— THESIS —

CHRONIC HYPERPLASTIC TUBERCULOSIS OF THE INTESTINE COMMONLY CAUSING STENOSIS.

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Introduction.

The subject of Chronic Hyperplastic Tuberculosis is one, which although it has received much attention for a considerable number of years from German, French and American writers, has in this country, had comparatively little notice taken of it.

In the French literature, the disease was mentioned in 1843 by Valy & in 1844 by Jodard & in 1859 Lendet mentions a case of ileo-caecal tuberculosis; but it was not until the last decade of the 19th century that the subject was thoroughly gone into and Conrath in his monograph was able to collect 85 cases. Many cases were recorded about the same time. The first case recorded in this country is the case of [2]Page (1897), then [3]Lediard (1898) and quite recently cases have been recorded by [4]Caird, [5]Robson, [6]Renton and [7]Stiles.

Most of the recorded cases have been cases of ileo-caecal tuberculosis and, as the ileo-caecal region is a common site for malignant disease, it is very likely that many cases of hyperplastic

tuberculosis were mistaken for malignant disease, and the prominence, which it has, within late years, acquired, can only be attributed to the greater combination which now holds between clinical work and Pathology.

The chief features of this form of Intestinal Tuberculosis are :- a thickening of the intestinal wall, sometimes producing a well-marked tumour and accompanied, in most cases, by a narrowing of the lumen of the bowel.

The method to be followed in the consideration of this subject is -

Firstly: To describe four cases, illustrative of the disease.

Secondly: To give a general resumé of the Etiology & Pathogenesis, Morbid Anatomy, Microscopic Appearances, Course, Symptoms, Physical Signs, Diagnosis and Treatment.

Case No. 1

P. M. aet. 68. Male, Admitted to the Royal Infirmary, Edinburgh on December 14th 1901, complaining of pain in the bowels.

Duration of Complaint, 5 to 6 years.

History of Illness.

In 1895 the patient complained of pain in the stomach and bowels. He was treated for gastric catarrh and the pain left for some time. In 1896, he complained of a similar pain - a general uneasiness in the belly. There was never any vomiting. From this time onwards, the pain, which the patient took to be indigestion, recurred at varying intervals, especially if he was indiscreet with his diet. While under treatment for Chronic Bronchitis in October 1901, the pain in the belly came on again and a swelling was discovered in the Right Hypochondriac & Right Lumbar regions. Shortly after that the patient came under the charge of Mr Caird.

Family History: Negative
Previous Illnesses: Patient has suffered for years from Chronic Bronchitis
On Admission: the patient is seen to be emaciated and sallow. He feels very weak. He is usually free from pain except after food & the pain is always worse if he is indiscreet with his diet. He suffers from constipation and flatulence. He has haemorrhoids. For the last few years he has lost considerably in weight.
Examination of the abdomen shows the contour to be the same on both sides. At times a peristaltic wave can be seen going along upper & left part of abdomen - the wave moving from left to right.
Palpation reveals a swelling just below left costal margin, reaching down to level of umbilicus, about one inch behind left mammary line. The posterior border reaches about two inches behind this, and the anterior border slopes upwards & forwards from the same point to the costal margin.

The swelling is moveable to some extent, the abdominal wall moves freely over it, it does not move on respiration. There is no tenderness on palpation. Impaired resonance is elicited over the swelling and a metallic tinkling sound is got on percussion in the flanks, below and behind the swelling. Borborygmi are marked especially after even slight palpation.

Several days after admission, an incision was made through left linea semilunaris. Some clear straw-coloured fluid escaped from the abdomen. The fingers brought out what appeared to be Stomach but it turned out to be greatly distended Small Intestine. Following this down, a mass of adherent intestine was discovered, and then atrophied gut below. The mass was adherent to descending colon by its anterior coil. The intestine was clamped above & below, and the mass removed with the adjoining mesentery, in

which there were numerous enlarged lymphatic glands. End to end suture was done. About 40 inches of intestine were removed.

Patient made a good recovery. For some time after operation, he suffered from diarrhoea, which was to some extent controlled by drugs & diet. When discharged the patient said he felt better in health than he had been for years. Several months after operation, on reporting himself, he was in good health, although the motions were inclined to be watery. Towards the end of June 1902, the patient returned to Hospital and suddenly expired on entering the waiting-room.

Description of Specimen removed at Operation

There is a stricture in ileum reducing the lumen of the bowel to a diameter a little over ¼ inch. A marked sulcus is seen on peritoneal aspect of bowel at site of structure. At this part bowel wall is about ⅛ inch

thick. The mucous membrane is intact. Bowel, above the stricture, is very much dilated, and the walls are thickened. Below this stricture, the bowel is bent into a U-shaped loop, and the two limbs of the U, as well as the bowel descending from the exit limb, are all adherent to each other and to a mass of mesentery. The matted mass is about 6" long by 2½" - 4" broad. The bowel, entering into the mass just below the stricture, shows much hypertrophy of its coats - the mucous membrane and peritoneal surface appear healthy. Below this, on opening the mass longitudinally, the walls of the bowel are seen to be much thickened and the mucous membrane shows numerous excrescences, some about the size of hemp seeds, others smaller. The walls are fully ½" thick.

The exit limb of the U-shaped loop shows numerous granular-looking excrescences on the mucous membrane; above this, the bowel is healthy-looking

and it comes down the back of the adherent mass.

There are many enlarged lymphatic glands in the mesentery, they are firm to the touch. At place the lymphatic glands are aggregated into masses, especially just behind the adherent mass - elsewhere the glands are mainly discrete.

Post-mortem Examination.

On opening the abdomen, the intestines, especially towards the left side, were found matted to each other and at parts were adherent to the parietes. The bowel tore open with ease, on attempting to break down the adhesions. There were typical tuberculous ulcers found in the matted coils of intestine & numerous lymphatic glands, enlarged, & some of them caseating.

Fibroid phthisis was present in the apices of both lungs.

The cause of death was Cardiac Failure.

Description of Microscopic Sections.

Slide No 1

Longitudinal section from the hyperplastic intestine.

The mucous membrane is considerably thickened, and contains dense aggregations of small round cells resembling lymphocytes, also endothelial cells, connective-tissue cells and polymorphonucleated leucocytes. The cells are embedded in a fibrillar groundwork.

The muscularis mucosae is intact and thickened.

The submucous coat contains well defined aggregations of lymphoid-like tissue, some of the areas showing caseation while others are in various stages of coagulation necrosis. Numerous giant cells are seen in these areas. Cells similar to those found in the mucous membrane are seen here.

The fibrous tissue of the layer is increased in amount.

In the muscular coats, the muscle bundles are separated by connective-tissue, lymphocytic and endothelial cells and between

some bundles there are well-defined aggregations of lymphocytic cells, caseation appearing at parts. These areas are studded over with giant cells.
Between the muscular coats there is an increase in connective tissue and several areas of lymphoid-like tissue are found containing giant cells.
The Subserous Coat — shows a considerable increase in connective tissue. There are numerous aggregations of lymphocytic cells, some showing fibrous changes, others, necrotic change. Many giant cells are seen scattered over these areas. Around these tubercles there is much fibrous tissue.

Micro-photograph No 1 shows a portion of this section, magnified 20 diameters.

Slide No II

Section from Mesenteric lymphatic gland.

The lymphoid tissue of the gland is much diminished in amount. Throughout the gland, there are numerous areas

showing advanced caseation - the staining being homogeneous in these areas. Debris, chiefly broken-down lymphoid tissue, is seen scattered over the homogeneous areas. Other parts show advancing coagulation - necrosis and in these there are seen some irregularly-shaped endothelial cells. Many giant cells are seen throughout the gland. The whole section shows a marked fibrosis.

Slide No III

A section from a mesenteric lymphatic gland. Several Tubercle Bacilli were found in this section, between the nuclei of giant cells

Remarks.

Before operation, it was thought that there was a tumour, possibly malignant in nature, affecting the descending colon. Exploration cleared up the difficulty as regards the site of the swelling, while microscopical examination pronounced the condition to be a hyperplasia of the Intestine, tuberculous in nature. On the assumption that the condition was

malignant a considerable length of bowel was removed as the mesenteric infection was so great.

Looking back on the history of the case and the conditions found on examination it is seen that these fall into line with what is observed in Chronic Hyperplastic Tuberculosis of the Intestine. The duration of the complaint, the history of vague abdominal pains, constipation & borborygmi all these are features of a Chronic Intestinal obstruction of tuberculous origin. The age of the patient is much above the average age at which this disease is found, but other cases recorded, show that age must not be reckoned with too strictly.

The Microscopical evidence as to the nature of the condition is very clear in this case and the discovery of the Tubercle Bacillus shows definitely that the condition is tuberculous.

The discovery at the post-mortem Examination of old fibroid phthisis - a condition which was not made out on Examination during life is very interesting from the point of view of pathogenesis.

Case No ii

J.M. aet 57, admitted to Mr Caird's ward, Royal Infirmary, Edinburgh in April 1902, complaining of severe pain in stomach and bowels.

Duration of Complaint: 6 - 7 years.

History of Illness.

For six or seven years patient has been more or less troubled with pains, all over the abdomen, which have increased in frequency and severity during the last three years. At first the pains felt like indigestion, coming on about 2 hours after food and lasting for several hours. Vomiting often relieved the pain and sometimes, to get relief, patient induced emesis. During the latter part of illness (for about 3 years), there has been a constant gnawing pain in the umbilical region - attacks of severe pain are added to this about once a week. These paroxysmal attacks last from several hours to three days and are only relieved by Tinctura Opii. For the last three years, patient has been getting thinner and weaker. In 1899 he weighed

11 st. 5 lb. Present weight is 8 st. 13 lbs.
Family History: One brother and one sister are ill with symptoms akin to those of patient. One sister died of Phthisis.
Previous Illness: Healthy till present illness began.
On Admission: the patient is very emaciated, the skin has a greyish earthy tinge. He feels very weak and can only walk a short distance. He suffers from pain & vomiting as described above. He has suffered from constipation for the last 15 years and is occasionally troubled with flatulence. For a considerable time he has had haemorrhoids. Appetite is very poor. Examination of the chest— No signs of Phthisis
Examination of Abdomen. Abdomen is not distended. No tenderness on palpation in any area and nothing is felt on palpation of abdomen.

Shortly after admission, patient was operated on by Mr Baird. Through an incision in the middle line, a piece of small intestine (ileum) with a stricture

on it, was drawn out. The stricture was well marked. Bowel above stricture was dilated and hypertrophied, while below stricture, there was atrophy of bowel. Another stricture was found on ileum lower down. Both strictures were removed, and the bowel was stitched end to end at the two places.

The patient made a good recovery & left Hospital in the middle of May. The pains had disappeared, and he was feeling stronger.

In July, of the same year, he returned to Hospital, complaining of pain across abdomen, colicky in nature, but not constant or severe. Since discharge there had been occasional attacks of diarrhoea. Weight now was 8 st. 13½ lbs. The patient had not improved so much as was anticipated. On examination of abdomen there was some gurgling on deep palpation. Patient improved during stay in Hospital & when he left, in several weeks, there was no pain or discomfort. Bowels were regular and motions normal.

In December 1902 - patient returned to Hospital, complaining of Diarrhoea and pain in the abdomen - his general condition was very poor and he was greatly emaciated. On palpation of abdomen large masses were felt, apparently enlarged lymphatic glands, matted together. With rest there was some improvement, but, the condition of the patient, which suggested waxy disease, did not admit of any operative treatment & he left Hospital about the middle of January 1903. He died a month later.

Description of Specimens removed at Operation.

The bowel, above the upper stricture, is dilated and hypertrophied, the wall being ¼" thick. The mucous membrane of this part shows irregular areas of papillomatous growths. At the stricture, which measures about ½" longitudinally, the intestinal wall is slightly thicker than the bowel above. Papillomatous growths are seen here also. These papillomatous growths vary in size from a pin-head to a hemp seed. The lumen

The lumen of stricture just admits an ordinary lead-pencil to pass through it. The hyperplasia is equal all round gut. There are no tubercles on peritoneal surface.

The lower piece of bowel removed with stricture, shows, on peritoneal surface at site of stricture, a sulcus extending round gut. On laying open the hardened bowel by dividing it longitudinally - there is seen to be dilatation of the intestine above stricture. At this dilated part of the bowel, the mesenteric segment shows much hyperplasia, being from ¼" - 3" thick from above downwards toward stricture - the remainder of the bowel wall is hypertrophied to the extent of ¼". The mucous membrane, above stricture, shows some papillomatous growths. At the site of stricture, the greater part of the circumference of the bowel appears as a hyperplastic mass, which is about 1¼" broad, extending across & practically obliterating lumen. This mass shows much fat at the outer part where it is attached to the mesentery - proceeding inwards it

is composed of more fibrous-like tissue. The upper surface of the mass, which looks to dilated bowel above, is concave. The intestinal wall opposite mesenteric attachment is about ¼" thick. Immediately below stricture the bowel is hyperplastic while lower down it is atrophied to some extent.

Post-Mortem Examination.

The abdomen only in this case could be examined.

There were numerous adhesions between the intestines - no adhesions between visceral and parietal peritoneum.

There is no stenosis at either line of junction. Above the upper line of junction, there are two annular hyperplastic strictures, and below the same spot there is one similar in nature.

There are numerous tuberculous ulcers penetrating mucous membrane, submucous and muscular coats, some of which perforated on being removed.

There are many lymphatic glands enlarged and caseous.

Description of Microscopic Sections
Slide No IV

Longitudinal section through intestine at upper structure.

The Mucous Membrane at one end of section is intact & shows lymphocytic infiltration - here the muscularis mucosae is also intact. Proceeding along the section the mucous membrane and muscularis mucosae disappear and a large lymphocytic infiltration continuous with submucous layer appears. Still further along the section the mucous membrane is seen with the glandular elements irregularly placed & surrounded by much lymphoid-like tissue. The muscularis mucosae, here, only shows irregularly at one part of the section. There is an increase in the connective tissue elements.

Submucous Coat. - shows much lymphocytic infiltration and an increase in the connective tissue elements. There are some giant cell systems in this layer. Fat cells are also seen.

Muscular Coat - Both layers

especially circular, are broken up by lymphocytic cells & connective tissue and between the circular bundles there are several well-marked aggregations of lymphocytic cells. Giant cells are seen in these areas.

Subserous Coat: shows similar aggregations of lymphocytic cells studded with giant cells. This layer contains much fat.

Slide No V

Longitudinal section through intestine at lower stricture.

Mucous Membrane: much lymphoid like tissue seen around the follicles.

Muscularis Mucosae: is intact over the greater part of the section, at one place it is wanting, its site being occupied by an extensive lymphocytic infiltration from the submucous layer.

Submucous Coat shows extensive infiltration by small round cells resembling lymphocytes. There are aggregations of these small round cells into areas, some of which show necrotic changes

Giant cells are seen in some of these areas. Many fat cells are also seen in this layer.
Muscular Coat: Both muscular layers, but especially the circular are seen to be infiltrated by lymphocytic cells - many muscle bundles being destroyed. At one part, both muscular layers have disappeared.
Subserous Coat: shows much fat. There is an increase of connective tissue throughout the whole of this section.

Remarks.

The points of interest clinically in this case are, the duration of the complaint, the long continued constipation, the history of indigestion-like pains, at first after food, later, becoming constant and gnawing in character, with the addition of paroxysmal attacks at interval. Further points are, the loss of weight, the anaemic facies and the definite history of the presence of tuberculous disease in the patient's relatives.

From a consideration of the above points and by comparing this with previous cases, a diagnosis of Tuberculous Stricture

of the Intestine was made. On opening the abdomen, the site and multiplicity of the strictures added weight to this view, while the microscopic examination of sections of intestine at the site of stricture, by demonstrating tubercle follicle, confirmed the diagnosis.

No Tubercle Bacilli were found in any of the sections examined.

Case No iii

C. B. Female, aet. 30. Admitted to Mr Baird's ward, Royal Infirmary, Edinburgh, on July 14th 1902, suffering from Haemorrhoids.

For six years patient has had bleeding from haemorrhoids, the bleeding occurring at intervals of some months. Since April 1902, there has been bleeding daily.

For the last six or seven years before admission patient has suffered from pain in the abdomen and vomiting after food. She describes the pain as gnawing in character. During the greater part of that time she has lived solely on milk diet.

Family History. No history of Tubercle in any members of the family.

The haemorrhoid were removed 3 days after admission and the patient progressed favourably till August 2nd, when she complained of pains in the abdomen, colicky in nature and sometimes very severe. The abdomen was distended, and palpation showed tenderness in the Right Iliac Fossa and also slightly to the

left of the umbilicus. An area of resistance was felt in Right Iliac Fossa, just above Poupart's ligament, and a hard swelling, about the size of a walnut was felt in this region. After the onset of the attack the temperature began to swing. There was some diarrhoea for three days at beginning of this attack.

On August 25th, the patient left Hospital to return after being in the country. The pain and tenderness, varying at times in severity, also the resistance & the swelling were present when the patient was discharged.

On October 11th the patient returned to Hospital. She still complained of pain in the Right Iliac Fossa, and in addition, she suffered from frequent micturition. It was found that, two months before patient first came to Hospital, she had an attack very like the one which came on in August while in Hospital.

The pain in the Right Iliac Fossa is constant and gnawing in character especially when the patient is walking about. There is still tenderness at the

same place and in addition to the frequency of micturition, little urine is passed at a time and there is great pain while passing water.

On Examination, patient is pale and anaemic, with dark shadows under the eyes. There is pain in the Right Iliac Fossa, radiating to umbilicus and down to hypogastric region. The Abdomen moves fairly well, the lower part is somewhat more fixed than upper part. The right side of abdomen is fuller than left side - the fulness being just above Poupart's ligament at the place where pain is felt.

On palpation, a resistant tender area, but no definite tumour, can be made out.

The lungs were repeatedly examined, but nothing was discovered.

The urine contained Albumen 5%, blood & pus.

Operation. On opening abdomen, a mass of adhesions, consisting of omentum and intestines, was found in the ileo-caecal region. The appendix could

not be discovered, On freeing the adhesions towards iliacus aspect, a soft oval mass resembling a soft hypertrophied gland could be felt. The colon was pulled out & followed down to a point where it was fixed. The ileum was followed towards the colon and it was found to enter the common mass, when it was found that the gland-like mass was the caecum. The whole mass, was, with some difficulty, lifted out of the abdomen and removed, Ileum was sutured to colon.

Patient made a good recovery and when she left Hospital some weeks later, she was much stronger. The albumen had disappeared from the urine and pain on micturition had ceased.

Description of Specimen removed at Operation.

The caecum is almost entirely obliterated by a mass about the size and shape of a walnut. The caecal mass and ileum are much matted together. The Appendix is not seen, due to it being embedded in

adhesions. The peritoneal coat shows where there were adhesions between the mass and the iliac aponeurosis.

On laying open the mass, it is firm and tough as the knife passes through it, especially at its outer part. In the centre of the mass there is a softer area about the size of a threepenny piece. The cut surface is greyish-white and fibrous looking at its outer part and whitish in the softened area, which looks like a caseating area in a lymphatic gland. What appears to be the appendix is embedded in the mass - the appendix being like a fibrous cord.

Longitudinally the mass measures 2½ inches by 1 inch, at its widest part, tapering off gradually to each end.

The lower end of the ileum is dilated and hypertrophied to the extent of ¼ inch for a distance of 2½ inches. The walls are firm and fibrous looking. Mucous membrane appears quite healthy.

The ileo-caecal valve is so constricted that a rod with a diameter of ¼ inch would scarcely pass through.

The upper surface of the mass, looks to ileum and makes a diaphragm, concave upwards, right across bowel with the opening into

caecum at one side.

The upper end of colon shows no change.

Under the microscope, the centre of the mass shows the glandular elements of caecum and remains of the glandular elements of appendix.

Description of Microscopic Sections
Slide No VI

Section from the mass of tissue forming Stricture at ileo-caecal valve.

The Mucous Membrane shows a dense infiltration of lymphocytic cells on a connective tissue framework. Amongst the lymphocytic cells there are many Endothelial cells, especially is this the case in some round areas, which seem to invade the mucous membrane from the Submucous layer. Around these areas lymphocytic cells are more closely aggregated.

The Muscularis Mucosae is intact at parts, at other parts it is broken up by the circular areas mentioned above.

The Submucous Layer - shows many circumscribed aggregations of cells - endothelial and lymphocytic. Around these aggregations there are many lymphocytic cells. In some of these areas giant cells are seen. There is much connective tissue in this layer.

The Muscular Layer - at parts entire, Elsewhere invaded by collections of lymphoid like tissue. At some parts the muscle is lost altogether in the infiltrated area, being apparently replaced by fibrous tissue.

The Subserous coat is similarly invaded by lymphoid - like tissue & there is much connective tissue.

All the coats, especially the mucous membrane and the submucous layer show many vascular sinuses with blood pigment and polymorphonucleated cells.

What are apparently remains of the Vermiform Appendix, can be seen in this section.

Slide No VII

Section from Retro-caecal Lymphatic Gland.

The general appearance of the gland is that of a gland chronically inflamed. There are proliferation of the Germinal centres and some small areas of caseation are seen throughout the section. Many typical giant cell systems are seen. The gland shows a general fibrosis.

No Tubercle Bacilli were discovered.

Micro-Photograph No. II shows a portion of the section on Slide No. VI. X 100 diameters. It shows the glandular elements irregularly placed and round them dense embryonic infiltration. The submucous coat shows several giant cells & the increase in the fibrous tissue is well seen.

Micro-Photograph No III, shows a portion of section on Slide No VII X 60 diameters. The giant cell systems are well seen throughout the photograph, also the increase in fibrous tissue.

Remarks.

This case is an example of hyperplastic tuberculosis affecting the intestine at a part where it is most often observed - viz, at the ileo-caecal region.

The chief clinical points to be noted in this case are - the duration (7 yrs), the age of the patient (30 yrs): the anaemic facies, the history of long-standing gastric trouble, with occasional attacks of abdominal pain colicky in nature, accompanied in the attack which occurred while in Hospital by a swinging temperature. In addition there was a swelling in the right iliac fossa, tender to touch. Before attention was drawn to the swelling and tenderness in the Right Iliac fossa, the condition of the patient was such as to suggest Pernicious Anaemia and a blood film was said to give some colour to this view. After the swelling appeared, the diagnosis lay between Tuberculosis of the Ileo caecal region, Malignant disease and an old-standing Appendicitis with thickening. The age of the patient and the duration of the trouble, combined with

the symptoms were in favour of the condition being a chronic tuberculosis and the general condition of the patient was more in favour of that, than of Malignant disease. It was less easy to exclude an old standing simple Appendicitis.

Microscopic examination of sections from the mass removed and from a lymphatic gland, confirmed the view that the condition was a chronic tuberculosis.

Six months have elapsed since the operation and the patient has been in good health during that time. She has however recently developed a faecal fistula - her general condition is nevertheless very good.

Case No IV

J. K. male, aet. 61. Admitted to Mr Caird's ward in Edinburgh Royal Infirmary on 10th December 1901, complaining of obstruction of the bowels and swelling of abdomen.

Duration of Complaint: 9 months.

History of Illness.

The patient was in pretty good health till April 1901, when he suddenly vomited after taking some soup. He vomited frequently after this, sometimes bringing up some blackish material. Nausea was at times associated with the vomiting and latterly, to get relief from the feeling of constriction round the belly, patient occasionally induced emesis. The abdomen has been gradually getting more distended during the last two months and for a good part of that time there has been a feeling of constriction in the belly. Patient has always been troubled with constipation and for many years the bowels have not moved oftener than once in two or three weeks. He is also much troubled with flatulence. Since June 1901 patient

has lost flesh rapidly.
Previous weight, 11 stones : Present weight, 9st. 10lbs.

Patient has had good health all his life till now.

Family History : Mother died of 'Consumption'

On Admission - patient, who is tall and thin, has a very sallow complexion and he feels very weak.

Appetite is very poor. Patient has haemorrhoids.

There is not much pain, except from the feeling of constriction round abdomen and from flatulence.

Abdominal Examination.

The abdomen is much distended - surface is irregular owing to patterns marked out by coils of distended gut - these are most marked on the left side below umbilicus. There is no tenderness on palpation and no tumour can be felt. Percussion gives a tympanitic note over the front of the abdomen. At the sides a dull note is elicited - the dulness commencing 8" from the middle line on each side.

Circumference of Abdomen at level of Umbilicus - 35" on Expiration: 36" on Inspiration.

Circulatory & Respiratory Systems: Normal.

Urinary System - No albumen - no sugar.

On admission an enema was given and there was a large result - almost filling an ordinary bed-pan - some very hard lumps were passed. Six hours later another enema produced a motion only slightly less in quantity.

Two days after admission patient was operated on by Mr Baird.

Operation.

After opening abdomen in right linea semilunaris, the exploring finger found a tumour on the bowel towards right side of abdomen. Much straw-coloured fluid escaped from abdominal cavity.

The intestine was dilated and hypertrophied above tumour which was situated about 1½ feet above ileo-caecal valve.

Owing to the glandular infection of mesentery being considerable, and as the tumour was thought to be malignant in nature about 7o" of gut had to be removed

above tumour. The gut was divided 12" below tumour. Paul's tubes were tied into the upper and lower openings in gut as patient's condition, although not bad, did not seem to justify primary suture.
Two days later, the gut was approximated and sutured, the caecum and appendix, with ileo-caecal valve and a piece of colon having to be removed to permit of this.

After operation, patient did very well. Diarrhoea troubled him for some time and when he left Hospital in January 1902 he had several motions daily, watery in character.

On reporting himself in April 1902, when haemorrhoids were removed, patient still complained of having watery motions - several in the morning, after which he was, as a rule, free all day.

In August 1902, patient returned to Hospital. He was emaciated and tired-looking and complained of swellings in the belly. The abdomen was opened and the swellings were found to be masses of glands lying behind the small intestine

Nothing was done. After operation the glandular masses diminished considerably in size.

While the patient improved somewhat while in Hospital, he went downhill rapidly after going home and died early in December 1902.

Description of Specimen removed at Operation

There is a tumour situated in the ileum about 1½ feet above the ileo-caecal valve. The bowel is invaded in its whole circumference. The tumour exactly resembles a bobbin and it looks just as if a bobbin had been put into the lumen of the gut. There are no tubercles on the peritoneal surface, but about the middle of peritoneal aspect of tumour, there is a constriction which extends right round the bowel.

On opening the tumour, the cut surface is whitish grey in colour, of hard consistence, and the knife makes a creaking sound as it cuts through the mass.

The lumen, which is in the centre of the tumour, hardly admits the passage of a probe. Little excrescences from the

mucous membrane are seen which are about the size of a pin's head. Longitudinally, the tumour measures 1¼ inches and its radius is about 1 inch in length. The tumour is sharply defined above and below - its upper surface is concave whilst its under surface is convex.

The ileum above the tumour is very much dilated and its walls are thickened while below the tumour there is atrophy of the bowel. The valvulae conniventes above tumour are obliterated and the mucous membrane presents a velvety appearance. Below the tumour the mucous membrane shows no change.

There are many enlarged lymphatic glands felt in the mesentery, hard - mostly discrete, but at places several are bound together by adhesions.

Post-Mortem Examination.

Lungs - The left lung shows in upper part a patch of recent tuberculous broncho-pneumonia. There is hypostatic congestion in lower lobe. Bronchial glands are enlarged.

The Right Lung shows, in upper lobe, an old phthisical cavity, with calcareous nodules in its walls. There is hypostatic congestion in lower lobe. The bronchial glands are enlarged.

On opening the abdomen, there is some free fluid. The parietal and visceral peritoneum are not adherent except in the right lumbar region, where adhesions formed which connected colon with parietal peritoneum by a transverse band (this was just at site of junction of bowel). There were no adhesions between the intestines except the part where Sigmoid flexure was found firmly adherent to an enlarged mass of caseating retroperitoneal glands in <u>right</u> iliac fossa. Numerous enlarged glands are seen throughout the abdomen. The aortic and iliac mesenteric lymphatic glands formed a large protuberant swelling with a smooth nodular surface. Enlarged lymphatic glands are seen in the great and small Omentum & mesentery.

varying in size from a hazel-nut to a walnut - Some of them are softened - others firm.

On removing the intestine, the small intestine is healthy throughout except the lower 1½ feet of ileum where the mucous membrane is abraded and shows one or two irregular ulcers which penetrate to the submucosa. The line of junction of ileum with colon shows no stenosis - the peritoneal coats had united, the muscular coat and mucous membrane had united by cicatricial tissue.

The Large Intestine is healthy except at Sigmoid - vide supra - here there is a large irregular ulcer which penetrates through all the three coats and communicates with a cavity about 2" × 1½" situated in the centre of the caseating retroperitoneal gland.

Lymphatic glands on section show thickening of the capsule, the glandular tissue is to a great extent replaced by a caseous material of uniform creamy consistence, whitish-green in colour.

In the Liver there is a large nodule, about the size of a small orange, of consistence similar to the liver tissue, friable but not caseous, and not discretly marked off from the surrounding liver substance.

On section, the nodule is greyish in colour & the colour marks it off clearly from the surrounding liver tissue.

Description of Microscopic Sections.

Slide No VIII

Longitudinal Section from Tumour in Ileum.

At the narrow unbroken edge of section, glandular elements are seen. These are embedded in tissue, which shows many embryonic cells & endothelial cells, giving the part the appearance of a mixed-cell sarcoma. Proceeding outwards, there is seen a band of fibrous tissue which stretches across the greater part of the section. Further out, there is a layer which shows more clearly the structure of a mixed-cell sarcoma. There are round, spindle & irregularly shaped cells - many of the latter having several nuclei. Some of the irregularly shaped cells are very large. The cells are set in a granular looking substance. Vessels are seen containing many polymorphonucleated cells. At parts of the section extravasation of blood are seen and also blood pigment. The outer part of the section is much more fibrous in character - at places areas showing a hyaline appearance are seen. Cells, some of them like those described above, appear in small clumps, but

most of the cells here are lymphocytic.

Microphotograph No IV shows a portion of this section magnified by 250 diameters. At this part, the condition resembles a mixed cell sarcoma and round, spindle and irregularly shaped cells are seen. Some very large cells with several nuclei are well seen.

Slide No IX

Longitudinal Section from Tumour in Ileum. The piece of tissue from which this section was cut was just alongside the piece from which the above section was cut.

The Mucous Membrane shows many embryonic cells around the glandular elements, at some parts very closely aggregated. There are some areas showing embryonic & endothelial cells and around them many embryonic cells.
These cells are embedded in a connective tissue stroma. Hyaline looking areas are seen at parts of the section.

Papillae project from the free surface, and they are made up of embryonic & endothelial cells in a connective tissue framework. There are many vessels containing blood pigment and leucocytes.

The Muscularis Mucosae can be traced along the greater part of section.

In the Submucous coat there are collections of embryonic and endothelial cells, not so thickly aggregated together as in mucous membrane. Many areas show a hyaline appearance and there is much connective tissue.

The Muscular coat is broken up by the invasion of lymphocytic cells. There is much fibrous tissue seen around the fragments of muscular tissue and the same hyaline looking areas as are seen in the other coats are seen here.

The Subserous coat, shows much fibrous tissue and hyaline looking tissue. There are many embryonic and endothelial cells. In the vessels there are many polymorphonucleated leucocytes.

The Structure in this section is at

parts not unlike a sarcoma, but the likeness to Sarcoma is not so great as in the previous section.

Slide No X

Section from Anterior Caecal Lymphatic Gland.

Capsule is thickened. Under capsule there are areas showing central necrosis. In the centre of the gland, extensive coagulation necrosis and caseation are seen - the staining being homogeneous in the more advanced areas, and much granular debris is seen scattered over such parts. Where the destructive process is not so advanced, the fibrous trabeculae of the gland are made out clearly. Lymphoid tissue is scanty. Endothelial cells are numerous - they are irregular in outline and stain badly. There is a fibrosis throughout the gland. Giant cells are made out in the centre of some of the broken down areas which appear to be tubercle nodules. No Tubercle Bacilli could be found.

Slide No XI

Section from Retroperitoneal Gland

The capsule is thickened and within capsule there are collections of lymphocytic cells. Beneath the capsule areas are seen with necrosing centres round which there is a fibrous change. Elsewhere throughout the gland there are areas showing coagulation necrosis in various stages. The necrotic areas, under the high power, show a homogeneous material with much granular debris. The gland shows a general fibrosis and large irregular endothelial cells are made out at parts. The lymphoid tissue of the gland is scanty. A few giant cells are seen. The Tubercle Bacillus was not discovered.

Slide No XII

Section from an Aortic Lymphatic Gland.

The capsule is thickened and contains collections of lymphocytic cells. Throughout the gland there are areas, which are very like tubercle nodules, some of which show advanced coagulation necrosis - others are in

various stages of the same process.
There is a general fibrosis throughout the gland - the lymphoid tissue of the gland is scanty and large endothelial cells, some, vacuolated and degenerated, are seen in the parts where the coagulation necrosis is less advanced.
A few typical giant cells are seen in some of the Tubercle nodules. No Tubercle bacilli were found.

Slide No. XIII

Section from Mesenteric Gland.
Capsule is thickened. Throughout section there are many areas showing coagulation necrosis in various stages, and at some parts there is caseation - the staining in the latter case being homogeneous and pink - in the former case, the staining is deep with Haematin, and over these areas there is much debris - apparently broken down lymphoid tissue. There are endothelial cells, irregular in shape, scattered throughout the breaking down areas. Several typical giant cells are seen. Lymphoid tissue of gland is

scanty and there is a general fibrosis.
No Tubercle Bacilli were found.

Slide No XIV

Section from Nodule in Liver.
The liver lobules are broken up - the liver cells are irregularly arranged, some being found singly, others in clumps, and they are placed on a fibrinous groundwork. Many fat cells are seen throughout section.
Collection of lymphocytic cells are seen scattered over the section, in the centre of some of these collections, necrotic areas are found. Among these lymphocytic cells are found remains of liver cells. In several of the necrotic areas giant cells are seen, in one as many as four appear in one field under the high power. Throughout the section there is much fibrous tissue in which fragments of liver cells are seen.

Microphotograph No. V, shows:- the liver lobules broken up, lymphocytic cells, much fat, and a necrotic area with five giant cells in it

Remarks.

Looking at the clinical history of this case, and comparing it with the other three cases recorded, the first point, in which it differs from them, is in the duration of the complaint. In this case the duration was 8 months, while in the other cases it averaged about 6 years. The patient admitted that for some years before the time from which he dated the beginning of his illness, he had not been so robust as formerly. Thus while the patient had been incommoded in such a way that his attention had been drawn to his state of health for only 8 months, there is the history of long-standing constipation and flatulence, quite compatible with the presence of a slowly-forming obstruction_ the symptoms coming under the patient's notice as the obstruction became more complete.

The family history showed the presence of tuberculosis in the patient's relatives, and although, during life, no evidence of lung tuberculosis was found, post-mortem examination revealed fibroid phthisis in the upper lobe of the right lung.

As in many cases of Chronic Hyperplastic Tuberculosis, haemorrhoids were present, due, no doubt, to the long-standing obstruction of the bowels.

At the operation, the condition was at first thought to be a carcinoma, which very rarely affects the ileum; but the Pathologist after very careful examination pronounced the condition tuberculous.

When the patient returned later and the abdomen was explored, only to find masses of glands that could not be removed, but which subsided very considerably after laparotomy, the effect of the laparotomy added weight to the view that the condition was tuberculous.

The clinical features of the case with the exception of the duration, as dated by the patient, can be ranked under Chronic Hyperplastic Tuberculosis.

The microscopic examination, of sections from the tumour, reveals a very interesting condition, for the structure in some part is almost typical of a mixed cell sarcoma, especially in Section VIII.

Section IX, which was cut from a piece

of tissue, immediately adjoining the piece from which Section VIII was cut, shows more embryonic infiltration, although in parts, cells resembling those seen in a mixed cell Sarcoma can be made out. In Section IX the various layers of the intestine are seen, the muscular coat being broken up by the lymphocytic cells and showing very much the same appearance as is shown when muscular tissue is invaded by Sarcoma. In Section VIII only a small portion of the mucous membrane can be seen - the other layers of the intestine cannot be differentiated.

The sections of the glands show areas of coagulation necrosis and of caseation, which appear to be the result of tuberculosis, but still it is possible that they may be caseating areas in a gland secondarily affected with Sarcoma.

There can be little doubt but that the change shown in the section from the nodule in the Liver is tuberculous in nature.

The post Mortem examination favours the view that the condition is tuberculous,

The ulcers discovered in the ileum and sigmoid were tuberculous in appearance, and, together with the condition of the abdominal lymphatic glands and the discovery of fibroid phthisis in the right apex, weight was added to this view.

In this case, the question is, whether the condition is tuberculous or sarcomatous. Everything is compatible with Tuberculosis except the appearance of Sections VIII and IX which show a Sarcomatous structure. [8] Pellict and Thierry describe a case where the typical tubercle follicle were replaced by collections of Embryonic cells, and considering this case as a whole, it might be possible to rank the changes seen in these two sections under Tuberculosis.

It may be that Tuberculosis and Sarcoma are combined in this case, and, if so, it is most likely that the sarcoma followed the tuberculosis - the latter acting as an exciting cause for the onset of the former.

Etiology & Pathogenesis.

Sex: An analysis of cases of Chronic Tuberculosis of the Intestine, shows that this disease occurs almost in equal proportion in males and females. Of 77 cases collected by [9] Conrath 36 were males and 41 were females, while in other 22 cases 12 were males and ten were females. Accordingly as far as Sex is concerned the cases are very evenly divided.

Age: There is no period of life exempt from this disease. Cases have occurred in children aged [10] 3, [11] 3½ & [12] 6 years & in men of [13] 63 and [14] 68 years. The majority of cases have occurred between 20 and 40 years – 30 years being the average age at which it is found.

Occupation: Whether or not occupation has any influence it is difficult to say, but as gastric ulcer is found in shoemakers, weavers and saddlers, so Chronic Intestinal

Tuberculosis has been found in men following those trades and a case has been reported as having occurred in an [15]Agate-Grinder whose abdomen was subjected to pressure more or less constant for 12 hours daily.

From a case which [16]Hansemann cites where on a typical Typhoid ulcer there were recent tubercle nodules, it is seen that just as after pneumonia the lungs are in a favourable condition for the implantation of the Tubercle Bacillus, so after any of the acute inflammations such as Typhoid, Dysentery or Enteritis the Intestine is peculiarly liable to become infected by the Tubercle Bacillus.

The Intestine may become infected by the Tubercle Bacillus either by the swallowing of sputum by a person with lung tuberculosis or it may be through the agency of infected food that a mode of

entrance is obtained. From the frequency with which Tuberculosis is found in animals, it seems strange that primary Tuberculosis of the Intestine should be such a rare condition, yet, statistics show that primary Tuberculosis of the Intestine occurs very seldom as compared with secondary Tuberculos.
[17] Eisenhardt in 1000 post-mortem examinations on tuberculous subjects found that in 567 cases there was tuberculous disease of the Intestine, of which number 563 cases were secondary to tuberculous disease in the lungs, 3 cases were secondary to tuberculous disease in other parts of the body & in 1 case only was there found what appeared to be a primary tuberculosis of the Intestine, but Eisenhardt considered that this was a doubtful case. Nine of Eisenhart's cases were hyperplastic in nature. Others - [18] Frerichs, found a doubtful

primary case in 208 examinations of Tuberculosis of the Intestine.
[19] Fenwick & Dodwell found Intestinal Tuberculosis in 500 cases out of 883 in which the lungs were tuberculous. [20] Herxheimer found in 58 cases of Phthisis only one free from Intestinal Tuberculosis.
The above statistics show how rare primary tuberculosis of the Intestine is and how difficult it is to be certain of those cases that are thought to be primary. They also show how common Intestinal Tuberculosis is in phthisical patients and in these cases it may be taken that the Tubercle Bacillus has gained access to the Intestinal tract through the swallowing of infected sputum.
It has been stated by [21] Orth and [22] Dobroklonsky that the Tubercle Bacillus may infect the Intestine through an intact mucous membrane, the leucocytes being the agents of transmission, yet an

enteritis must most often be the predisposing cause of the lodgment of the bacillus.

Hyperplastic Tuberculosis of the Intestine is more often found in the region of the ileo-caecal valve than anywhere else.

[23] Jenwick & Dodwell state that in 85% of all cases the caecum is involved, the disease spreading up or down to it. In 9.6% of cases it is alone affected.

The dependent position of the caecum favouring the occurrence of stasis in the intestinal circulation and consequently favouring intestinal decomposition make it more easy for inflammatory affections to be set up there and for erosion of the mucous membrane by foreign bodies to occur. In addition the caecum and appendix are rich in lymphoid tissue and that tissue is readily attacked by organ-isms.

Of other parts of the digestive

tract, the stomach is comparatively free from tuberculosis because of the influence of the gastric juice, which, although it does not kill the Tubercle Bacillus, renders the soil unfit for its propagation[24]. [25]Mayo Robson records a case where the stomach at the pyloric end was studded with tubercles and a stricture the result of tuberculous ulceration was found in the duodenum one inch beyond the pyloric ring. The Pylorus is one of the favourite sites of cancer and possibly some of the cases of pyloric stricture, which have had lasting benefit from palliative measures, have been tuberculous in nature.

The upper part of the Small Intestine escapes infection as a rule, because over it the food moves rapidly. As the food however reaches the lower part of the small Intestine it moves much more slowly and the infecting agent has time to work.

Multiple Stricture, tuberculous in nature is commonly found in the ileum - the lesions may be only a few inches apart or they may be separated by 50 or 60 inches.

Stricture is seldom observed as the result of the usual circular ulcer-ation of the bowel where the lesion is rapid and destructive. The hyperplastic condition which occurs when tissue resistance is sufficient usually leads to the formation of a stricture, or the stricture may be independent of ulceration, being due to thickening of the subserous coat, a condition which[26] Conrath explains thus :- In children the mesenteric glands become affected by trans-mission of the Tubercle Bacillus through an intact mucous membrane : later in life, after trauma or inflamm-atory affections of the bowel, the Tubercle Bacilli, which have rested in the Mesenteric glands since childhood, become active and there is produced, most often in the

ileo-caecal region a subserous tuberculosis. He shows that both forms may be present - submucous and subserous - of independent origin, the submucous causing the subserous through the former lighting up activity in the mesenteric gland which has been resting.

The reason why Tuberculosis should in some cases be ulcerative, causing rapid destruction of tissue and in other cases hyperplastic can be understood if the progress of Phthisis is considered. In Phthisis the lesion may be rapidly destructive in one case, in another, healing with the formation of fibrous tissue & the result is due to the resistance which the tissues can offer to the Tubercle Bacillus. That the lesions in the Intestine are secondary to the pulmonary lesions, in the overwhelming majority of cases, has been clearly shown by the statistics of

Fenwick and Dodwell, Eisenhardt, Frerich and others, and it is interesting to note that in those cases where the pulmonary disease was advancing and destructive, the intestinal lesion was ulcerative and destructive, whereas in cases where the pulmonary lesion was either healed or slowly progressing, the condition in the intestine was hyperplastic. In the former case, the tissue resistance is very slight, there is a considerable amount of enteritis due to the frequency with which the heavily infected sputum is swallowed - in the latter case, resistance is much better, there is less opportunity for infection occurring, and consequently, the tissues are better able to resist the invasion of the bacillus.

But some consider that the pulmonary affection is secondary to the intestinal, - [27]Benoit & [28]Caussade and Charrier. It may not be

possible to detect any affection of the lungs during life, but, in cases on which sectios have been performed, an old fibroid lesion, most commonly in the apex of the lung, has been discovered, and it is easier thus to account for the reappearance of the pulmonary disease, rather than to account for it as secondary to the intestinal involvement.

Morbid Anatomy.

The condition of Chronic Hyperplastic Tuberculosis, reveals, in most instances, a tumour growth, which is a hyperplasia of all the tissues which go to make up the intestinal wall - the submucous coat being that which is most affected.

The commonest site is the Ileo-Caecal valve and the lower end of the ileum, but cases have

been recorded of tuberculous stricture of the duodenum & the jejunum.

With regard to the size of the tumour, there is much variation. In the ileo-caecal region it may vary in size - most of the cases recorded describing a tumour about the size of an orange. In the ileum there may be a tumour sharp and well-defined often filling the lumen or there may be a mass composed of mesentery and bowel firmly adherent - the bowel wall being much thickened for some distance longitudinally.

In early cases the tumour may be freely movable, later, not only may adhesions spring up between mesentery and coils of adjacent bowel, but there may be adhesions to the anterior abdominal wall or the mass especially when located at the ileo-caecal region may become adherent to the iliac aponeurosis. In these

latter cases, suppuration may set in, and fistulous tracks may be found opening through the anterior abdominal wall, or opening into any of the pelvic organs to which adhesions have been formed.

Multiple strictures may be found & the ileum is the common site of these.

On opening the bowel at the site of the hyperplasia, the walls are found to be hard and the same grating sensation is experienced as in cutting a hard pear. The cut surface is whitish in colour and has often the same appearance as the cut section of a fibroma. In some cases the various coats of the bowel may be made out by the naked eye. The lumen is very much constricted often scarcely admitting the passage of a probe; but constriction is not essential, as in a case recorded by [29] Caussade & Charrier

where the growth was eccentric and the lumen quite free. Caussade and Charrier's case, as remarked by Mr Crowder, shows that the hypertrophy is not a compensatory hypertrophy, brought about by constriction, as the wall of the gut in that case showed hyperplasia with dilatation of the part involved and entire absence of stricture.

The peritoneal surface of the intestine may have tubercles scattered over it and these tubercles serve to produce adhesions between the affected bowel and the neighbouring structures. In the cases recorded above no signs of any tubercles on the peritoneal surface of the bowel could be made out.

The Mucous membrane presents a change at once apparent to the naked eye, in the presence of papillomatous outgrowths or buds projecting into the lumen of the bowel. These buds vary in size from a pin-head to a hazelnut.

The outgrowths are found when the mucous membrane is intact as well as when ulceration is present- in the latter case the buds form a marked fringe at the margin of the ulcer as in the case of
31 Pellict & Thiery, where the buds even reached the size of hazel- -nuts. Ulceration may or may not be found in the mucous mem- -brane, commonly however it is present either as isolated patches or large tortuous areas & the bowel, both above and below the hyperplastic area may show, at parts, evidence of ulceration. The ulceration may be masked by folds of mucous membrane, radi- -ating in all directions. The floor of the ulcer, in these cases is covered with granulation tissue and it is the rule to find the ulcer in a chronic state with much infiltration around its base.

The bowel above the structure, is usually much dilated & hypertrophied

while atrophy of the intestinal wall is found below the site of stricture.

Enlarged lymphatic glands are invariably found in the abdomen; often, beside the stricture or mass of adherent intestine, there are bunches of lymphatic glands, much enlarged, in the mesentery. The lymphatic glands are, as a rule, firm in consistence and have the appearance of chronic inflamed glands. In some cases, softening and caseation of the glands may be noted.

The spread of the disease is by the lymphatic vessels, & hence the wide glandular infection which is met with - not only the neighbouring mesenteric glands becoming affected, but the retroperitoneal glands are often found invaded.

Other organs may become secondarily affected as in Case IV recorded above, where a nodule was found in the liver about

the size of a small orange. This liver infection is explained by the portal circulation acting as the carrier of the infecting agent and the hepatic infection may result in, either the formation of caseous masses or of a cirrhosis tuberculous in nature.

As regards the part which the Appendix Vermiformis plays in this condition - it is found alone affected very rarely. More common is it to find that when the Appendix is involved it is the result of secondary infection from the caecum, and again, even with ileo-caecal tuberculosis, the Appendix may be found healthy. When affected, similar changes to those found in the intestine are noticed. The Appendix may be discovered in the midst of caseous material or it may be bound down in a mass of adhesions and may be almost obliterated or reduced to a fibrous cord.

Microscopic Appearances.

In the Intestine affected by Tuberculosis - hyperplastic in character, the mucous membrane shows a marked thickening. There is a considerable infiltration of lymphocytic cells, but tubercle follicles are not often found in this coat, although tubercles, spreading from the submucous coat, are frequently present. Among the lymphocytic cells, endothelial cells and polymorphonucleated leucocytes are commonly found. The appearance presented under the microscope often shows a condition which is very like a mixed-cell sarcoma, or the appearance may be that of a small round-celled sarcoma, and the absence of tubercle follicles increases the likeness of the condition to a sarcoma. The connective tissue elements are increased in amount. The papillae so often seen are made up chiefly of lymphocytic and endothelial cells. The glandular elements are usually found to be atrophied and irregularly placed, and often

separated widely by lymphoid - like tissue.

The Muscularis Mucosae is seldom quite intact - it is hypertrophied and and irregular, and often broken up by Tubercle follicles spreading to the mucous membrane from the submucous layer.

The Submucous layer is considerably thickened and in this layer, the same lymphoid - like tissue is found, with endothelial and connective - tissue cells. Tubercle follicles are more commonly found in this coat and they are seen to invade the mucous membrane and muscular coats. When typical follicle are absent, circumscribed areas, composed chiefly of lymphocytic cells may be seen. Around the tubercle follicles and also around these circumscribed areas fibrous tissue may be seen to be much increased in amount & a fibrous evolution may even take place in the follicles. This increase of fibrous tissue accounts largely for the rigidity and hardness which the hyperplastic area shows.

The Muscular coats resist the tuberculous invasion more than the other coats. Between the muscular bundles and between the two layers, there is often much connective tissue and in the connective tissue are seen embryonic and endothelial cells. Tubercle follicles may be found between the muscular bundles and between the two layers, invading these parts as a rule from the submucous or subserous layers. The muscular tissue is often much broken up and fragments of muscular tissue mingled with fibrous tissue and cellular elements may be found encapsuled by fibrous tissue.

The Subserous coat contains the same lymphoid-like tissue as is found in the other layers - tubercle follicles are numerous and the fibrous change in the tissue of this layer is often very marked.

In all the layers, patches showing a hyaline appearance may be seen, but especially is this found in the muscular and subserous coats.

The Tubercle Bacillus is difficult to find in these cases. The more chronic the case the less often is it found - it seems to get swallowed up in the fibrous Evolution which takes place.

Course

The progress of the disease is slow. The tumour gradually increases in size, but when a stage is reached, when repair cannot proceed further, owing to failing health or active wasting disease, necrosis and abscess formation may occur, leading to the formation of a faecal fistula.

The disease may spread by the peritoneum, causing adhesions between it and coils of intestine, or it may spread along the bowel, either causing ulceration or hyperplasia, or thirdly, there may be extension by the lymphatic stream causing the mesenteric glands to become effected.

Symptoms

The patient is anaemic looking - the face has an earthy tint, the Conjunctivae are often jaundiced, and complaint is made of increasing weakness. The patient feels unfit for work or continued exertion of any kind, and he loses weight, often to the extent of several stones.

Pain is one of the earliest symptoms complained of, and it is usually dull and gnawing in character, and constantly present. The pain may be referred to the umbilicus, or it may be confined to one region of the abdomen. In addition there are very frequently found severe paroxysms of pain, coming on about 2 hours after food and lasting from a few hours to several days. These paroxysmal attacks may be relieved by vomiting, and the patient may even induce emesis for that purpose. While some patients are more troubled with intestinal pain, others have pain referred to the stomach - indigestion may have been complained of for

years and the patient may be the subject of attacks of gastralgia which appear some hours after food & last often for several hours.

Constipation and Diarrhœa are both observed, the former is however more common and the patients frequently give the information that they have suffered from constipation for years. Diarrhœa is more rarely observed, and the cases in which it is found are usually advanced cases where cachexia is well-marked and where there are evidences of advancing pulmonary or waxy disease.

Flatulence is much complained of and may cause the patient considerable distress, especially during the later stages of the complaint. The feeling of constriction often felt over the abdomen can be explained by the imprisonment of the flatus.

Vomiting may accompany the paroxysms above noted, and may, in the earlier stages, be the chief complaint, especially in the gastric form, and this has led to the patient being treated merely for a gastric catarrh.

Sooner or later after the appearance of the above symptoms, the more urgent symptoms, indicative of approaching obstruction of the lumen of the bowel appear. Pain becomes more localised according to the site of the obstruction, and the paroxysms of pain and vomiting increase in frequency. The vomited material is very fetid (not faecal unless obstruction is complete) due to the length of time that the food remains in the stomach. Constipation often becomes more aggravated.

Physical Signs.

Inspection of the abdomen shows it to be distended to a varying degree. During the earlier stages, distension appears with the paroxysms of pain, later it is more permanent. The peristaltic movements of the intestine are often seen, very markedly in some cases and intestinal patterns are clearly marked out— the two last signs being found when the obstruction is becoming more marked or is complete.

Tenderness on palpation is not very

marked. Over the site of the lesion, which very often is in the ileo-caecal region, tenderness may be elicited, but most often it is absent. A swelling may be found in the area affected, but the distension may be such as to obscure any tumour. When a swelling is felt in the ileo-caecal region it, as a rule, varies in size from a walnut to an orange— the skin moves freely over it and the fingers may be able to get under it, although this may be impossible owing to the presence of adhesions posteriorly. Sometimes the condition may be such as to suggest the presence of a localised suppuration. Splashing is frequently elicited and a metallic note may be imparted to it. Borborygmi are almost a constant feature of the condition and they may often be heard at the distance of several yards from the patient.

Percussion reveals an impaired note over the swelling if one can be made out; but if the distension is great there may only be found a high-pitched tympanitic note. The presence of fluid

will cause dulness in the flanks.

Haemorrhoids have been found in many recorded cases of Chronic Hyperplastic Tuberculosis - they were found in four cases recorded here.

The physical signs in the lungs may be negative or signs of fibroid phthisis may be found. Scars, the result of glandular abscesses, may be observed or there may be other manifestations of tuberculosis.

Diagnosis

In considering the diagnosis of this complaint, there is nothing very definite to be relied upon. The disease occurs at all ages and many cases are met with at very much the same period of life as malignant disease is met with. The History gives more help. The Personal History may show that the patient suffers from other forms of tuberculosis, evidenced by the history or presence of phthisis, or by the presence of scars in the neck, the result of glandular abscesses, tuberculous in nature.

The Family History may show that tuberculosis has affected the lungs or other parts of members of the same family.

When the patient comes under observation it is commonly found that he has suffered from some of the symptoms mentioned above for some considerable time. The length of time the illness has lasted is very important, for often this precludes the possibility of malignant disease, to a certain extent, for this disease usually proves fatal within twelve or fourteen months, while

the patient with tuberculous disease may give a history of having suffered for a considerable number of years.

The presence of a palpable tumour gives little help, for although the ileo-caecal region is the commonest site of tuberculous disease, yet it is also a common site for malignant disease and in addition the simple inflammatory conditions have to be taken into account - E.g. after repeated attacks of Appendicitis a distinct tumour may be felt and the general condition of the patient may be such as to cause an error in diagnosis to be made very readily.

Looked at from the point of view of Symptomatology, the profound cachexia of malignant disease is substituted here by a facies more anaemic in character - the emaciation has not been so rapid, the weight having fallen gradually.

The long-lasting chronic intestinal obstruction which may have become acute by the time the patient comes under observation, with the history of constipation, of vomiting, of gnawing

constant pain, of the painful crises coming on shortly after food, together with the distension of the abdomen, splashing and borborygmi - all these would be justification for considering the possibility of Chronic Tuberculous disease of the Intestine.

Exacerbation of temperature and a quick pulse may be found in this disease, while malignant disease, as a rule, shows a subnormal temperature.

Actinomycosis is a rare disease occupying the same sites in the intestine as tuberculosis; but here a tumour is found with remarkable fixation and to touch a woody hardness. Often a fistula is present and from it the typical sulphur bodies are got.

The absence of a history of Typhoid fever or Dysentery excludes stricture from those causes.

Treatment.

The patient, as a rule, comes under observation when symptoms of chronic obstruction have set in, and these symptoms may be such as to indicate operation for the relief of the obstruction and it may not be until the abdomen is opened that a diagnosis is arrived at & even then it may not be possible to say definitely what the nature of the complaint is.

It is in the latter class of cases that doubt exists as to the line of treatment to be adopted, for where the diagnosis is made either before or during operation the affected part is removed wide of the disease, but not so wide as would be necessary were the case malignant in nature. The enlarged mesenteric glands may mislead the operator very easily, as, in tuberculosis, they may be firm and discrete, as they usually are in malignant disease, and a tremendous sacrifice of bowel must be made, if the affected mesentery is cleared away. In Tuberculosis the glands may be left, for when the

focus of the disease is removed, the tendency is for the activity of the lymphatic glands to cease.

Thus it is seen how important it is for treatment that the condition should be diagnosed either before or during operation.

The Treatment desired therefore is removal of the focus of the disease; but this may be imposible because of adhesions or areas of suppuration and then recourse may be had to short-circuiting. Advancing phthisis or waxy disease usually forbids further interference than the formation of an artificial anus and even this may be rendered impracticable owing to the site of the stricture.

The results got from excision of the hyperplastic mass have been very good, much relief is afforded the patient from many of the symptoms which have lasted for years and the general health, as a rule, improves greatly. The best results are naturally found in young patients

After 50 or 55 the vitality of the patient is much impaired and while much relief is experienced, the same results as are found in the younger patients, cannot be expected in those who are older and enfeebled.

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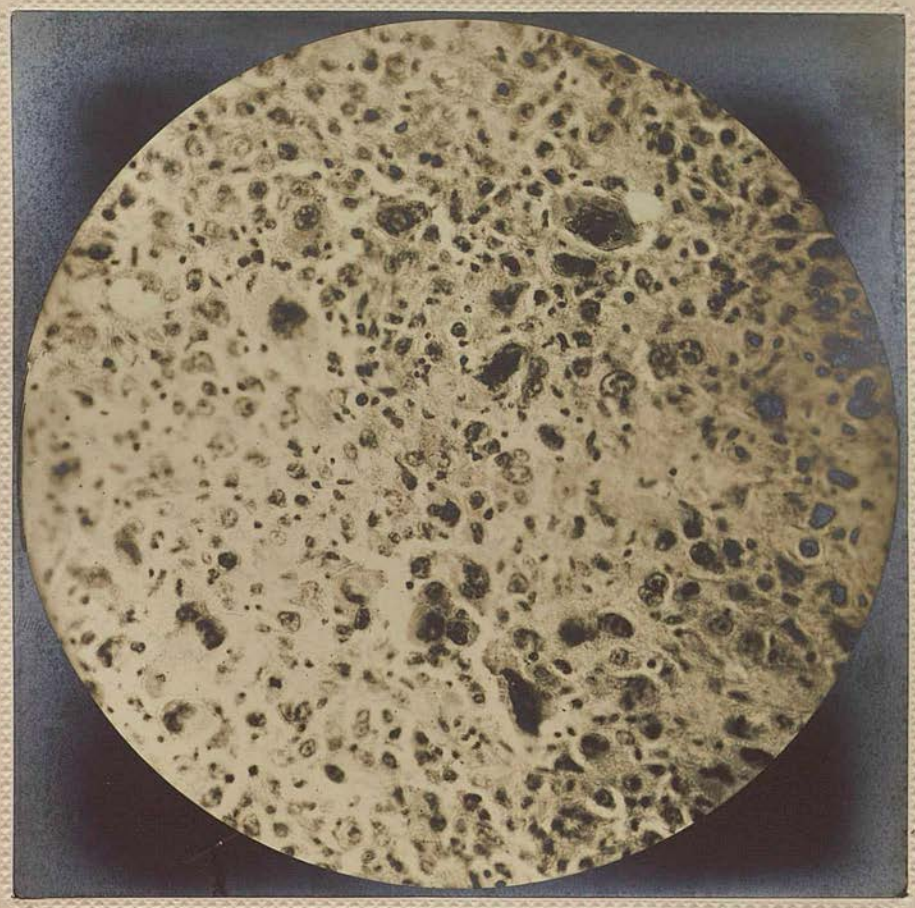
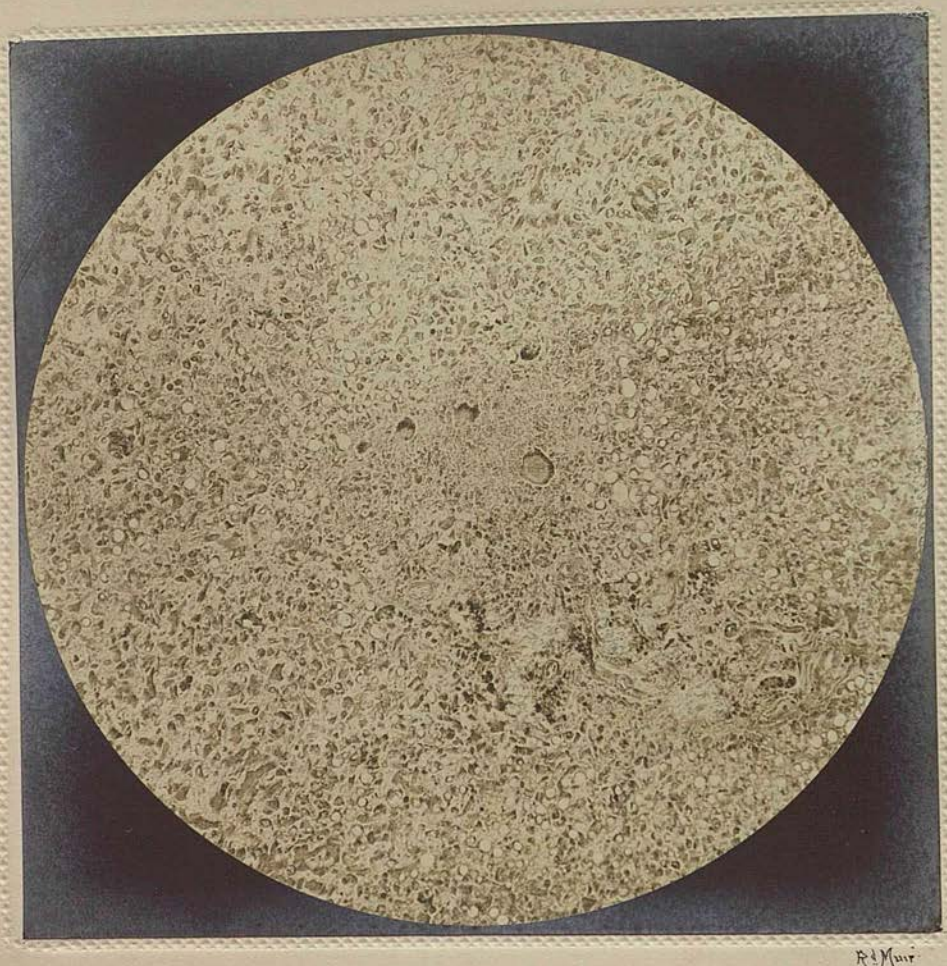
MICROPHOTOGRAPH No.1 Page 10

MICROPHOTOGRAPH No II Page 30

MICROPHOTOGRAPH No. III



MICROPHOTOGRAPH No. IV Page 43



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