces

Palpation Movement during ordinary respiration ½"
Measurement at full expiration at 5th costal cartilage 26"
at full inspiration 26 3/4

Vocal fremitus is healthy.

Percussion. The note is that healthy lung resonance

Auscultation. The breathing is harsh vesicular throughout.
Vocal resonance healthy.

Alimentary System

Teeth unusually good. Tongue clean. Appetite good
Bowels regular.

Urinary System

No pain or undue frequency on micturition
Urine Pale amber SG 1026 flocculent deposit.
No albumen blood bile or sugar. Micro. numerous oxalate crystals.

Haemopoetic System.

No enlargement of thyroid or spleen.

Integumentary System

Skin smooth soft moist. Perspiration rather above normal on palms of hand and soles of feet as noted under nervous system.

Provisional Diagnosis Chorea Minor.

Course and Treatment.

Jan 2nd Rest in bed ordinary diet

Jan 4th Liq Arsenicalis m IV t. d. s.
Jan 6th " " m VI t d s.
Jan 7th Patient complains of sore throat & a hard cough
Evening Temp 99·6 Pulse 112
Jan 8th Throat still sore was given a gargle
Temp 101° Pulse 102 at night. H.B.C 16·600
Jan 9th Cough and throat not so bad to-day. Sputum
frothy with some mucus quantity small. Breath
sounds at base with a few medium pitched rhonchi
Tongue red slight white fur papillae prominent
Weight 4 st 11 lb. Tonsils both swollen and
inflamed a few yellowish points of pus on them.
Appetite not so good but still can take bread and
milk. Has some difficulty in swallowing
Jan 10th Throat a little better. Some corneal injection
on both sides. Liq Arsenicalis stopped. Total amount
Temp 101° Pulse 100 96 minims
Jan 11th Throat a good deal better. Tonsils still
swollen. Temp 99° Pulse 86.
Jan 15th Shifted to Side Room. patient feeling well.
Jan 16th Rx. Liq Arsen m IV
Pot Bicarb gr X
Jan 22nd Weight 5 stones. Patient allowed up
Jan 23rd Urine still contains oxalates.
Jan 25th Injection of conjunctivae stop Liq Arsen.
Feb 2nd Patient went home today. all choreic
movements have disappeared. He feels very well
but the cardiac condition remains as when he came in
Patient has been in hospital one months

Commentary on Cases II and III

These are examples of chorea in a mild form - one in the young male of the 3rd hemidecade, and one in the young female of the same period of life. In history, symptoms, and results of examination they present many points of agreement, and few of difference.

Their family histories reveal nothing of much note except that the boy's father had been treated for myocardeum in the Infirmary - a rather rare disease in the male.

Both patients are children of the working class and are members of moderately sized families. The symptoms in both are mild, and the physical signs reveal a similar affection of the heart viz mitral stenosis. Their general health is in no way impaired. Both have had measles and whooping cough but neither of them have had scarlet or rheumatic fevers. They have both given an indefinite history of sore throat and of shooting pains in various parts of the body also a positive statement as to frontal headaches. On the latter points the boy's statements are more clear and definite than the girl's, probably because he had been in hospital before, & was thus to some extent trained in giving a history.

As to points of difference:- this is the boy's second attack, the girl's first. In the boy the movements are unilateral, in the girl bilateral. The heart affection in the boy is more marked in the boy than in the girl probably because the disease

is of longer standing. The boy had a slight injury to the head so much injury in the girl. With the exception of the frontal headaches and shooting pains the history of both is chiefly negative from the point of view of the etiology of chorea. Physical examination is almost equally bald, the only features being mild choreic movements and a presystolic murmur. It may be here noted that the boy has an undescended left testicle. Excepting the jerky movements no other symptoms were complained of. Two other minor points worth noting were the sluggish plantar reflexes in both, and the presence of oxaluria in the boy.

Diagnosis

This presents hardly any difficulty. The characteristic jerky involuntary movements together with the absence of signs of other nervous diseases which to some degree resemble chorea, at once clinch the diagnosis. Looking at the patients chiefly from the point of view of these movements, diseases, such as Friedreich's ataxia, multiple sclerosis, hysteria, Habit Spasm, some irritative lesion of the cortex such as may cause Jacksonian epilepsy, occur to the mind.

Friedreich's ataxia is hereditary. Several members of the same family are usually affected. It comes on usually in early childhood. There is ataxia, loss of knee jerks, + nystagmus. The movements

are slower and more swaying than in chorea.
By absence of these features in the present cases
Friedreich's ataxia is excluded.
Multiple sclerosis is also eliminated with ease.
There are none of the very characteristic symptoms
of this disease viz the scanning speech nystagmus
exaggerated knee jerks and volitional tremor.
The movements in multiple sclerosis are more
rhythmical and more massive than in chorea,
and are increased by the action of the will not
directly but indirectly. In chorea the movements
are often to some slight extent subdued by
the will, as seen in the present cases.
From hysteria and allied forms such as Habit
Spasm, the diagnosis is not quite so easy.
The age of the patients is to some extent against
hysteria. In hysteria the movements are more
rhythmical and more variable in their location,
than seen in these patients. There are none
of the stigmata of hysteria present in these
children. They are contented, cheerful, and
happy with their lot. The movements in habit
spasm are more explosive than in chorea,
& chiefly involve the head and arms. In
neither hysterical chorea nor in Habit Spasm are
heart lesions associated, in these cases heart
lesions are associated with the movements.
In the boy where the movements are unilateral

some irritative condition of the cortex might be thought of, but such conditions usually give rise to movements which occur in spasms with an interval of rest between the spasms. Here we have no such interval of rest or quiescence - the movements occur in one part or another without much pause - and so this semblance of Jacksonian epilepsy may be put out of account.

The choreic movements are confusing and perplexing to watch from their rapidity and irregularity. In the fingers it may be one sees a rapid flexor contraction followed by an equally rapid extensor movement often accompanied by some extensor movement at the wrist. Immediately these have ceased the next movements may appear in the toes ankle or knee, as far as one could judge from watching these cases apparently one set of movements ceased before others commenced. In more violent types of chorea several groups of movement seem to occur simultaneously. It would be interesting to know if there is any form of rhythm in chorea, or if the movements occur in haphazard irregularity. For this aim instrumental investigation and a record of observations over a long period of time would be necessary. The eye alone would be as inefficient here, as in an analysis of the cardiac cycle. If some rhythmical cycle were discovered then the flow of excitation in the motor

area of the brain could be traced, and compared with that in other nervous diseases exhibiting involuntary movements as one of their chief symptoms. From a practical point of view this knowledge might or might not be of much value.

Etiology

The two cases under survey throw little light on the etiology of chorea. The present view — that the chief etiological factor is the organism of acute rheumatism. - the diplococcus of Poynton and Paine - is very weakly supported in these cases. Certainly there is evidence of endocarditis - from the mitral stenosis, and a history of indefinite pains and sore throat, but there is a complete denial in both cases of any previous joint affection. Thus unless the endocarditis and the pains are set down to a rheumatic origin there is nothing to support this view in these cases. Of the other etiological factors acting psychically on an unstable nervous system there is no evidence whatever. Fright worry school exam are denied, and the nervous system in both seems to normally stable. The embolic theory of chorea arising from the primary endocarditis has now been discarded, so that as far as these cases are concerned a rheumatic origin is the one which seems best to explain the conditions before the attack and the disease itself.

It may be that chorea is a symptom complex arising from more than one cause, just as diabetes may arise from pancreatic disease or from some lesion in the central nervous system. Chorea arising from fright or strong emotion may indicate a congenitally unstable motor cortex, and if psychical disturbances be present with the movements there is indication of instability in the higher centres as well. In chorea of this type one would not expect to find constantly associated organic disease of the heart. This might be called a truly 'functional' chorea allied to hysteria, and arising primarily from an unstable nervous system. The other form of chorea which is associated with organic disease of the heart, (and the form to which the cases under discussion belong) would be a toxic or organic chorea - all the manifestations of which would be explained by the operation of some toxic agent of a specific character.

What is the evidence in favour of this toxic origin? In the diseases of the nervous system there are numerous examples of the action of known toxins. Tetanus, hydrophobia both of which are examples of acute toxic action on the motor system of the spinal cord. Again Poliomyelitis anterior acuta in children is also an

example of acute toxic action of a very specific nature selecting the large cells of the anterior horn the selective affinities of certain drugs are also proofs how one part of the nervous system may be stimulated leaving other parts unaffected; thus caffeine stimulates the higher centres, atropine the mid region, and strychnine the lower or spinal centres. Thus by analogy there is no reason why some specific toxin should not select the motor cortex for its action and produce choreic movements, and also produce endocarditis at same time. Though not in these cases, chorea sometimes shows an acute onset, rise, and decline like an infective disease. Still a mild chronic course is not against an infective origin, as witness the mild chronicity of the Staphylococcus albus in bone and joint diseases compared with the acute rapid action of the Staphylococcus aureus. Again in dogs distemper is known to cause jerky and irregular movements. In Dr Risien Russell's article on chorea in Allbutt's System, he quotes a case of chorea after injection of Iodoform emulsion into a spinal abscess. What is the likely specific agent in producing chorea? Experimental research has thrown some light on the matter. Dr Beattie injected a pure

culture of the Diplococcus Rheumaticus into a rabbit and produced a typical acute warty endocarditis, and during life this rabbit showed the jerky irregular movements characteristic of chorea. This experiment confirming the original observation of Bright on the association of rheumatism and chorea. One experiment is not however conclusive, though it is helpful in establishing something definite in the etiology of chorea.

If then this diplococcus is the exciting cause of chorea and endocarditis in the human subject, where then is its habitat in such cases as the present? The answer is - the throat. The fauces, tonsils, buccal and naso pharynx are the happy hunting grounds of pathogenic organisms in children. Here the diplococcus may flourish in some recess, passing its toxins into the blood and setting up choreic movements and endocarditis. From time to time the local site may show signs of reaction, inflammation and swelling causing sore throats as was given in the histories of both cases, and the boy had one attack of such while in the wards. The decline and disappearance of chorea without special treatment may be explained by the formation of an antitoxin in the body. The

recurrence may be explained by a short period of immunity, and these explanations bring it in line with acute rheumatic fever where recurrences are the rule rather than the exception. Why girls are more affected than boys may be explained by the fact, that girls are more indoors than boys and more associated with their younger brothers and sisters, and so more liable to infection as is seen in diphtheria. The nervous system of girls and boys are not much different before puberty, at least there is not such a difference as to account for the great incidence of the disease in girls as compared with boys.

Course and Treatment.

As is the rule in chorea both cases terminated favourably and went home well. The girl was the more refractory of the two and she was 11 weeks in hospital, as compared to the boy's 4 weeks.

After a few days' rest in bed, the girl was put into a side room and isolated. She was put on combined tonic and sedative treatment. Ammon Bromide 10 grains and Liq arsenicalis 5 minims three times a day. The arsenic was gradually increased until 11 minims three times a day

were given. In 6 weeks all trace of the movements had disappeared, and she then began to show signs of arsenical poisoning. There was vomiting of food and injection of conjunctivae; this was after 30 drams had been taken in the period of 44 days. Vomiting continued for a week after stoppage of the drug, and always occurred after taking of food, showing that the coating of stomach was in an irritable condition. This passed off and patient was gradually put on full diet and sent home well on Feb 7th.

After two days rest in bed, the boy was also put on arsenic but was given no bromide. Five days after admission he developed an acute tonsillitis which sent his temperature up to over 101° and gave him much pain and discomfort. Gargles were given and fomentations applied and the condition subsided in five days. The arsenic was continued. Liq arsenicalis first in 4 mmm doses three times a day, and then increased to 6 minims. In 6 days, after 96 minims had been given, the drug had to be stopped owing to conjunctival injection and hyperaemia, thus showing great intolerance to the drug. The movements were still present though in

diminished force. On Jan 16th liq arsenicalis 4 minims and Potass. Bicarb. grains 10 three times a day were given, but after 9 days this had to be stopped owing to redness of the eyes. This boy seemed to show a great intolerance of arsenic, whenever quantity reached about 100 minims marked redness of the eyes appeared. Were his excretory powers deficient, or was his chemical powers insufficient to convert the arsenic into a storable form for the tissues? He had certainly had some anomaly in his chemical powers as oxalates were constantly present in his urine. In spite of his intolerance to arsenic he lost all his movements by the end of the third week, and went home at the end of the fourth week.

In the girl's case it would seem that arsenic had almost a specific effect in curing the chorea, for the disease had been continuously present for at least 4 months before admission. After treatment with arsenic and bromide for 6 weeks the movements had disappeared. In the boy's case the amount of arsenic administered was so small, that it could have had very little influence in curing the disease. This comperison proves that arsenic is not a specific remedy for chorea,

but improvement after arsenic follows so frequently that it must be considered a very valuable remedy. It acts probably by diminishing the metabolic activity and so allowing the body to put on weight, and by this means increasing the resistance to the toxin. Complete rest in bed attains the same object, and by many this is considered the most valuable therapeutical factor in the treatment of chorea. In the home surroundings of such patients as those under survey, the needed quiescence and nourishment to enable the body to successfully resist the toxaemia, would be unattainable. As soon as these were obtained in hospital improvement followed, so that too much benifit is liable to be attributed to any drug prescribed. However as arsenic acts along the same lines as these important factors, its value must not be underestimated.

The use of ammonium bromide in the case of the girl would have had some sedative effect in mitigating the movements, but very little as a curative agent.

On the strength of the rheumatic theory as to the origin of chorea, salicylic acid might be employed, and it would be a great boon did it tend to lessen the tendency to endocarditis

Case IV

Ward 23

Name of Patient – Neil Beeton

Disease – Aortic Incompetence

J. S. Manson

Case IV

Ward 23 Bed 4.

Patients name.- Neil Beaton aged 41 years Single
occupation - Cabman. Admitted - Jan 10th 1906
Complaint - Shortness of Breath and Cough
Duration - 3 years.
History Present Illness.

Three years ago patient began to have shortness of breath on exertion, and for the past year or so he has not been able to follow his occupation because of dyspnoea. Even getting on to box of cab caused very considerable dyspnoea. During the past 10 weeks he has been worse and has been prevented from lying in bed from this cause. During the night has had attacks of dyspnoea which made him to go to the window seeking for air. Some nights he has had to sit up all night in a chair. The cough and dyspnoea are always worse at night. There is a dull constant pain below left nipple. Has had attacks of heart pain which shoot down inner side of left arm to elbow. Ten days ago had pain at inferior angle of left scapula. He has never been definitely laid up in bed and has had no treatment.
He suffers a good deal from indigestion
Previous Illnesses and Accidents.

Had measles and scarlet fever when a boy. 16 years ago had a pleurisy

on left side, and recurrent attacks for 11 years on same side.

Had ague and Syphilis in India 16 years ago
No rheumatic fever No small Pox No dysentery.
Family Health Mother alive and well. Father - no information 2 brothers and 3 sisters alive and healthy
Social conditions and Habits Has been unable to do much work for 2 years, but does odd jobs when he feels fit. Food fairly satisfactory Has been a heavy drinker, but not for last few weeks Smokes ½ oz of black twist tobacco per week.

State on admission

a tall well developed and very muscular man. Marked cyanosis and considerable dilatation of venules of nose and cheeks which seems to be of old standing. Sclerae tinged in both conjunctivae. Pupils equal and regular. No enlargement of glands. No oedema of ankles Slight dyspnoea when quiet. He walked up to the Medical Waiting Room, and getting up after lying down there for abdominal palpation did not cause much discomfort to patient.

Circulatory System.

Pain Dyspnoea and cough as recorded in history
Pulse - Radial pulse not visible. arterial wall slightly thickened. Amplitude of wave medium Slight irregularity in time and force

Tension low. No venous pulsation in neck. No epigastric pulsation.

Heart apex beat in 6th interspace 1 inch outside the mammillary line. Diffuse pulsation in the 5th and 6th interspaces and extending in ½ way between apex and sternum. No thrill.

Percussion shows marked enlargement of the heart.

Auscultation wide conduction of heart sounds over chest.

Aortic area. 1st sound replaced by rough systolic bruit propagated into the carotids. 2nd sound distinct.

Pulmonary area 2nd sound marked accentuation 1st sound same bruit as in aortic area.

Tricuspid area 1st sound replaced by a blowing bruit. higher pitched than in aortic area.

2nd sound distinct

Mitral area 1st sound preceded by a short presystolic murmur followed by blowing systolic bruit.

2nd sound accentuated.

Heart sounds are better heard over apex than over sternum or base.

Respiratory System.

Cough and dyspnoea as above. Sputum frothy.

Thorax well formed and well covered by muscles Movements very limited less in left side than on right. On percussion no dullness at bases Auscultation - Breath sounds vesicular very faint especially at bases. Numerous medium

crepitations at left base No rhonchi.

Alimentary System

Some pain and discomfort after food
Liver much enlarged extends 2" below costal margin

Haemopoietic System.

Spleen slightly enlarged.

Provisional Diagnosis. - Mitral Incompetence

Course and Treatment.

The course of the illness was unfortunately very short. Patient was admitted to the ward at noon and was put to bed. While in bed he showed no marked symptoms until 8.30 pm on the day of admission. He then began to have a feeling of pain and tightness round chest and to breathe rapidly. He was propped up in bed and attended by nurses and doctors during the attack.
A capsule of amyl nitrite was broken and the drug inhaled by the patient. This gave some relief to the pain but the dyspnoea continued to get worse. His face became pale and the dilated venules stood out prominently. The pulse was small quick very irregular in time and force. His hands became cold and he broke out into a cold sweat beads of perspiration standing out on his forehead while he grasped at the bedstead with one hand in order to control his efforts at

respiration. A hypodermic injection of strophanthin was given, and resuscitation was considered but was not thought advisable. Patient gradually got worse breathing became panting rapid and shallow, a clammy sweat bedewed the ashen countenance, the extremities became cold the pulse hardly perceptible the rapid breathing became fainter and fainter, mucous rattles appeared and patient died at 9.30 pm the fatal attack having thus lasted one hour.

Result of Post Mortem Examination held on Jan 13th a well developed muscular man. Marked PM lividity. In right pleural sac about 15 ℥ of blood stained fluid, in left somewhat less. about 6 or 8 ℥ in pericardial sac.

Heart Large some chronic thickening of epicardium Right muscle somewhat dilated. filled with fluid blood no clots.

Right Ventricle considerably hypertrophied and dilated no antemortem clot. Tricuspid orifice dilated Pulmonary valves competent.

Left muscle also contains fluid blood the mitral orifice is dilated admits 3 fingers

Left ventricle not hypertrophied but dilated hypertrophy of the papillary muscles. The mitral valve shows some chronic thickening which is well marked on anterior cusp. There is some chronic thickening on the interventricular septum near the entrance of aorta.

It is possible also that owing to the weakened dilated condition of the heart, that the left ventricle would not dilate sufficiently after its imperfect systole, & cause a normal suction action on the systemic circulation. Thus though the blood would regurgitate into the left ventricle from the aorta, it would not do so with sufficient rapidity as to cause vibration of the edges of cusps and so produce a diastolic bruit. The falling back of the large column of blood on the aneurism on the aortic cusps would cause an accentuated 2nd sound, and so obscure the presence of a faint diastolic murmur even if it did exist. The aneurism itself was not of such extent as to produce any marked physical signs, and there were no pressure symptoms. Thus the extensive mitral lesion and dilated heart with their consequent effects on the pulse obscured the signs of the primary and more dangerous lesion which was not recognised ante-mortem.

Morbid Anatomy

Here the chief interest is directed to the condition of the heart. The dark fluid blood in the heart chambers pointed to death by asphyxia, though in all probability there was an element of syncope as well due to aortic regurgitation and consequent anemia of the brain.

Commentary on Case IV.

This is a case of heart disease running a rapid end after admission to hospital. Owing to the short stay in the ward only the more important points of the history and clinical examination have been noted. In the history there is a definite statement about previous ague and syphilis in India, patient having been a soldier in his earlier years, also a definite statement as to the excessive use of alcohol. These are the chief points. Examination showed patient to be a very well built muscular man who presented signs of failing compensation of heart. There was some cyanosis dilatation of vessels of face and some dyspnoea. The dyspnoea accompanied by a cough had been present for 3 years with frequent night attacks of Cardiac asthma. Patient was sent up from the medical waiting room to the ward, not then showing any marked or dangerous symptoms. But at half past eight on that same night he was seized with an attack of cardiac failure which proved fatal as already described.

Diagnosis

Compared with case I this was simplicity itself, yet in some points the diagnosis was missed. The aneurism of the 1st part of the aortic arch, and the aortic incompetence were not recognised clinically. Many reasons might be offered in

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extenuation of these errors, and most of them have a sound basis in fact. First there was the absence of an aortic diastolic murmur, or at least it was so faint that it was not heard by auscultation. The 2nd sound seemed accentuated in nearly all the areas, this was certainly in favour of an aneurism, but of itself was not sufficient ground on which to base a diagnosis. The character of the pulse small and irregular in time and force pointed to a mitral lesion and this fact together with the cyanosis gave sufficient evidence of an extensive mitral lesion. The nature of this was revealed by auscultation, a loud blowing mitral bruit being heard in all areas except the aortic, where the bruit accompanying the first sound was high and musical and propagated into the neck. This latter bruit indicated either some aortic stenosis or roughening of the aortic cusps. Now pure aortic stenosis is rare, so that on the grounds of probability the bruit was due to roughening from chronic endocarditis. And as this is rarely present to a marked extent without some shortening of the cusps, and consequent incompetence, such a bruit should have made one suspicious of the existence of incompetence.

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The chronic thickening of the epicardium was but a manifestation of the other chronic changes going on in the heart's structure. The dilatation of the Incuspid orifice & hypertrophy of the right ventricle were consequences of backward pressure from the mitral regurgitation. The dilatation of the mitral orifice was a consequence of the primary lesion in the aortic valves, which lesion was in its turn an effect of the chronic endocarditis apparent on both the mitral and aortic cusps. This same degenerative change was also apparent on the inner coat of the aorta and in the coronary arteries. The aortic cusps were adherent for some extent along their margins, and some shrinkage and thickening had taken place, so that a considerable space was left when the valves were in the position for competent closure. To the misshaping of these cusps was due the aortic systolic bruit heard in the aortic region and in the neck. It is worth commenting on that there was no hypertrophy of the left ventricle. Now in order to have compensated the aortic lesion present considerable hypertrophy would have been necessary. How much hypertrophy did without doubt exist previous to the onset of symptoms which commenced 3 years ago. Some evidence of this is given in the thickening of the interventricular septum close to the commencement of the aorta

showing that an unusual force had been exerted in throwing the blood into the aorta. From this cause also to some extent arose the aneurism of the first part of the arch. As time went on this compensatory hypertrophy decreased, and dilatation of the left ventricle increased causing a widening of the mitral orifice with the consequent effects of obstruction in the pulmonary circulation. Another important cause leading to decrease in the compensatory hypertrophy was the disease of the coronary arteries, by which the nutrition of the heart was adversely affected. And it is to the thrombosis of the left coronary that the final failure of the heart is attributed. The aneurism of the first part of the aortic arch was fully 1½" in diameter, and the inner coat showed numerous patches of atheroma to which were attached numerous recent thrombi. This degenerative change in the aorta was another contributory factor to the production of the aneurism. The marked congestion and oedema of the lungs and the pleural effusion probably occurred during the final attack, reacting in their own way to hasten the end. There was no evidence of marked effusion when patient entered hospital. The bronchitis present was of longer standing.

The liver was unusually large partly due to chronic venous congestion and to fatty change. There was no evidence of cirrhosis or of syphilitic cicatrices. The spleen and kidneys showed chronic venous congestion, and some fibroid change. There was nothing else of importance. Brain and cord were not examined.

Etiology

Dismissing the infectious diseases - measles and scarlet fever - of early life, we must seek in the history of patients' mature life for the etiological factors which led to the disease causing death. Patient had been in India most likely as a soldier, and there contracted ague and syphilis. He was also a heavy drinker. On returning to this country he became a cabman, and from this association with horses the natural inference is that he had been a cavalry man. Now the duties of a cavalryman involve great physical exertion, which if performed in the relaxing climate of India would certainly lead to some weakening of the constitution. Of itself this is not an important factor but if conjoined with such potent factors as syphilis and alcohol then the combination is sufficient to explain the cause of the disease of heart and aorta. Malaria or ague may have had some effect in predisposing the patient to degenerative

changes, but of itself it never leads to cardiac or arterial disease. In this case then physical exertion syphilis and alcohol may be set down as the prime etiological factors. They would all tend in the same direction to produce a chronic endocarditis and atheroma of the aorta. The aortic cusps and anterior flap of mitral valve would be first affected. Shrinkage of the aortic cusps would cause some incompetence but this would be easily compensated for by hypertrophy of the left ventricle. The increased force of the blood impinging on the diseased aorta would tend to cause the aneurism. Why syphilis and alcohol should exert their chief effects on the circulatory system in this case, and on the nervous system of case I would difficult to explain. Some predisposing factor such as physical exertion, climate or inherent weakness might be hypothecated without throwing much light on the question. At the best experience proves them to be the chief factors in both types of disease.

Course of the Disease

This has to some extent been already indicated under Morbid anatomy. The aortic lesion may have been present for a number of years, and been so fully compensated for that no symptoms appeared. Only when compensation began to fail did the recurrent attacks of cardiac

attend appear. As compensation failed and dilatation
occurred, mitral regurgitation would appear thus
causing obstruction to the pulmonary circuit, and
filling the lungs with venous blood. At such
times when the embarrassed heart should cease
of failing thus great engorgement of venous
blood would set up those attacks of air
hunger causing patient to seek for air at the
open window. Although so ill he had had
no treatment, and only when he felt the disease
mastering did he seek relief at the Infirmary.
The final attack occurred some hours after
admission as already described.

Treatment

For this condition complete rest in
bed and a light and nutritious diet would be
indicated. The effect of this would be watched
for a few days, and if no improvement took
place then cardiac tonics would be cautiously
given - preferably Liquor Strophanthus I.B.P. 1885 V m
three times a day. This would perfect the systole
and lessen the diastole, and thus indirectly
improve the nutrition of the heart itself by
improving the coronary circulation. Some say
that such cardiac tonics improve directly the
nutrition of the heart muscle, others deny this,
and say that they are harmful in aortic
incompetence by forcing the heart when it is

unable to bear increased strain. From this conflict of opinion the teaching is to employ cardiac tonics in such cases with great care and watchfulness. The fatal attack was treated with inhalations of amyl nitrite which relieved the pain. An injection of strophanthus was given with no good result. Venesection to relieve the congestion and embarrassed heart was discussed but not performed.

Case V

Ward 35

Patient's Name - Mrs Elizabeth Wilson

Disease - Retroversion of Uterus and double colpohrites

J. S. Manson

Case V

Ward 35 Bed 24.

Patient's name - Mrs Elizabeth Wilson age-41

Married 3-para

occupation - Housewife.

Residence - 19 Beaverhall Terrace Edinburgh

Recommended by - Dr Millard Leith Walk.

Date of admission - 26 Oct 1905. Date of Dismissal 13th Nov 1905

Case taken - 26 Oct. 1905.

Complaint - General weakness & pain in left side

Duration - 1 year.

History

Present attack - During October of last year patient began to feel a general weakness come over her, and between her periods she had sharp pains shooting up the back to the left shoulder blade. These pains remained for an hour or two then subsided & a dull ache which continued for one or two days. Similar attacks occurred at various intervals, often accompanied with terms of retching and giddiness in the morning, but there was no actual vomiting. Generally there were 1 or 2 attacks between her periods, but none during her periods. She had a poor appetite but her bowels were not constipated.

In July of the present year she had a violent attack of pain in the left side one morning. She sought relief by getting her bowels to act, and the result

was most painful. The doctor was called but she was somewhat better when he called. Two days later she had another attack of pain, and was examined by the doctor who said she had a displaced ovary, and something wrong with the pancreas. She remained in bed for 5 weeks feeling quite weak, and the pain in the left side was allayed by a hot bottle and by opiates. She felt a little better after the rest, but she has been compelled to bathe to her bed at various intervals - not remaining up longer than for a day or so at a time A fortnight ago after a bad night, she got up and collapsed in a faint, but did not lose consciousness The doctor was called and he prescribed. He advised her to consult Dr Barbour which advice was followed. Dr Barbour advised her to Ward 35 and she came up today and was admitted.

Previous Health. - Has had measles and whooping cough. Scarlet fever at 5, and another attack at 18 in which had scarlatenal otitis developed. Last winter she had some rheumatic pains in feet and hands. She has always been a 'weakly' woman with poor appetite but her bowels have been regular.

Heathesis - not marked.

Social conditions - Has a comfortable home, and plenty of good food.

Family Health - Satisfactory

Sexual History

Menstruation Normal. A. Commenced at 15 Type - not very regular sometimes 4, 5, or even 6 weeks and discharge lasted 3 days. Quantity - small - 4 diapers Method B. Amenorrhoea - At 21 had a period of amenorrhoea lasting 10 weeks.

Menorrhagia - none.

Dysmenorrhoea - Some pain always on the 3rd day from passing of large clots.

Intermenstrual discharge - always had a leucorrhoeal discharge, but this recently has disappeared. The quantity was small.

Pregnancies - three. First 20th Sept 1890 Last Feb 1894

Abortions - none.

Labours - first and last instrumental

Puerpena - Normal

Lactations - Has nursed all her children

Local Functional Disturbances She passes large quantities of urine after the attacks

Rectum - nothing to note.

Pelvic Nerves and Vessels - Pain in left iliac region as noted.

General Functional Disturbances

Nervous System Patient is rather nervous, has attacks of 'nervousness'.

Respiratory System - Healthy.

Circulatory System Pulse 56 per min regular. Heart sounds normal. no bruits.
Digestive System attacks of nausea as already noted
Emunctories Healthy

Physical Examination

Patient is a well developed and well nourished woman presenting no evidence of disease or pain
Mammae are pendulous, and have a fair amount of gland tissue which is firm to the touch. No secretion. Nipple prominent with pigmented areola, and Montgomery's tubercles Striae faintly marked.
Abdomen Inspection Striae marked. Linea Nigra present, umbilicus depressed. No swelling.
Palpation No tenderness, muscular wall fairly well developed. No local areas of resistance
Percussion Tympanitic throughout.
Auscultation Nothing to note.
External Pudenda - Pares.
Per Vaginam Orifice narrow admits one finger Walls moist and rugose Anterior fornix empty. In posterior fornix is felt a large firm rounded body - the body of the uterus. The left lateral fornix is slightly fuller than the right, in which is felt a small body lying far back. The os uteri is pores, and feels larger than normal. It looks downwards and slightly forwards.

Bi-Manual Examination. The uterus is found to be retroflexed, owing to the rigidity of the abdominal walls the other organs could not be felt.
Rectal Examination. The body of the uterus was felt to be lying hard against the rectum in the pouch of Douglas. To the right of this, a small firm body was felt which is likely to be the right ovary prolapsed. The uterus was not very movable and could not be replaced.
Physical changes in:-
Nervous System - Nothing to note.
Respiratory System - No cough breath sounds normal
Circulatory " - Heart sounds clear in all areas
Digestive " - Nothing to note
Emunctories. - Nothing to note.
Diagnosis - Retroversion Double salpingitis with prolapse of Right Ovary.
Course and Treatment.
Oct 28th Douching and plugging started.
Oct 31st Patient complains of nausea but has had no vomiting
Nov 1st Given rhubarb, bismuth, & soda powders three times a day before meals.
Nov 11th Patient feels much the better of the treatment received. She looks brighter and has more colour. The pain is less frequent and slighter
Nov 13th Patient went home to day. She was

given a prescription for the rhubarb bismuth and soda powders and for a corrosive douche.

Commentary on Case V

This is the case of a middle aged woman sent into the gynaecological ward for treatment. The case did not present any striking features, and after 18 days' treatment went home much improved.

The history of her illness is in general terms that of general weakness with intermittent attacks of pain on left side shooting up to left shoulder blade. These attacks were relieved by rest, by hot applications and opiates.

Altogether these conditions had lasted for one year with no evident improvement. A fortnight before admission she had collapsed in a fainting fit. This alarmed her and she sought for further treatment from the gynaecologist.

In the history of her previous illnesses she relates of two attacks of scarlet fever, one when 5 years old and another when 18. This is rather unusual, but she was very positive on the point so it must be accepted. She had also attacks of 'nervousness' from time to time followed by passage of large quantities of urine.

In the history of her sexual functions she tells of delayed and irregular menstruation, with some dysmenorrhoea on the 3rd day. There was intermittent pain in the left iliac region.

Pregnancies numbered three; first and last instrumental. No abortions, and the puerperia were all normal.

Examination showed patient to be a fairly well nourished woman with breasts and abdomen of a parus woman. The vagina was unusually small only admitting one finger. The uterus was found to be fixed in the retroverted position and the right ovary prolapsed.

Deagnosis

Based on the examination this was Retroversion of uterus Double oophoritis and prolapse of right ovary. From the history of shooting pains to left shoulder blade, and attacks of retching and giddiness, there must have been a considerable amount of gastric disturbance as well. How much of these symptoms could be attributed to the displaced uterus and to the inflamed ovaries would be hard to say. More likely the true cause was neurotic irritability, and probably the whole of her symptoms were due to this cause, rather than to the condition of the uterus and ovaries although these may have to some extent been contributory. The neurotic element in the attacks is shown by the large flow of urine after the attacks had passed off.

Etiology

As to this, little of a definite character can be gathered from the history or from examination. From the immobility and the retroversion of the uterus chronic pelvic peritonitis had been present for some time, and had spread to the ovaries. How it arose there is nothing in the history to indicate. There is no history of abortion or of passage of instruments, and as the last pregnancy occurred eleven years previously this also may be put out of account. Organismal infection is a possibility but rather a remote one owing to the chronicity of the trouble. A chill during menstruation may have set up some pelvic congestion, and thus acting reflexly may have disturbed the balance of the nervous system causing a condition of irritability and weakness. The irritability was displayed chiefly in the gastric symptoms of nausea vomiting and loss of appetite. In this way the nutrition of the body was adversely affected making it still more prone to irritable weakness. A vicious circle would be thus set up - the pain and discomfort of the local pelvic condition setting up an irritable condition of the nervous system, the latter acting adversely on the nutritive functions of the

alimentary canal, and thus again reacting mischievously on the nervous system. It can thus been seen how the main condition may be that of neurotic irritability while the exciting cause may have considerably subsided. In this case the chronic primary pelvic condition probably upset a non too stable nervous system, and this instability remained as a sequelae after the primary cause had considerably disappeared.

Treatment and Progress

To soothe and allay any remaining pelvic inflammation douching and plugging the vagina was commenced on Oct 28th and this was kept up until patient left hospital on Nov 13th. Glycerine and ichthyol plugs were used.

To relieve the gastric symptoms rhubarb bismuth, and soda powders were given three times a day before meals. By this means it was hoped to stimulate the appetite. The result of this active treatment was very gratifying as patient rapidly improved and the pains became less frequent and the nausea disappeared. While the active part of the treatment deserves its full share of credit, the passive part must not be forgotten. Perhaps the latter was the more important in this case. The complete rest in bed,

freedom from physical exertion, and mental worry, the discipline and routine of the hospital ward and the consciousness of being treated and looked after on every hand, were passive and psychical factors in allaying the neurotic irritability which are not to be neglected. In fact, rest and rest alone might have been sufficient to allay the irritability and so allow the alimentary system to improve its nutritive functions. Active treatment would hasten the favourable course by acting psychically as well as locally. After 18 days in hospital patient went home much improved but was advised to continue the douching, and the powders.

Case VI

Ward 35

Patient's Name — Mrs Isabella McGowan

Disease — Chronic Endometritis

J. S. Manson

Case VI

Ward 35 Bed 15.

Patients' name - Mrs Isabella McGowan. age 47
occupation - Housewife
Residence - Bridgend House Lasswade
Married - Date of admission - Jan 19th 1906
Date of Dismissal
Case Taken - Jan 19th 1906.
Complaint - Excessive and prolonged menstrual discharge
Duration - 12 months.
History. Present attack -

One year ago, the menstrual flow lasted for 3 weeks. Then at the beginning of March 1905 she had a normal period. Ten days later, she had a flooding which lasted for two days, and compelled her to take to bed. From that time on the menstrual flow has been irregular, and has lasted for varying periods from 2 up to 5 weeks. The discharge is white and watery for a week, then red for a week, and then watery again. In September the doctor was called in, and he treated her with glycerine and carbolic plugs, which gave some relief from the dull pain she had at the back. During November she had an interval of 3 weeks free from discharge. At the beginning of December, the discharge commenced

again and lasted for 5 weeks, stopping on January 9th. She was advised to go to the Infirmary for treatment which advice was taken and she was admitted on Friday January 19th.

Previous Health. - Measles, whooping cough, and scarlet fever in early life. 4 years ago she had had numerous floodings which came on at irregular intervals. She lost a lot of blood during these attacks, and on one occasion had to send for the doctor who gave her morphia. These attacks lasted for 4 months, and she became regular for a time. Following this she had numerous floodings which came on at intervals during the spring months. Then for a time she would be well again. and this continued until her present illness commenced last January.

Diathesis - not marked.

Social Conditions and Habits - keeps her home and the reading rooms at Lasswade. Her husband has been away from her for several months. She is temperate though not a teetotaler.

Family Health - Father died of old age mother alive & well. - 5 sisters and 1 brother alive and well - none dead.

Sexual History

Menstruation A normal Commenced at 15.
Type 21 days Duration 3-4 days
Quantity - moderate.

Morbid B. Amenorrhoea – none

Menorrhagea – as described

Dysmenorrhoea – Has some slight pain lasting a day or two at commencement of the flow.

Pregnancies – 14 First – May 1883

Last – April 1900

Abortions – 4 occurring between first and second labours. Labours easy except^y to when chloroform and instruments were used, because the pains left her.

Puerperia – all normal except one when she had white swelling of right leg.

Lactations She nursed the first four children but as her periods continued during lactation she was advised not to nurse the others.

Local functional Disturbances

Bladder – No pain or undue frequency.

Rectum – Bowels regular.

Pelvic nerves and muscles – No pain.

General functional Disturbances

Nervous System Healthy.

Respiratory " Short irritating cough. Breath Sounds normal.

Circulatory System Pulse 65 per min good force

Heart sounds normal.

Digestive System appetite good bowels regular

Excretories – Healthy.

On one occasion she had excessive bleeding from having a tooth drawn, on this account the doctor would not pull a second tooth

Physical Examination

Patient is a well developed well nourished woman

Mammae are of moderate size and contain a medium amount of gland tissue. There is a fair amount of fibrous tissue. The areola is slightly pigmented, is small, and Montgomery's tubercles are present. Striae are faintly marked.

Abdomen Inspection — Striae gravidarum ~~faintly~~ well marked, linea nigra faintly marked. A small capilliary vessel is present to right of umbilicus. There is no swelling.

Palpation. abdominal walls lax. separation of recti easily made out There is a small area of tenderness just above symphysis pubis.

No tumors to be felt.

Percussion - Tympanitic throughout.

External Pudenda - Normal

Per Vaginam orifice admits 2 fingers. walls soft moist and smooth. In anterior fornix is felt the body of the uterus, mobile and moving with the cervix which is high up. The posterior fornix is high up & difficult to reach, in it is found the os uteri looking directly backwards, and a little upwards. The os is lacerated but not beyond normal It is not thickened.

Bimanual Examination The body of uterus is found lying anteverted behind the

symphysis pubis. It is somewhat enlarged and is mobile. In the right lateral fornix a small body is found which slips easily from the fingers. This is likely the right ovary. The left lateral fornix is empty.

Abdominio Recto-Vaginal. From the rectum firm bands are felt passing backwards to the sacrum, these are probably the utero-sacral ligaments.

Circulatory System – Heart sounds normal

Respiratory " – Healthy

Urinary " – Urine contains no albumin.

Diagnosis Chronic Endometritis

Course and Treatment.

Jan 26th Douching vagina commenced.

Jan 29th Patient put under chloroform and placed in lithotomy position. Cervix drawn down and dilated. Uterus curetted swabbed with phenol and packed with Iodoform gauze. There was a catarrhal patch round os. The cervix was rather patulous needing little dilatation. The cavity of the uterus measured with the sound 3½" long.

Jan 30th Patient complains of pain in back and sides

Jan 31st Pain considerably lessened. Given mixture containing Liquor Ferri Perchloridi and Liq Extract of Ergot.

Feb 9th Patient has had an uneventful recovery

and went out today quite well.

Pathologists' Report on Uterine Scrapings

Jan 31 - 1 - 06

No indication of a malignant nature
The glands are a little dilated and the epithelium forms hypertrophied projections round their lumens. The inter-glandular tissue is cellular oedematous and shows young blood vessels. There is also haemorrhage into interstitial tissue.

Commentary on Case VI

This is the case of a woman who was admitted to the Infirmary complaining of excessive menstrual discharge. This had been going on at varied intervals during the past four years. During the last year the condition has become worse, making her unfit for her daily duties. The discharge lasted for periods from 3 to 5 weeks. Her previous health had been good up to 4 years ago. In childhood she had measles whooping cough and scarlet fever. There is nothing of note in her family history. In her sexual history, she shows a healthy prolific tendency being no less than 14 times pregnant in 14 years. Four of these were abortions occurring between first and second pregnancies. All the others were full time. The last pregnancy occurred 5½ years ago

Normal menstruation was of 28 day type and commenced at 15. She resumed menstruation during lactation, and in consequence had to stop nursing her children. All her puerperia were normal except one when phlegmasia alba dolens occurred. In her 4th labour she had forceps applied, because of uterine inertia. She seemed to have a haemorrhagic tendency as on one occasion excessive haemorrhage followed extraction of a tooth, so that the doctor would not draw another though this had previously been decided on.

Examination showed patient to be a well nourished women with pasty abdomen and mammae. Vaginal and bimanual examination showed uterus to be enlarged, anteverted, and somewhat tender. The right ovary was palpable. When under chloroform for curetting a catarrhal patch was seen round the os externum, and the uterus was found to be 3½" long by the sound.

Diagnosis.

From the history and age of patient one naturally first thinks of the menopause, of which haemorrhage is so characteristic a symptom. But in this case the haemorrhages had been too frequent and too long continued to be due to an uncomplicated

menopause. What was the likely complication? An uterine fibroid tumour, a mucous polypus, the haemorrhagic deathesis, or endometritis, or possibly backward congestion from some hepatic or cardiac lesion. Physical examination soon excluded most of these possibilities. Cardiac and hepatic disease was excluded, so fibroid tumours and mucous polypus. The history hardly warranted a diagnosis of haemophilia - a disease extremely rare in the female at any time. Thus there remains only endometritis associated with anteversion of the uterus, and from the length of time during which symptoms had appeared this endometritis must have been of a chronic nature.

The report of the pathologist on the histology of the uterine scrapings confirmed this diagnosis. The dilated glands with their hypertrophied epithelium, the cellular infiltration of the interglandular tissue, and the number of young blood vessels show the condition to be that of Endometritis Fungosa - a chronic form of endometritis not uncommon at the menopause after an active reproductive life. The report also excluded sarcoma uteri - a possibility to be thought of in association with the symptoms.

Etiology.

From the history of the patient there is no evidence of an acute endometritis which might have given rise to the condition found on admission. The abortions which occurred are too distant to have any relation to the disease, so that it, in all probability arose independently of any active exciting cause. If the anteversion had existed for any length of time, then by obstructing the menstrual flow this malposition might have set up a chronic irritation within the uterus. But the uterus was too mobile for anteversion to have been long present, so that some other circumstance or set of circumstances must be sought for as causal to the condition. Probably the very active reproductive life had much to do with it, though exactly how this acted would be hard to say. The approach of the menopause after fourteen pregnancies would no doubt be heralded by some change in the reproductive organs before they underwent the atrophic changes which follows the menopause. And it is reasonable to suppose that this change might be of the nature of a congestion, and a consequent hyperplasia

of the uterine mucous membrane thus causing a chronic endometritis. There is nothing in the history to make one suspect a local irritant either of an organismal or unorganismal nature, nor did the physical examination warrant any such assumption.

Course and Treatment.

Beyond the haemorrhages there was no other discomfort and the patients general health was but little affected. The haemorrhages made patient keep to her bed while they lasted, but in the intervals she was able to continue with her daily work. In hospital she was douched and curetted and the raw surface of the uterine cavity swabbed with iodised phenol. Ergot was given to cause uterine contraction and iron to correct any anaemia resulting from haemorrhage. Patient went out quite well after 21 days residence in hospital.

Case VII
Ward 35.
Name of Patient – Isabella Hutchison
Disease – Movable kidney & Endometritis

J. S. Manson

Case VII Ward 35.

Mrs Isabella Hutchison Age 31 years. Married

occupation - Housewife

address - Duke Street Roswell Midlothian

Admitted - Feb 16th 1906

Recommended by Dr Ayton Bonnyrig

Complaint. Pain in back and in right lumbar and iliac regions

Duration. Pain in back 4 years Pain in front 5 months.

History

Present attack

In February last year patient had a miscarriage, and lost a lot of blood. The ovum was of 4 months' development. She was attended by her doctor who douched her, and put a support into the vagina. She was a month in bed at this time. Since then she has been greatly troubled with pains in the back, and in october last she had to take to bed. At this time she developed a pain in the right lumbar region, which shot through to the back, and down into the right iliac region. This pain was most severe when she stood up or moved about, and was also worse at her periods. The pain in the back was of a dragging character, while the pain in front was more of a

shooting type. Since October she has been almost constantly confined to bed, and for the last month has never been out of bed. She was advised to go to the Infirmary for treatment and was admitted to Ward 35 on Feb 16th.

Previous Health.

Had scarlet fever and measles, when a child. No rheumatic fever. While carrying her last baby, a small tumour about size of an egg appeared in the right inguinal region. This has since disappeared. No other illnesses and no accidents.

Diathesis - Not marked

Social Conditions - Comfortable home and good food.

Family Health. - Father and mother alive and well. 3 brothers and 2 sisters alive well. 5 brothers & sisters died in infancy. Of her own children 5 are alive & well.

Sexual History

Normal Menstruation. Commenced at 14

Type - 21 days Duration - a week.

Quantity - 6 diapers.

Married. Amenorrhoea - none

Menorrhagia - since the abortion her periods come on every 2 weeks

Dysmenorrhoea - Has pain a day or two previous to the flow which ceases when

the flow commences.

Intermenstrual Discharge. She has a white discharge between periods, but this has lessened since douching was commenced.

Pregnancies — 10

First an abortion 13 years ago.
2nd a full time boy 1 year later
3rd " " " " 15 months "
4th " " " girl 15 months "
5th " " " " 13 months "
6th " " " girl
7th an abortion 3 months development
8th a full time boy
9th " April 1904 girl 7 months
10th abortion Feb 1905.

Labours. The first Labours were easy last 3 instruments and chloroform were used.

Puerperia. all normal except one after the Labour of April 1904 when she developed 'white' leg in both legs. She was two months in bed at this time

Lactations. Nursed first 4 children, but not last three because she was not strong enough.

Local Functional Disturbances

Bladder - Has difficulty and pain in passing water at times

Rectum - No pain or discomfort

Pelvic Nerves and vessels - Pain as described in history

General Functional Disturbances

Nervous System - Nothing to note.

Respiratory " - No cough

Circulatory " - No pain or palpitation

Digestive " - appetite has fallen off lately, often constipated.

Emunctories - Skin soft moist.

Physical Examination

Patient is a healthy looking well nourished woman. Cheeks are slightly flushed, and other parts are slightly pallid.

Mammae - Gland tissue small in amount and rather fibrous, areola pigmented and Montgomery's tubercles are present.

Abdomen Inspection. Striae marked; linea nigra faint, umbilicus slightly depressed. No evidence of tumidity

Palpation. Abdominal walls lax. In right lumbar region the right kidney can be felt, it slips up under the hand for 2 or 3 inches on patient expiring after a deep inspiration. The left kidney is not palpable. There

is an area of tenderness in the left iliac region. No other tumour or abnormality can be made out.

Percussion. – The note is tympanitic throughout.

Pudenda relaxed.

Per Vaginam orifice admits 2 fingers, walls smooth and moist. Cervix is directed downwards and backwards, Lips thickened and lacerated Round body in anterior fornix.

Bimanually uterus is to front and is slightly enlarged. Appendages not palpable.

Heart. Sounds normal

Lungs Healthy

Urine No albumin.

Diagnosis Movable right kidney, and endometritis

Course and Treatment.

Feb 16th. Rest in bed.

Feb 26th Patient is having many haemorrhages with intervals of a day or two

March 1st Patient anaesthetised with chloroform cervical canal dilated and uterine cavity curetted. Only a small quantity of tissue came away as the result of the curettage. The uterine cavity was packed with iodoform gauze after washing with iodised phenol.

Some sickness after the operation

March 5th Still feeling the pain

" 7th Sent to Ward 14 Prof. Chiene to have kidney

dealt with.
March 13th Patient operated on.
March 22nd Patient doing well.

Commentary.

This is the case of a woman aged 31 who was admitted complaining of severe pain in the back, and in the right lumbar and iliac regions. The pain in the back had been present for upwards of 4 years, but the pain in front had only developed within the last 5 months, and within the last month had completely incapacitated her for work. There is a history of abortion 12 months ago. Her previous health had been good and she had had no accidents.
The family history is a good one. Other symptoms were menorrhagia and some dysmenorrhoea previous to the onset of menstruation. There was also some leucorrhoeal discharge between periods.
She had been the subject of 10 pregnancies In the last three only were instruments and chloroform used. After a labour 2 years ago she developed 'white leg'
She nursed the first 4 children but not the last three.
Examination of the patient proved her to be a fairly well nourished woman with a pasmes

abdomen and mammal. In palpating the right lumbar region the right kidney could be easily felt & slip up under the hand for 2 or 3 inches on deep expiration. There was some tenderness in the left iliac region. Bimanually the uterus was felt to be anteverted and enlarged.

Diagnosis. There was no difficulty about this; the movable kidney was apparent enough. There was in addition some anteversion of the uterus and some chronic endometritis, as evidenced by the menorrhagia and the leucorrhoeal discharge and the physical examination of the uterus. The question then came to be how much of the symptoms were due to the uterine condition and how much to the kidney condition. This could only be settled by treating one of the conditions and seeing what relief was gained thereby.

Etiology. In this case the prime factor in both conditions seemed to be that of repeated pregnancy. She had been pregnant 10 times in 13 years, and of these three were abortions. This almost incessant activity of the reproductive system though by no means abnormal reacted adversely on the general nutrition. She was compelled

to give up nursing her last 3 children.
The muscles of the abdominal walls became
lax and lost their tone, thus lessening
to a great extent the support which these
give to the intra abdominal viscera. In
this case as in the majority of such cases
the right kidney became loosed from its
moorings. This is probably due to the greater
weight of the liver pressing downwards
on the right kidney by the movements of the
diaphragm and by the erect posture, while
the left kidney has the stomach intervening
between it and the liver; the stomach
thus acting as an elastic air cushion and
so preventing the full force of the contracting
diaphragm from falling on the left kidney.
There is likely to be also some absorption
of the peri-renal fat, but this is likely
to be equal on both sides, and although
it may be a factor in producing movable
kidney, yet it does not explain why the
right kidney is so often affected and
the left kidney remain unaffected.
The anteversion of the uterus may also
be explained by the laxity of the
supporting structures in the pelvis, and
in itself be a factor in the causation
of the endometritis which existed. The

endometritis may have arisen from other causes which are mentioned in the history. Thus the septic element associated with 'white leg' may have been a contributory cause, so also the abortion which may or may not have been complete.

Course of the Illness.

From the duration of the pains in back probably both conditions had been present for a number of years. Lately however the presence of the characteristic shooting pains in the right lumbar and iliac regions showed that the kidney condition was becoming worse, and patient was compelled to take to her bed for the last month. There is no history of acute attacks of great pain and vomiting such as is sometimes given in such cases of movable kidney. Outside hospital no attempt was made to palliate the kidney condition by a suitable belt or other support, all attention was paid to the uterine condition by douching and plugging. When patient came to hospital it was difficult to know how much of the symptoms were due to the uterine condition and how much to the renal condition.

The treatment indicated in both was surgical and with the view of solving the

question and relieving the uterine condition patient was curetted on March 1st.
Six days later the pain still continued and she was sent to Professor Chiene's Ward to have the kidney dealt with. On March 13th the operation of nephrorrhaphy was performed, and on March 22nd when last seen patient was making a good recovery.

Prognosis. This is good. In such cases where the movable kidney is the only movable viscus, then the operation of nephrorrhaphy in good hands (as in this case) cures the condition. When however it is but a single feature in a general enteroptosis or visceroptosis then the prognosis is not so favourable. In this case however there was no evidence of this more serious condition, and patient having passed through the hands of the gynaecologist and surgeon may hope with careful attention to her general health to enjoy again freedom from similar pain and discomfort to that which she has experienced during the past year.

Case VIII

Ward 26

Name of Patient – Alexander Deck

Disease – Improedema.

J. S. Manson

Case VIII Ward 26.

Patients Name - Alexander Dick Age - 42 years
Birthplace - Leith. Address - 16 Broad Wynd Pier Leith.
occupation - Dock Labourer. Married.
Admitted Jan 12th 1906 Died Feb 19th 1906.
Complaint - Swelling of hands & cramp like pains in legs.
Duration - 2 months.
History.

Present illness.

Patient suffered from myxoedema and was therefore obliged to take a daily dose of thyroid extract. This drug he usually obtained free at one of the public dispensaries, but 3 months ago ie. last October, the dispenser refused to supply him with the drug. A fortnight later he began to notice that his hands were getting larger, and he had cramp like pains in his legs when he moved them from a position in which they had been for some time. Gradually other symptoms supervened the meaning of which he knew too well. He became lethargic, drowsy, thinking and speaking slowly, so that his wife commented on his mental condition. His hands became more bulky, and his face became full broad and heavy. He noticed that the skin became harsh and dry especially over the forearms. His hair also

became coarser but did not fall out as it did on a former occasion. All these symptoms increasing in severity incapacitated him for work, and so he sought relief at the Infirmary, and was admitted to Ward 26 on Jan 12th.

Previous Illnesses.

He had a fractured leg some years ago, but had no marked illness until 5 years ago when he noticed his hands becoming larger, and the skin on his forearms becoming harsh and dry. His features became heavy bulky and broad. and his hair became coarse and began to fall out. His whole body increased in bulk, and he became lethargic and stupid in mind. His whole aspect had changed, and he presented a great contrast to his former self. He was admitted to the Infirmary on Feb 4th 1901, and was under the care of Sir Thomas Fraser. After a course of thyroid treatment he was sent out on July 6th a completely changed man. Photographs taken before and after treatment show the change from a dull heavy listless person to a man bright active and able like. It would seem as if he had gotten a new soul. He was directed to continue with a daily dose of thyroid extract,

, and thus he did until the dispensary people refused to supply him with the tabloids of thyroid extract as already stated. While taking the tabloids he kept well and was able to continue with his work.

Social Conditions and Surroundings.

Patient is a dock labourer and the work is hard often 12 to 13 hours a day.

He lives with his wife and family in a two-roomed house. He has good food, and although not a teetotaler he drinks very moderately.

Family Health. Father died from effects of an accident, and his mother died from 'rheumatics'.

State on Admission

Height 5'. 6" Weight 12st 11¾ lbs.

Patient is a stout well built man with good muscularity. There is a slight malar flush on both sides. He has heavy drowsy appearance, speaks slowly and takes some time to answer any simple question put to him. The hair is coarse but not thin. There are well marked supra clavicular pads on both sides. The hands are broad bulky and spade like, and skin of fore arm is harsh and dry. The abdomen and lower limbs show the same bulky tumid

appearance but there is no oedema, and no jaundice or cyanosis. Patient complains that he feels the cold easily, and as soon as left alone he turns round and falls asleep. He answers all questions rationally enough although the response is very slow and deliberate. He has no delusions or hallucinations. The lethargy and torpidity are very marked.

Pulse 64 Temperature 97°.

Circulatory System. Pulse 64 per min. regular slow upstroke apex slightly sustained more rapid fall. The volume is small and easily compressible. Arteries not thickened.

Heart does not seem enlarged, and the heart sounds are healthy.

Respiratory System Respirations 16 per min regular abdomino-thoracic.

Breath sounds vesicular in type a few crepitations at right base.

Percussion - Healthy resonance throughout.

Alimentary System - Appetite fair no pain or discomfort after food. Is constipated at times

Nervous System

Sensory Subjective has cramp like pains in limbs after these have been in one position for some time.

Motor. Organic reflexes - healthy.

Superficial reflexes - absent. Knee jerks brisk

no knee or ankle clonus.

Cerebral and Mental functions - Thinks and speaks slowly. memory poor. Sleeps well and is always in a more or less torpid condition.

Integumentary System. - Skin harsh dry and thick. Subcutaneous tissue much increased all over body. Hair coarse and dry.

Urinary System. No pain or undue frequency Urine Light straw colour S.G 1015 No albumen sugar bile or blood. Urea 5.4 grs per ℥

Quantity ½ ℥ per diem.

Haemopoietic System.

Blood. Hb 102%. Reds 5.250.000.

S.G. 1062 Whites 10.200.

Diagnosis - Myxoedema.

Course and Treatment.

Jan 12th 1906 admitted. Rest in bed. No medicinal treatment commenced except to keep bowels active.

Jan 18th. Weight 12 stones 11 3/4 lbs.

Feb 8th " 13 " 2 3/4 lbs.

During this period the temperature ranged between 96° and 98° F. usually averaging about 97°.

Feb 10th XX grs raw thyroid gland was given once a day.

Feb 19th Patient was cheerful and more lively and he felt better. The average temperature

is now 1° degree higher than before the administration of the drug, and the pulse is 10 beats faster.

Feb 20th at 2.40 am. Breathing became laboured, & with twitching of right side of mouth and clonic spasms of both arms death occurred suddenly at 2.45 am.

Post Mortem Report.

On Feb 21st a post mortem examination was held. The body was that of a short stout man of middle age, and showed marked post mortem lividity over whole of back and the dependent parts of face.

Rigor mortis was present.

On opening the abdomen first was noted the marked increase of subcutaneous fat which had a more glistening appearance, and was firmer to the touch than ordinary fat.

Heart. The valves were competent. There was endo or pericarditis. The muscle was rather pale and was firmer to the touch than normal.

Thymus gland was found present as a layer of gland tissue embedded in fat in front of the trachea.

Thyroid was present but atrophied.

Lungs showed acute congestion. No tubercles present or consolidation

Liver and Spleen were normal in size and showed evidence of some chronic venous congestion

Kidneys showed some chronic venous congestion with some swelling of the tubules.

Brain and Cord showed nothing abnormal

The naked eye examination showed nothing indicating the cause of death.

Microscopic Examination

all the organs were hardened in corrosive sublimate, then taken through spirit chloroform and paraffin, then blocked in paraffin and cut. They were stained with haematoxylin and eosin and haematein & picro-fuchsin.

Sections were made of both lobes of the thyroid and of the isthmus. All the sections of these parts showed great excess of fibrous tissue with hardly any gland structure remaining. In some fields no trace of thyroid structure could be seen at all, in others one or two vesicles might be seen. Relatively to other parts, the thyroid vesicles were most abundant in the posterior part of the right lobe and in the isthmus. In very few of the vesicles was colloid substance present. Around many of the vessels and degenerating vesicles were masses of small lymphocytes with darkly staining nuclei.

These crowded clumps of small cells were so marked as to show on the surface of the cut section little white nodules visible to the naked eye. This appearance was best marked in the right lobe, and to lesser extent in the left lobe and isthmus. Here and there in the sections might be seen some gland acini whose epithelium had become columnar and desquamated, giving an appearance not unlike that found in exophthalmic goitre These appearances however were comparatively few, and the chief and most striking phenomena were the almost complete sclerosis of the gland, with the aggregated masses of small lymphocytes.

The <u>suprarenals</u> were next in order of marked change. The cells of the cortical columns were almost devoid of normal cytoplasm. In the section the outlines of these cells could be made out, and their nuclei persisted, but instead of normal eosin stained cytoplasm there were great vacuoles showing that fat or something of a fatty nature had been dissolved in the process of preparation. Here and there beneath the capsule were seen similar clumps of small lymphocytes to that seen in the thyroid. In the medulla there

was very marked congestion, and the reticular arrangement of the cells there was very much broken up and most of the cells necrotic.

The pancreas also showed numerous small clumps of lymphocytes around many of the blood vessels. The gland tissue itself showed nothing abnormal.

The pituitary body showed nothing abnormal.

The Heart The muscle fibres seemed healthy enough, but around the nuclei of most of the fibres were seen little masses of golden brown pigment. Between the fibres there was evidence of increase of a myxomatous condition in the radiating fibrils and spaces between them.

The liver showed chronic venous congestion with some pigment granules in the central cells near the central vein.

The spleen showed chronic venous congestion

The lungs showed acute venous congestion.

A bronchial gland was examined without finding any evidence of tubercle

The kidneys showed chronic venous congestion and some cloudy swelling of the tubular epithelium

The testicles seemed healthy

The thymus showed the characteristic

lymphoid structure of that organ, but in a more attenuated form than in the young. The cells were sparsely distributed over a large area giving a rather scraggy appearance to the section.
The right sciatic nerve, the sphincter tarsus muscle, and the tendo Achilles were examined and nothing abnormal was made out. The supra clavicular pads were also examined. The section showed a fine reticulum of fibrous tissue with numerous fat vacuoles, well formed blood vessels and one or two nerves.
A piece of skin from the abdominal wall was examined. This showed a rather striking change from the normal. The true skin showed a very marked increase of fibrous tissue, and diminution of vessels, while the Malpighian layer of the epidermis was atrophied to less than half the size of normal. This atrophied epidermal layer was stretched across the bulky dermis like a curtain; all the papillae having almost disappeared and only one sweat gland could be seen in the whole section. The horny layer seemed slightly thinner than normal, though not diminished to the same

extent as the Malpighian layer.

Five small reddish glands were dissected out from the region in close proximity to the thyroid, on microscopic examination they turned out to be small lymph glands and not para thyroids as was hoped.

Commentary.

This is a case of very great interest, and reference to the case has already been made in the history of Case III. About the diagnosis there could be no manner of doubt. The history, the appearance of the patient, and the effects of treatment together give such an intellectual satisfaction of safety which is afforded by but few other diseases. The history of the former illness and permanent cure, the complete relapse when the specific remedy failed; the condition of the patient on admission and the sudden termination are facts sufficiently striking to be worthy of repetition. Nor were the post mortem appearances both macroscopic and microscopic less emphatic - the complete atrophy of the thyroid gland, the atrophy of the epidermal structures, the great increase of mucoid tissue and the persistence of the thymus were a presentation of phenomena not only giving the pathology of myxoedema, but presenting a problem which if solved correctly would go far to

establishing the normal function of the thyroid gland in particular, and in throwing light on the functions of the other glands in general. It is the simplicity of the lesion in myxoedema which gives it the interest of a vivisection experiment, — and no case could have shown this better than the one now under review.

During life all the typical symptoms of myxoedema were present — the great increase of subcutaneous tissue, the dryness of the skin and the falling out of the hair, the sensitiveness to cold and the lethargy of mind, and all these disappeared when thyroid gland or its extract was administered to the patient. After death the thyroid gland was found completely atrophied, so that both from the positive and negative aspects the relation of the thyroid gland to the disease seems to be fully established in this case, and in specific terms that relation is the defect or absence of thyroid secretion.

It seems that when from any cause the thyroid secretion is absent or defective, that there is a great accumulation of mucin or mucoid tissue in the body, and probably all the other phenomena of the disease are secondary to this prime effect. But in this connection it

inappropriate to refer to the contrasting disease – exophthalmic goitre – which is due to the abnormal activity of the thyroid gland, and whose symptoms are in direct contrast to those of myxoedema. In this disease, the absent nervousness, the moist fine skin, the rapid heart are in direct contrast to the lethargy, coarse dry skin, and slow heart of myxoedema. In the one the lamp of life burns with undue brilliance, in the other it often sinks to be but a feeble rushlight. As illustrative of the essential nature of disease no better examples than these two diseases could be culled from the whole range of medicine. It seems that the thyroid secretion has a function in regulating and controlling proteid metabolism. When defective or absent then normal metabolism is correspondingly affected. The nitrogen output is diminished and fat and carbohydrate metabolism indirectly affected. The excess of mucin in the tissues is probably only an accumulation of the by-products of proteid metabolism. The exact relation of the active principle of thyroid secretion – iodothyrin – to normal metabolism has not yet been fully determined, nor has there much light thrown on the correlated working

of the ductless glands in the animal economy. Some reference will be made to these points in commenting on the pathology and course of the disease in this patient.

Etiology. As far as the history of this patient goes, it fails to throw any light on the causation of the disease. Heredity is said to be an important factor in the etiology, but this case does not bear this statement out. Females are seven times more prone to the disease than males, so that by a careful comparison of average female environment with average male environment, it might be expected that some grouping of antecedent circumstances in the one seven times more frequent than in the other would bear some relationship to the disease. No such grouping has yet been determined, and all variety of conditions have been set down from heredity to a sudden shock or fright as having a causal connection. In this patient a dock laborer and pronouncedly masculine in type, it would be difficult to establish much similarity between his environment and that of the average female. As to the relationship with the neuropathic diathesis there is some evidence in case III where the patient's son

is shown to be suffering from chorea. There are no special features in patient's past life which can be called in to explain the condition. For a patient of his class he seems to have led a fairly well regulated life - there is no history of syphilis or of abuse of alcohol. Explanation failing along those lines, what of an organismal hypothesis? Has the thyroid gland been subject to an organismal attack of a chronic nature? There is no reason why the thyroid gland should be exempt from such attacks any more than other parts of the body. The nature of the organism is another question and it may possibly be the tubercle bacillus. The organismal hypothesis seems the more acceptable, for failing it we are driven for explanation to the unknown factors of heredity, nervous influences, and the like.

Morbid Anatomy - This has already been to some extent detailed. The increased subcutaneous tissue, atrophied thyroid gland, & presence of the thymus gland were the chief naked eye appearances. There was nothing in the other organs to indicate a cause of death other than sudden heart failure which was evident from the congestion of the lungs. The chief interest lies in the

microscopical appearances especially of the thyroid gland, the suprarenals and the pancreas, and also of the skin. In the thyroid, what is the meaning of the marked groups of small deeply stained round cells? This is evidently a reaction to some irritant the nature of which is at the best but hypothetical. Their presence is evidence of a chronic inflammation. Is it then possible that this inflammatory process has been in progress for over 5 years, or does this round celled infiltration point to an acute exacerbation which has come on recently? As far as the history goes it seems that the thyroid was thrown out of function 5 years ago, and the marked sclerosis of the gland is certainly of no recent date. It seems therefore probable that these cell masses represent a reaction to some recent irritant rather of a chemical than an organised nature. If the irritant had been of an organised nature then the infiltrating cells would have had more cytoplasm so as to enable them to exercise their phagocytic functions. It is possible that they are in some way related to the ingestion of the thyroid gland given 10 days before death.

The changes in the suprarenals have already

been described. There was small celled infiltration under the capsule, great vacuolation of the cortical columns, necrosis of the medullary cells and great congestion of the medulla, certainly pathologic change was present after making all due allowance for post mortem changes.
Again in the pancreas, there was some small celled infiltration here and there, and as far as the specimen examined showed, there was increase in the size and number of the islets of Langerhans.
A section of the thymus showed normal appearance of that gland but somewhat attenuated and scraggy.
As far as these observations go they certainly point to some correlation between these glands, else why these changes when other organs such as kidney, spleen, liver and testes showed nothing very striking.
The tubules of the kidney showed some cloudy swelling pointing to the excretion of some toxic product.
In the lymphatic glands adjacent to the thyroid and in one of the bronchial glands at the root of the lung search was made for some tubercular process which may possibly have been the starting point of the disease, but none was found.

The changes in the skin have already been described and will be referred to in explanation of some of the symptoms of the disease.

All the changes in the organs of this case have a special value from the fact of the case being a pure case of myxoedema, so that none of the changes are masked by those of some intercurrent malady such as phthisis pneumonia etc.

Course and Symptoms — The ancient anatomist located the soul in the pineal gland; the modern clinician and physiologist might justifiably give it an habitation in the thyroid body. Disease of no other single organ so uniformly depresses all the vital functions. There is no alteration in vitality except this uniform lowering so that the patient ultimately passes into a state like & that of an hibernating animal. As in all such states the higher cerebral and mental functions suffer most, while organic life continues normally but on a lower plane. Whatever the agent be that causes the gland to atrophy, it does not per se give evidence of its presence by symptoms. The disease thus differs from pneumonia phthisis etc where the causative

agent and its products constitute the disease. Here it is the loss of the organ itself & the economy which constitutes the disease, and this case shows that the thyroid body is essential to life. It profoundly influences metabolism especially proteid metabolism. When lowered in function, the output of nitrogen is diminished and the body gains in weight. There is increased formation of fibrous tissue, and mucin as a by product accumulates in the tissues. The lowered vitality induced decreases the amount of fat burnt up and so this also accumulates. Sooner or later this state of defective nutrition tells on the heart, and so it becomes unfit to carry on the work of the circulation and as a rule stops suddenly causing sudden death. Some such explanation as this, indefinite as it may be, is required to explain the sudden termination of a patient whose blood, kidneys, heart, liver, and lungs and brain appear normal on examination as was so in this case. The records show that in all cases of myxoedema of long standing this liability to sudden heart failure is the rule.

As for the symptoms the first to be noticed

in this case as in others was the increased bulkiness of the hands, and dryness of the skin on the forearms. The loss of hair from the scalp was next noticed; the slowness of speech and thought were noticed lastly. To an observant person on the outlook for the disease, perhaps the mental symptoms would be noticeable long before the epidermal changes, especially if formerly the patient were known & be bright and active. The reaction time in such persons is abnormally long. When the epidermal changes are manifest the disease has advanced considerably. These changes in the epidermis as revealed by the microscope and consisting in atrophy of sweat glands and the Malpighian layer of the skin are due rather to defects in the local nutrition of the parts than to the general defect in nutrition by lowered metabolism. To make this point clear the following explanation is offered:- owing to the great increase of fibrous tissue in the true skin and subcutaneous tissues, the blood supply to the epidermis is considerably diminished thus nutrition to the hair follicles sweat glands and the rete mucosum

is correspondingly lessened and these atrophy. (The sections of the skin of this case seemed to show this very well). This explanation shows how these symptoms of dryness of the skin, loss of hair & coarseness of skin arise. Again the microscope shows how the scalp skin is actually thinner than normal in myxoedema and so explains the malar flush so characteristic of the disease. The diminished supply of blood to the skin also explains that feeling of coldness & which such patients are subject. The sensory nerve endings are not flushed with a normal quantity of warm blood from the interior of the body, and the reduced quantity of blood in the skin is more easily cooled than normal. The numbness and paraesthesia so often experienced may also be explained by defective circulation in the sensory nerve endings in the skin.

The subnormal temperature and slow rate of the heart are but additional manifestations of lowered vitality. In the heart muscle fibres the little masses of pigment around the nuclei showed least to be an indication of brown atrophy - a condition characteristic of senile change associated with a

slow rate of pulse. The slowness of speech, as if deliberating on the meaning of each word before utterance, was marked in this case. In addition to slow cerebration there was the marked tendency to go to sleep, and it was only with difficulty that he could keep awake while being questioned. This resemblance to hibernation has already been commented on.

The result of treatment was very satisfactory and patient began to take a renewed interest in life, and organic life was given a fillip. The sudden and fatal termination occurred quite unexpectedly with but few symptoms of much note.

Treatment. There is but one treatment for this disease, & that is to supply the economy with the substance lacking viz thyroid material. The raw thyroid may be given as in this case, or an extract of the gland. It is best to keep patient in bed at beginning of treatment, and commence with small doses gradually increasing until the first symptoms of thyroid intoxication appear. These resemble to some extent the symptoms of Exophthalmic goitre. After patient has lost considerable weight

and begins to have a normal appearance like his former self then the dose may be reduced to the minimum. This is about 5 grs of the dry extract taken twice weekly. This amount seems to balance the deficiency of the gland in many cases, but of course the amount required depends greatly on the bulk of the person, and the extent of the gland rendered functionless. The sheep's thyroid is the usual source of the drug.
In this connection it is interesting to recall how there is some evidence in this case of a correlation between the thyroid, suprarenals, and pancreas. It would be interesting to know how the administration of thyroid acted in disease of these other two glands.

Case IX

Ward 23.

Name of Patient – Pat Mullhern.

Disease – Chronic Bronchitis Emphysema

Dilated Heart and Chronic Brights disease

J. S. Manson

Case IX

Ward 23 Bed 14

Name - Pat Mullhern age 54 years
Birthplace - Co Sligo. Married
occupation - Labourer. (outside work.)
Address - 25 High St. Burntisland.
Admitted - March 8th 1906
Discharged -
Complaint - Shortness of breath, & cough.
Duration - 4 or 5 years.
History

Present Illness

The present illness is but a continuation of a former illness of the same nature. For the past 3 years he has done no work because of shortness of breath. Recently he has been getting worse, and yesterday March 7th he noticed that his scrotum appeared to be swollen. He had also intense itching in this region, and scratched the parts until they bled. Whenever he walks a short distance he has a feeling of giddiness, and there is a considerable amount of uneasiness over the praecordial region, but no actual pain. Yesterday he had a sharp knife like pain in the right lumbar region behind, and this pain still persists. Feeling that he was

getting somewhat worse, he walked up to the Infirmary & was admitted to Ward 23.
He has recurring morning attacks of cough and shortness of breath.

Previous Illnesses and accidents.

Had measles in boyhood. Patient joined the army in 1867 and was 10 years and 8 months a soldier. Of this he was 2 years in India, and the remainder of the time at home In India he had several attacks of fever and ague, and had gonorrhoea once but no syphilis. After he left the army he became a general outdoor labourer. Twelve years ago while lifting a barrow, he ruptured himself on the right side, and for this was twice operated on by Prof. Annandale, and once by Mr Miles at Leith. Nine years ago he fell on his left elbow and abraded the skin. Erysipelas followed this injury and he was 7 weeks in Pilton Hospital. He attended Leith Hospital after he came out of Pilton, and then came up to Prof Annandale who scraped the bone. His left elbow joint is still much impaired in movement. Five years ago while working as a labourer in a malthorn, he contracted a severe cold caused by a chill got by emerging from the kiln.

Malton. He never got properly clear of this cold and it continued on as a chronic bronchitis with a cough in the morning. Three years ago he was 3 weeks on board 23, and he left without any improvement in his condition. He has done no work for 3 years, and has lived with friends at Leith.

Social Habits & Surroundings.

He lives with friends in a house of 2 rooms and a kitchen, & sleeps alone in a well aired room. He has not been well fed recently. Has porridge and milk for breakfast and a little tea and bread for the other meals. He has sometimes very little food during the day. Was a heavy drinker and smoker at one time, but is now of necessity compelled to give up both. When a soldier he was in no engagements, and had no heavy marching, but his work as a labourer has been very heavy, and he has been unable to follow it for 3 years.

Family History

Father died about 40 years of age some disease of the spine. Mother died also about 40 years of age Cause unknown. Patient was one of a family of 3 the other two died in early life.

State on Admission. Height 5' 7" Weight 10st 2 3/4 lbs. Patient is a well developed muscular man

of medium height. His countenance shows no marked evidence of disease or suffering. There is no puffiness or pallor, and only a slight degree of cyanosis. Slight icteric tinge on the conjunctival. Pupils react to light. Tongue shows raised white patches with red furrows between, and it is painful. Extensum of left arm is impaired. There is a scar 3" long over left external condyle. The right forearm shows a broad scar on the posterior aspect about its middle. There is a very slight clubbing of the fingers. The voice is husky & breathing somewhat embarrassed. The chest is broad and bulges forward. The abdomen is slightly prominent. There is no oedema over lower part of back, but there is a region of tenderness on right side in the lumbar region. There is a scar over right inguinal canal. The scrotum is very red lax enlarged and oedematous with numerous excoriations on the surface. The testicles are enlarged and tender. There is a tendency to hernia on the left side. There is a slight degree of bow leg in both legs. No varicose veins or ulcers or old scars. Slight oedema over lowest parts of tibia. Best marked on right leg.

Temperature 98° Pulse 48.

Circulatory System.

Subjective Phenomena. No palpitation some uneasiness

over the praecordia. Some dyspnoea especially in the morning.

Pulse - 48 per min. regular in force irregular in time a beat is missed now and again. The upstroke is not very rapid, apex well sustained, fall gradual. Tension moderately high. Both radial pulses are alike. Arterial walls are considerably thickened.

Inspection. There is a uniform bulging on right and left sides of chest, no special bulging over the praecordia. Apex beat is not visible. No pulsation in the aortic area, but there is a slow diffuse pulsation at the root of the neck which is vascular in character.

Palpation. Apex beat not palpable even when patient leans forward. No pulsation in the aortic area. Feeble pulsation at the root of neck.

Percussion. Owing to the emphysematous conditions of the lungs, percussion is not very reliable in delimiting the extent of heart dullness. The apex beat fixed by auscultation lies in the 5th space 5" from the mid sternal line, and 1" outside the mammillary line. Deep dullness commences at the upper border of the 3rd rib, and crosses the mammillary line in the 4th interspace indicating that left border is further out than normal. The right border seemed to

extend 1" to right of right lateral sternal line but this was not very certain.
Auscultation. In the mitral area the 1st sound is markedly reduplicated and is muffled and distant in character ending with a faint systolic bruit heard better in the axilla. The 2nd sound is very distinct and thudding in this area, and can be heard over a large area of the chest in front but especially on the left side
In the pulmonary area the 1st sound is not heard but the 2nd sound is distant and thudding and very much accentuated.
In the aortic area the 1st sound is not heard and the 2nd sound is accentuated closing rather with a thud than a click.
In the tricuspid area both to right and left of lower end of sternum the reduplicated 1st sound is heard, and the distinct 2nd sound. There are no bruits in this area.

Respiratory System.

Breathing - abdomino-thoracic 20 per min.
No pain but he has great embarrassment of breathing in the morning. He gets relief by turning to one side.
Cough. - He has paroxysms of coughing in the morning and when he makes any exertion.

Sputum – a fairly large quantity of white frothy muco purulent sputum is coughed up per diem Anterior and posterior Nares are clear. the voice is husky but there is no pain in the larynx.

Chest. Inspection

Broad well formed chest with some bulging forward of lower end of sternum. Expansion good and equal at lower part of chest, towards the upper part the expansion is also good but there is more movement on the left side than on the right. on coughing the apices of the lungs bulge above the clavicles

Palpation. Vocal fremitus is absent over greater part of chest, & is only slightly felt in the right infraclavicular region. Behind on the left side Vocal fremitus is absent, but on the right side it is slightly present in the interscapular region. It is absent at base.

Expansion at lower end of sternum during full inspiration 1¼".

More expansion in the left infraclavicular than at the right

Percussion the note is hyper resonant over whole front of chest. In the axillary region the note is resonant. on left side behind there is slight dullness at the base and apex, and in the interscapular regeon on right side.

elsewhere the note is resonant.
Auscultation at both apices the breathing is bronchial in type. In the left infraclavicular region, the breathing is harsh with expiration prolonged & some medium crepitations both on inspiration and expiration.
On the right side the breathing is broncho vesicular in type with expiration slightly prolonged.
Behind the breathing is but faintly heard at upper part of chest. at the bases the breathing is better heard with slight prolongation of expiration Some medium crepitations at left base.
Vocal resonance diminished in front on left side and in the infra clavicular region on the right side. It is absent in the mammary region
Behind V.R. is diminished both at upper and lower parts of chest.

Alimentary System.

Teeth - there are but a few decayed stumps in both jaws.
Tongue - is covered by a number of whitish plaques with red furrows between. the mucous membrane of mouth and gums have similar white patches on them.
Tonsils not enlarged or congested.
Appetite fair. no pain or vomiting. Bowels usually a little costive.
Abdomen. Inspection. No marked prominence or

retraction. Scar over right inguinal canal. Tendency to left inguinal hernia when patient coughs abdominal walls fairly lax.

Palpation no tumour or area of tenderness a good layer of subcutaneous fat.

Percussion Tympanitic throughout. Liver dullness 4" below costal margin.

Urinary System.

No pain or undue frequency of micturition.

Urine :- Pale straw colour acid. very slight flocculent deposit. No albumin blood bile or sugar. a slight trace of mucin or nucleo-albumin. SG 1008. Microscopically - a few granular casts and a few epithelial cells probably renal.

March 12th urea 4·3 grs per ℥ Quantity 70 ℥ per diem.

Haemopoietic System

Spleen and thyroid not enlarged. a few small submaxillary glands enlarged on each side. No enlarged glands in groin or in the suboccipital region.

Integumentary System

Skin soft moist. no scaling or falling out of hair

Nervous System.

Sensory functions intact

Motor functions knee jerks exaggerated especially on the right side. No clonus Plantar reflex active and flexor in response.

Pupil reflexes active no nystagmus.
Mental functions intact
Locomotory System
Healthy.
Provisional Diagnosis - Chronic Bronchitis emphysema, Dilated heart.
Course and Treatment
March 8th Rest in bed Light Diet
" 10th Complains of pain in small of back when he moves. Ammon Carb gr iij t.i.d.
March 13th Pain in back persists. Cough and breathing eased
March 15th Pulse 42 Patient does not feel so well
April 3rd Patient has gradually improved by rest and treatment. The cough does not trouble him so much Pulse 60 per min regular. Patient left today for the Convalescent Home.
Commentary.
This is a case of a very ordinary kind - a man advanced in years, & of the laboring class suffering from chronic bronchitis, emphysema, and dilated heart. The history of the illness is a very typical one. It commenced with a 'cold' 5 years ago. This 'cold' was neglected and two years later he found himself quite unable to continue his work owing to cough and shortness of breath.

One year ago he was treated for the same complaint in Ward 23 and left with no marked improvement. Previous to the beginning of the present illness he had been the victim of several diseases and accidents. He had measles in boyhood, fever and ague and gonorrhoea in Indea, and erysipelas at home. He had been operated ~~one~~ three times for hernia, and once for some affection of the left elbow joint. Altogether a fairly extensive experience in one individual of medical and surgical treatment. There is no history of syphilis but patient was a hard drinker and smoker so long as he could afford it. There is nothing of importance in the family history.

Examination showed patient ~~to~~ suffering from some dyspnoea and cough, attacks of which came on chiefly in the early hours of the morning. There was some slight oedema of the legs, and the scrotum was enlarged and oedematous. There was no oedema of the back, and very slight evidence of any at the bases of the lungs. The conjunctivae had a slight icteric tinge, and there was some cyanosis of the face. The chest had a tendency to the

barrel shape, and there was bulging at the apices on coughing. The cough was of a paroxysmal nature, and the sputum copious frothy with some muco-purulent material mixed in it. The pulse was slow and irregular and the heart sounds faint in all areas. With the 1st sound in the mitral area there was a soft systolic bruit. The urine was normal in quantity but of low specific gravity. Granular casts were found microscopically, and a distinct trace of albumin from time to time but not constantly present.

Diagnosis - The case is a plain one. There can be no doubt as to the patient's condition from the physical examination. The respiratory circulatory and renal systems are all to some extent defective. There is chronic bronchitis, emphysema, dilated heart, thickened vessels, and chronic parenchymatous nephritis. In addition there is the condition of leukoplakia on the tongue and mucous membrane of the mouth. The hoarseness of the voice also points to some thickening of the cords, although the laryngoscope was not used to verify this part of the diagnosis.

Etiology. The possible factors here are very numerous. The whole condition of

the patient represents a gradual breakdown consequent on the wear and tear of a more too well regulated life. Most likely the renal system was the first to be affected by hard work and hard drinking. Erysipelas and the strain of four major surgical operations would also be additional burdens to this system. The degenerative process in this system was apparently a slow one, as there is no history of an acute attack. Secondarily the heart would hypertrophy to compensate for the increased strain following renal disease. Then came the attack of bronchitis to which he was specially liable. This became chronic & emphysema followed. Further strain thus thrown on the already burdened heart induced failure of compensation, and so patient became a chronic invalid. It is only by such a sequence of events that the rapid onset of compensatory failure can be explained in this case. In other cases of a similar nature where the chronic bronchitis and emphysema are primary, and the cardiac condition secondary, there is a longer interval between the first attack of bronchitis and complete failure

of compensation than in this case. In these cases, there is a period when the heart compensates for the pulmonary defect - the so called second stage of the chronic bronchitic. From the time this patient dates his illness & the time when he became a chronic invalid - 2 years this second stage seems to be missed. Owing this & the existing renal condition he rapidly passed from the first & the third stage - that of complete unfitness for work of any kind. The condition of the tongue and mouth shows a considerable degree of leukoplakia. According to the books this is one of the very numerous sequelae of syphilis, but there is a complete denial of syphilis in this case which however does not count for much.

Course and Symptoms under treatment.

Patient was given 3 grains of Ammon. Carb. thrice daily as an expectorant. He was also given a chlorate of potash mouth wash. With complete rest in bed the cough and dyspnoea were much alleviated, and in less than a week the soft systolic murmur in mitral area had disappeared.

The pulse which was at first irregular in time and force gradually became

regular, but continued unusually slow ranging from 42 - 50 beats per minute. Towards the end of the stay in hospital it had increased to 60 per minute. Altogether the treatment resulted in producing some recovery of compensation, and the chronic bronchitis was somewhat alleviated. Prognosis in this case is completely against ultimate recovery, but if patient was able to lead a very careful and easy going life, he might continue to live for at least three years longer. In his position however this is impossible, as he is without means to obtain attention and treatment. Admission to a poorhouse hospital would give him the longest possible tenure of life. Failing this he is likely to die within 2 years from a breakdown of compensation.

Case X

Ward 23

Name of Patient — James Adams

Disease — Malignant Stricture of Colon.

J. S. Manson

Case X

Ward 23 Bed 12.

Patients Name - James Adams. age - 52

occupation - Gardener

admitted - Jan 24th 1906

Died - Feb 21st 1906

Complaint - Diarrhoea

Duration - 3 weeks.

History. Chief facts.

Patient was admitted to Ward 23 on Jan 24th complaining of almost constant diarrhoea. This commenced somewhat acutely on Jan 1st, and was accompanied by pain. Three months previously patient had been operated on by Professor Annandale for an ischio-rectal abscess. This had healed completely. Patient had been to sea for 15 years from the age of 19, and had been in all parts of the world.

Examination.

This showed patient to be a man of medium height with rather sharp features. He was very much emaciated and seemed to be suffering considerably. On various parts of the body were seen bluish tumours most of them about the size of a large pea, while another of the same nature and situated over the right ankle joint in front was as large as a tangerine

orange. These tumours could be emptied by pressure, and they were thought to be (which was afterwards proved) angiomata.

Diagnosis. The condition was thought to be either waxy disease of the intestine, or tubercular ulceration.

Course and Treatment.

The course of the illness was progressively downward. The diarrhoea continued in spite of treatment; the stools were frequent small and very fœtid. Opium, Kino and Cachechu were tried but they had no effect on the diarrhoea. Further opium and cupric sulphate ¼ grain three times a day was tried with like failure. The patient gradually sank and died on Feb 21st 1906.

A week before death, marked distension of the transverse and descending colon was made out. The urine contained no albumin but it was exceedingly dark in colour and on examination this proved to be caused by excess of indican in the urine. There was no bile or blood.

Post Mortem Examination.

The body was extremely emaciated with numerous small tumours as described. On opening the abdomen the large intestine was very much dilated especially the transverse and descending

parts.
The heart showed nothing abnormal except a somewhat dark staining of the myocardium.
The lungs showed some emphysema. some patches of broncho-pneumonia in the right lower lobe
The liver showed nothing very special but the gall bladder was full of dark tarry bile
The kidneys gave some evidence of interstitial change. and also show some dark staining
The Spleen showed nothing abnormal.
Whilst dissecting out the large intestine a large abscess cavity containing pus was opened into just below the sacral promontory. This cavity lay between the bowel and the sacrum.
Below this, about the level of the 2nd or 3rd pieces of the sacrum a tight constriction was felt. On opening the colon this firm tight stricture admitting only one finger was seen to be formed by a hard ring of tissue running transversely to the long axis of the bowel.
Above the stricture the colon was greatly dilated, and showed patches of congestion and numerous irregularly shaped ulcers whose edges were flat and whose floors extended for various depths into the mucosae. The ulcers and congestion extended over a large part of the descending & transverse colon. Very few were present in the ascending colon. In the

Diagnosis. The diagnosis seemed to be between waxy disease of the intestine and tubercular ulceration of the intestine. Against waxy disease was absence of evidence of waxy disease elsewhere. The liver was not enlarged nor the spleen, and the urine showed no evidence of waxy disease of the kidneys. In favour of tubercular ulceration were the recent history of ischio-rectal abscess, some suspicious physical signs in the lungs, and a rather irregular temperature, together with the great emaciation of the patient. On the whole the evidence inclined to the diagnosis of tubercular ulceration. A form of chronic dysentery possibly amoebic in origin would have been a justifiable speculation had patient been recently abroad, but a lapse of 18 years had occurred since he last followed a seafaring career, so that unless the case was a sporadic one of great rarity in these climes, the chances were that the disease was not one of chronic dysentery. Nor did the stools show any of the characteristic slime and sloughs passed in dysentery, but were small, fluid, and exceedingly foetid more like

descending colon numerous small growths black in colour and of the size of a pea were present these looked like the tumours found in other parts of the body. On section however they proved to be small sessile fibrous polypi. Microscopically. a section of the stricture showed it to be of a malignant character. at one part there was distinct infiltration of the muscular layer by the glands of the mucosa. a section of the colon showed complete necrosis in some of the ulcers, and there was enormous dilatation of the vessels both in colon and in the kidney, these parts corresponding to the angeomata seen in the skin.

Commentary.

This was a case of some interest both from the clinical course of the disease, and the post mortem findings. In the history the most important point was that of ischio-rectal abscess which had been treated surgically with success. At this time there was also some diarrhoea which had apparently been stopped. On Jan 1st diarrhoea and pain set in suddenly without any apparent cause, and the diarrhoea continued in spite of treatment until his death 4 weeks later.

the stools of tubercular ulceration.
A week before death great distension of the colon was recognised pointing to some obstruction further down in the bowel. Attempts to relieve this by passing a soft rectal tube were unbearable to the patient and were discontinued. By this time more severe measures to relieve the obstruction were contra indicated as the patient had developed a broncho-pneumonia and died on Feb 21st as already stated.

Morbid Anatomy.

The lungs especially the right lower lobe showed marked evidences of the terminal affection in the broncho-pneumonic patches of consolidation scattered throughout it. The other organs showed the dark staining due to absorption of the products of putrefaction from the intestine. This dark staining corresponded no doubt to the indigogens which were so plentiful in the urine. The encysted abscess between the rectum and the sacrum was no doubt the remains of the abscess which had been opened and drained 5 months previously. Thus although complete evacuation of the pus had not taken place, yet the

wound had healed. The primary lesion - the stricture in the pelvic colon admitted only one finger, and to the touch and naked eye seemed a simple fibrous stricture possibly tuberculous in origin. Microscopically however it was shown to be malignant at one part. Above the stricture there was great distension of the colon with patches of congestion and ulceration. The ulcers did not have the hard raised edges of tubercular ulcers, nor did they run transversely to the long axis of the bowel. Neither did they show the smooth floor and thin edges of the typhoid ulcer. They were irregular in shape, some excavated, others more shallow, and scattered irregularly over the mucosae. The largest number and the greatest congestion lay in an area about 2 feet above the stricture. Microscopically the ulcers showed complete necrosis with congestion around.
On microscopic examination the tumours on the surface of the body proved to be angiomata, and a similar dilatation of blood vessels were seen in the kidney and intestine revealing a similar

congenital deformity in the viscera as on the skin.

Etiology - What was the cause of the stricture? Has it originally the result of fibrous cicatrization after tubercular ulceration, and this later taking on the characters of malignancy? Certainly the history of ischio-rectal abscess and the proximity of an encysted abscess probably of a tubercular nature, were facts in favour of former tubercular disease in the lower bowel. The naked eye appearances did not suggest a malignant character, and the microscope showed that it was only at one part of the fibrous ring where malignant infiltration was taking place. Chronic dysentery and syphilitic ulceration sometimes causes strictures, but there was no evidence in this case of either of those diseases. The likelihood is that the fibrous ring followed tubercular ulceration, and that later the onset of malignant disease tended & rendered the stricture more complete with consequent obstruction. The ulcers and congestion were secondary to the stricture, and were the result of the faecal accumulations above the stricture.

Course and Treatment.

The course of the disease was progressively downward. The most powerful astringents

failed to check the diarrhoea. Attempts to irrigate the lower bowel failed, as the patient could not stand the passage of the tube. In the later stages when dilatation of the colon was detected the treatment (had the condition of the patient been favourable) was essentially surgical. At first an artificial anus would have been made in the inguinal region on the right side, and later the stricture could have been excised after its full extent had been made out by an exploratory operation. A striking feature in the case was the excretion in the urine of large quantities of indican. By transmitted light the urine was of a very dark reddish tint, and by reflected light it was of a dark purplish colour not unlike that produced by the derivatives of phenol such as hydroquinone and pyrocatechin. These however are reducing bodies and there were no reducing bodies in this urine so their presence is excluded. Phenol itself might have been present in small quantities, but only once did it give anything like

a positive reaction with the perchloride of iron. The most constant substance was indican easily detected by nitro-hydrochloric acid and shaking with chloroform. To one who saw the urine during life, and the conditions in the body after death, the presence of this substance in the urine to any extent would always appeal with a special significance.

Case XI

Ward 24.

Name - Isabel Aitken

Disease - Cerebral Tumour.

J. S Manson

Case XI Ward 24.

Patients' Name - Isabel Aitken

Age - 28 years Single.

Admitted - Feb 1st 1906

Complaint - Headache and Vomiting

Duration - 2 weeks.

History.

Present Illness

Since August last patient has suffered from pains in the head especially marked over the frontal region. Lately these pains have become more persistent, and she has had urgent attacks of vomiting which come on without any relation to the taking of food.

Previous health. Had erysipelas 5 years ago Nothing else of note.

Examination. General Appearances.

Patient is a well nourished young woman. No dropsy cyanosis or jaundice Some slight weakening of left side of face. Some irregular thickening of skull, tibia, and right ulna. There is also some scoliosis. Temperature - normal.

Nervous System

Sensory Functions.

Persistent pain over the frontal region. No loss of cutaneous

sensibility in any region.
Special Senses. - Loss of taste on left side of tongue. Smell is also defective.
Vision - But slightly impaired. Eyes. - No nystagmus. No difference in pupils. Marked double Optic neuritis seen by the Ophthalmoscope.
Motor Functions are unimpaired.
Organic reflexes healthy.
Deep reflexes. - Great increase of knee jerks more marked on left than right side. Ankle clonus marked on left side, and present but not marked on right.
Superficial reflexes - Plantar reflex difficult to elicit.
Voluntary Power - Left hand less strong than right.
Vaso motor and Trophic functions - nothing abnormal to be noted.
Cerebral and Mental Functions - These are impaired but to a very slight extent. When patient is speaking she stops in the middle of a sentence for a little and then resumes again.
She has no delusions or hallucinations. But for the pain in head she could sleep well.
Urinary System - No albumin in urine

Circulatory System – No enlargement of heart
Alimentary System – No disorder.
Haemopoietic System – Leucocytes – 11.000.

Provisional Diagnosis – Cerebral Tumour.

Course and Treatment.

Feb 8th Rest in bed Given Potass. Iodid gr XV t.i.d. This was increased later to gr XXX t.i.d.

March 8th Patient has gradually become worse. She remains unconscious for many hours and wakes up only to complain of the pain in her head. These comatose seizures pass off again and patient then seems much better again. She has become blind in the left eye and the right side of the face has become insensitive. There is some internal strabismus in the left eye.

March 10th Removed to Ward 15 Mr Cotterill's female ward.

March 16th Mr Cotterill removed a large area of bone from the R. Temporo Sphenoidal region but found no tumour only greatly increased intracranial tension. He allowed an extensive hernia cerebri to form, thus relieving tension.

Patient was relieved for a week or so

by this operation but eventually she became paralyzed on the left side and became noisy in her manner.
Later cystitis supervened and on April 13th she died.
April 14th a post mortem examination was held but permission was only given for the head.
The skull was found to be extremely thin at some parts. The dura was not adherent to the under surface of the skull. The scalp was adherent to the hernia cerebri. At the anterior part of the right frontal lobe a tumour was found. This tumour which was of the form of a flattened spheroid measuring 1½" x 3/4" seemed to be on naked eye appearance to be of a glio-sarcomatous character. At the tips of the temporo-sphenoidal lobes on both sides, 2 or 3 small white nodules were seen. The nature of these was but speculative.
The floor of the middle fossa on the left side seemed pitted and eroded and the dura was adherent to these indentations. No other gross lesion was present.
Microscopically the tumour showed a

homogenous massing of neuroglia cells, with numerous thinwalled blood spaces, & here and there were seen a few areas of degeneration. all these appearances being characteristic of a rapidly growing glio-sarcoma or glioma.

Commentary.

This is a case of a very definitely localised brain tumour which presented during life symptoms of a very indefinite and puzzling character.

The history and the examination of the patient left no doubt as to the diagnosis. The three cardinal signs of cerebral tumour — Headache, Vomiting with no relation to food, and double optic neuritis were present in a marked degree.

The difficulty lay in the localisation of the tumour. At first it was thought that the cerebellum was the site, and later as the case developed the frontal region seemed to be the region involved, but positive evidence was of the vaguest and most conflicting character and negative evidence only seemed to show that the motor areas were not damaged to any extent by the tumour growth.

as to the nature of the tumour, nothing very much could be made out either from the history or the examination. From the irregular thickening of the skull, tibiæ, and right ulna it was thought possibly to be syphilitic in origin, and on this ground large doses of potassium iodide were given. Tuberculous tumour of the cerebellum was another possibility, which had some grounds in the spinal deformity mentioned in the description of the examination. But later developments – failure of drug treatment and the rapid downward course of the patient – seemed to point rather to a tumour of a gliomatous character. The chief interest in the case lies in trying to correlate the symptoms presented during life with the appearances found after death. But here one is met with the great difficulty in all such cases, – the difficulty in separating symptoms due to a local lesion from those due to intracranial pressure. There can be no doubt that if such secondary symptoms did not arise, a series of cases of localised brain tumour such as the present, would throw a considerable amount of light on the localisation of brain function.

Of course it may be said and said rightly, that brain tumours may grow in certain areas of the brain without giving evidence of their presence until they cause increased intracranial pressure, but these facts only point to the existence of 'silent' areas in the brain. 'Silent' possibly because we but imperfectly observe and interpret the phenomena presented. In a closed cavity with almost rigid walls such as the cranial cavity, a tumour of any size must of make room for itself destroy an almost equal amount of brain tissue, and the function of that area must also be destroyed. Whether this be observable or not is another question.

In this case the tumour was situated in the anterior part of the frontal lobe close to the great longitudinal fissure and occupying a considerable part of the middle frontal convolution. From a surface view the site seemed definitely localised, and with the exception of the two or three whitish nodules at the tips of the temporo sphenoidal lobes no other tumour growths were visible.

The chief symptoms which the patient presented on admission were evidently due to intracranial pressure. Headache vomiting

and double optic neuritis are common & tumors situated in almost any part of the cerebrum or cerebellum. Of the special senses, vision was to some extent impaired, no doubt due to the optic neuritis. Smell was defective and also taste on the left side of the tongue. There was some slight weakening of left side of face. The knee jerks were increased on both sides but most marked on the left side. ankle clonus was most easily obtained on the left side. Voluntary power was much less on the left side. The plantar reflexes were sluggish. The mental functions were but slightly affected. The impairment was chiefly noticeable when patient was conversing; at times she would stop in the middle of a sentence as if lost in thought; and then resume again. With our present knowledge of the localisation of brain function, these symptoms seemed at the most to point to some interference with the right motor region or in the path from that region. Looking back at the case with a knowledge of the actual condition of the brain, it would be impossible to associate any one or number of the symptoms with the region affected, as all these symptoms are perfectly explicable from increased intra cranial pressure.

In five weeks from the time of admission the case had progressed to a stage wherein coma alternated with states of noisy delirium. The left eye had become blind and the right side of the face anaesthetic. There was some slight proptosis of the right eye and in her most lucid periods patient complained bitterly of the frontal headache. At this stage the involvement of the right 5th nerve seemed to be a localising symptom pointing to a basal or cerebellar site for the tumour, but as the tumour was actually situated in the extreme frontal region, this symptom is best explained by assuming abnormal pressure on the right Gasserian ganglion and so interfering with right 5th nerve.

Of all the symptoms that of pain was the one most associated with the site of the tumour. Patient always put her hand up to the frontal region and most often to the region above the right eye. There was some slight proptosis of the right eye though this fact seemed to be doubted by some.

We have then here a case of a definitely localised brain tumour in the middle frontal lobe presenting a variety of symptoms only one

of which can be directly associated with the site of the tumour. This symptom-pain- although a clear guide in this case, may in some other case of a similar kind prove utterly fallacious. Of the other group of symptoms although they cannot be directly associated with area of brain involved yet it will be well to note the grouping so as to compare with other cases of cerebral tumour in the same or other regions.

Treatment.- The object of the Operation was to remove the tumour if found. If not found, then by leaving a hole in the skull intracranial tension would be lessened, symptoms relieved, and life prolonged. Even had the tumour been found and removed, it is more than likely that recurrence would have taken place, and the ultimate end of the patient would have been death preceded by a prolonged period of more or less suffering.