M D Thesis

Urethral Rheumatism

by

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Urethral rheumatism

Gonorrhoeal or as I prefer to call it, urethral rheumatism is a comparatively recently discovered and described disease and for this reason I have chosen it as the subject for my thesis. Besides this there is no very definite or accurate account of this disease to be found in any of our standard text books and many misconceptions are prevalent as to its nature and varieties. I have perhaps been peculiarly fortunate in seeing a large number of cases of this somewhat uncommon and interesting malady and I made a special study of it in the Hôpital du Midi at Paris under M Mauriac & M Hertoloup. One of the most striking features about Urethral rheumatism is the brevity of

of its history. It has hardly been described for a century and when we consider the hoary antiquity of Gonorrhoea and the fact that some of our forefathers must have had Gonorrhoea and some proportion of them suffered also from urethral rheumatism, it seems inexplicable that the connection between gonorrhoea and subsequent rheumatism was not noticed and described almost centuries before it was. I think the best way to bring out this point is to look back to the history of Gonorrhoea and then to try to shew by whom the connection between a urethritis and rheumatism was first noticed and worked out.

We must go back to Mosaic times to trace the history of Gonorrhoea. If we refer to the Book of Leviticus Chap XV verse 32 we find the expression "running out of the flesh": Now this is certainly a clerical translation of penis (=flesh) and when construed with the context of "defiling the bed etc" I cannot see that we can come to any other conclusion than

that gonorrhoea is meant. In the Spanish Bible the expression "issue of the flesh" is actually translated by the word gonorrhoea for we find "El hombere que padice gonorrhoea sera inmundo". Let us now turn from Moses to a more eminent medical writer viz Hipprocrates, who in "De Morbis mulieris" gives a doubtful description of gonorrhoea. Herodotus says of the Scythians retreating from Palestine and who had pillaged the temple of Venus that they were afflicted with the "female disease" (Ἔνδεεις or gonorrhoea). Paracelsus from the context seems by "cambucca" to mean gonorrhoea as he says it is "mictura saniei vel puris citrini and also "Si post actum venereum sequitur ardor et tumor, haec cambucca dicenda est, and a little further on he says: Illa materia quae fecit bubonem fecit cambuccam.

Rogerius in the 12th century describes gonorrhoea fully with its treatment by poultices and goose grease, diuretics and injections.

Musa Brassavolus described gonorrhoea

in 1551 and was subsequently copied by Gabriel Fallopius in 1555 and Fernelius in 1556. Dr Weatherhead in his book on Syphilis pg 231 says that they were wrong in describing this (gonorrhoea) as a new symptom as Alexander Benedictus in 1495 with Marcellus Cumanus were the first to write on gonorrhoea by its name for he speaks of the disease not only as "epiphora" and "genitura profluvium" but calls it gonorrhoea: Vocis genitura profluvium. quem gonoréen Graeci vocant, saepe evenit, hoc tempore praesertim: and also "Quando pus sine urinâ distillat: The question of "who first discovered the relationship between gonorrhoea and rheumatism?" cannot be answered with certain accuracy. As far as I have been able to discover Musgrave in "De Arthritide symptomatica 1723 speaks of venereal arthritis but it is quite impossible to make out to what kind of complication his description refers. The first definite mention of this relation

-ship is I think to be found in "Antonii Störck Libellus quo demonstratur est Viennae 1769. In England John Hunter in 1781 was the first to describe a really well marked case. He says "I knew one gentleman who never had a gonorrhoea but that he was immediately seized with rheumatic pains and this has happened several times" Swediaur also in 1781 describes this affection in "Arthrocele, Gonocele or Blennorhagic swelling of the knee (Paris 1781) Sir Astley Cooper and Sir Benjamin Brodie were also amongst the first to study this new disease and it was also noted by the elder Clive. After these Ricord, Rollett, Fournier, Bonnet of Lyon, Foucart, Brandes, Vidal, Cullerier, De Méric, M Hardy, Dr Angelo Scarenzio and Langlebert have most contributed to stamp this affection as a special nosological entity.

Sir Astley Cooper says (Lancet 1823-24 Vol 3. 4 pp 273) "It is by no means an infrequent occurrence for gonorrhoea to produce rheumatic

pains of joints whether by absorption of poison or constant irritation I do not know, but certain it is that gonorrhoea produces rheumatism and ophthalmia when not a single drop of pus has been applied to the eye. I do not recollect it being mentioned in any surgical work though by practitioners it must be often met with.
In an inaugural dissertation by Dr Brandes (1843) I find that Monteggia printed three instances of gonorrhoeal rheumatism in his "Annotazione etc Milan 1793 and Swediaur in 1784 gives 6 or 8 cases. Dr Copland quotes the former work but I have been unable to find a copy of it.
Thus while we see that we can trace the probable history of gonorrhoea to a reference in the writings of the great law giver Moses, we can only find the first description of the observed relationship between gonorrhoea and rheumatism in the writing of John Hunter who may be justly termed the Moses of any surgical pentateuch.

I shall now pass on to consider the various characteristic of urethral rheumatism and shall begin with a.

Definition

Urethral rheumatism may be defined as "a form of inflammation of the joints and associated structures, the essential nature of which is unknown, occurring in the subjects of an inflammatory discharge from the genito-urinary mucous membrane.

Nomenclature

This form of rheumatism (for want of a better name) only accompanies inflammation (acute or chronic) of the urethra and hence the name "Genital rheumatism" given by Lorain to this disease is bad as is also the name Gonorrhoeal rheumatism for Sir E Home & M Velpeau have recorded cases in which a urethritis set up by the passage of a bougie was followed by the disease. I therefore think that the name "Urethral rheumatism given by M Fournier is the best.

The French synonym for Urethral rheumatism

is "Arthrite blennorrhagique" and the German "Tripperrheumatismus". The term Blennorhagic synovitis is used by some writers to express the same disease as urethral rheumatism. The terms Gonocitis, Gonorrhoic arthritis and Gonorrhoic rheumatism have also been used.

Ætiology.

Predisposing Causes.

This affection is more frequent than is generally supposed and occurs commonly (in the chronic form) in men of anæmic or weakly constitutions whose habits and occupations are sedentary and unhealthy and particularly does it occur in those cases in which a gonorrhoea has been treated by a long course of antiphlogistic remedies. In my limited experience it very rarely occurs in florid and healthy men as Erichsen tells. I saw a large number of cases of gonorrhoea in the Lock Infirmary of St George's Union Westminster and I should think nearly

10% had rheumatic complications and those who had this complication were the most anaemic, illfed and wretched specimens of humanity that could well be found.

There is not I think much reliable evidence to support the overated theory that a rheumatic diathesis is a strong predisposing cause for in the great majority of cases the causes of acute rheumatism have seemed without any influence. There seems to be a special kind of predisposition which is not a tendency to the rheumatic diathesis for if the subjects of this disease be interrogated it will be found that ~~in~~dependent of the urethritis the joints remain perfectly healthy and are nowise liable to contract muscular or articular pain on exposure to cold. M. Rollet says "that in many cases under his notice there was no rheumatic diathesis in the patients or their relations and the converse also deserves additional weight from the frequency with which urethral rheumatism having once

occurred is re-excited by a subsequent urethritis". M Rollet goes on to assert that there is even an antagonism between gonorrhoea and a rheumatic diathesis in virtue of which he believes that a gonorrhoea sometimes cures a patient of the tendency to a rheumatic diathesis. He says he has observed one case and he records another observed by M Diday. I should think both these cases ought to be ascribed to accidental coincidences as it is without doubt a most dangerous theory to entertain and though if true tending perhaps to diminish simple rheumatism it would certainly increase the frequency of urethral rheumatism.

In this cold climate of ours urethral rheumatism is much more common than in the warmer south and in consequence M Vidal & Dr Hervey insist on the necessity of a rheumatic, gouty or lymphatic temperament.

Previous attacks most powerfully predispose to a recurrence on the access of a

fresh urethritis however mild and persons who have suffered are exceedingly susceptible to a urethritis even after sexual intercourse

Sex.

Taking all varieties of urethral rheumatism into consideration it is more common in the male than in the female and this may be accounted for by the superior length of the male urethra. The disease is peculiar to adults and has been observed as late as 50. Dr P.H. Pye Smith says (Guy's Hosp. Reports VOL XIX p 311) In 29 cases of urethral rheumatism all were men and that he has never seen a case of urethral rheumatism occurring in the female.

Exciting causes.

Urethral rheumatism as its name implies is always referable to a urethritis. A somewhat similar disease may rarely occur in chronic uterine disease, in the puerperal state and in chronic bronchitis. An injury to a joint may cause the rheumatic attack to settle in the injured joint

Wm Acton says: It is a popular error that driving in or curing the discharge causes the rheumatism but in 99 cases in a 100 it is not so in as much as it is very difficult to cure it (when once fully established) in cases where the rheumatism coesists with a urethral discharge." Barwell says "For every case of rheumatism coming on after the discharge has been cured we find ten where it remains in statu quo well nigh invincible to all our methods of special treatment." It often happens that an acute attack of urethral rheum-atism at its onset causes a diminution of the discharge but it usually returns and forms one of the most obstinate features in the attack. Dr Fuller says: It is due to a specific vaginal poison different to that of gonorrhoea and that the disease has nothing in common with rheumatism as typified by an acute attack of rheumatic fever except the pain and occasional swelling of the joints. The theory of metastasis is

untenable as is also the theory which attributes the urethral rheumatism to the indiscriminate use of cubebs and copaiba. Dr Babington supported this theory and a case caused? by copaiba is recorded by Dr Kinnier (Lancet Vol I 1846/70). Dr Hovegrath believes that there is a special fungus peculiar to gleet and that it lasts a lifetime despite its apparent cure. This belief may in someway support his statement that eight of every ten adults have suffered from gonorrhoea.

Mr T. W Nunn says that urethral rheumatism is due to a faulty relation between the urethral mucous membrane and that of the kidney

Dr Ord says "It is probably produced by reflex nervous influence as in the reflex paraplegia as named by Brown Séquard.

The following summary by Mr Fournier is I think admissable

I Urethritis is the essential, effectual and indispensable cause of the rheumatic

symptoms and these symptoms are never really manifested without a urethritis

II It is urethritis alone that is accompanied by these complications

III Predisposition occurs in some individuals to this variety of symptoms; such a predisposition and so powerful an idiosyncrasy that every fresh urethritis is almost inevitably the origin of a fresh attack of urethral rheumatism

IV Urethral rheumatism is produced in the female as well as in the male.

Varieties

I shall give esctracts from some of the chief surgical authorities to shew the differences between them as well as a want of accuracy as to the varieties

In the first place Professor Thiry of Brussels in 1859 formally denied the existence of urethral rheumatism except as a coincidence and Niemeyer denied its excistence in the upper extremities

Erichsen says "Urethral rheumatism principally occurs in young and otherwise healthy subjects (as a rule I believe

the subjects of it are most unhealthy and anaemic). He goes on to describe two varieties

"I The most common and typical variety in which the fibrous and muscular structures are affected

II The joints implicated. It appears to be closely associated with blood poisoning. possibly in some cases with pyaemia.

It is of two kinds

(a) The fibroid or plastic

(b) The suppurative

(a). The fibrous is intimately associated with those forms of blood disease in which fibrous exudations are found in internal organs more especially on the surface of serous membranes as the pleura, peri and endocardium.

(b) The suppurative form more rarely appears. It seems to be a variety of pyaemia directly due to self infection of the patient from pus retained in the deeper portions of the urethra or contamination of the system through the lymphatics. In these cases when it

affects a large joint, it is always monarthritic. The knee specially suffers. Permanent ankylosis consequent on destruction of cartillage resulting. The synovial form presents the usual characters of severe and often destructive inflammation of the joint. Ankylosis is the chief danger to be apprehended as a remote result of urethral rheumatism and it is mostly incurable."

This is by far the best account I have been able to find in any of the standard authors and it is very far from perfect. Professor Billroth states "It almost invariably attacks the knee and generally occurs on both sides and is a subacute serous synovitis which generally terminates in a complete recovery provided that the patient will rest and avoid further irritations of the urethra."

Mr Holmes says "It almost always affects the knee, other joints may be implicated but I can hardly recollect a case in which the knee was not the

chief seat of the disease. It is far rarer in women than in men."

A summary of the usual descriptions may be briefly summed up.

Affects the knee. Rarely women. Resembles chronic synovitis. Very intractable & chronic

I propose to enumerate four varieties and I hope to show that urethral rheumatism does not always affect the knee, that some varieties are equally common in women as in men and that it may come on as an acute attack.

I Urethral rheumatism is not merely an affection of joints occasionally accompanied by ophthalmia but is a more general disease which may extend to various organs and present symptoms of inflammation of various tendinous and mucous sacs of muscular rheumatism, of simple pains, of different forms of ophthalmia, of neuralgia of the sciatic and other nerves, of periostitis, and inflammatory lesions of the pericardium or endocardium, of the venous system, of the rachidian and cerebral meninges,

of the liver, salivary glands etc etc.
II Urethral rheumatism may exist without any joint affection and be manifested by special forms of ophthalmia, tendinous synovitis, muscular pains, neuralgia and periostitis. In 15 cases of 52 observed by Fournier the joints remained healthy.
III By making a numerical comparison of the joint affections and the non-articular manifestations of urethral rheumatism we shall arrive at the unexpected result that the latter are much more common than the former and even in cases where the joints are affected, the non-articular manifestations are generally considerably more numerous than the articular
IV Urethral rheumatism though rarely affecting more than three or four joints simultaneously, often presents a multiplicity and dissemination equal if not superior to what is observed in simple acute rheumatism. M Fournier quotes two cases which confirm this

In one the local morbid symptoms amounted to 18 and in the other to 27. The articular lesions present four forms

A. Hydrarthrosis (urethral synovitis)
B. Rheumatic or arthritic form (gono arthritis)
C. Painful form (simple arteralgia)
D. The knotty or pseudo-gouty form.

The first two of these forms are by far the most important and frequently described

A. Hydrarthrosis

The pain in the joints is not severe and is generally described as dull, constant and aching and is as a rule worse at night and it may only be felt on movement. The joints are invaded with a doughy tumefaction. There is no local or general reaction and the occurence of redness is very rare. There is abundance of oedema and effusion and it is very chronic. This form generally occurs in males and often locates itself in the knee joint. It is very rarely acute and seldom if ever goes on to suppuration.

The ligaments and other structures around generally escape though sometimes the disease occurs in the sheath of the tendons, bursae or nerves. Cardiac complications are very rare in this form. Perspiration is absent or insignificant and no change in the urine is to be observed.

Dr Pye Smith records 29 cases, all males, and most out patients. He uses the name gonorrhoeal synovitis to distinguish from acute rheumatism with which however he believes it has no connection. The ages in his cases are recorded. One was eighteen. Two nineteen. Nineteen between twenty and thirty. Six between thirty two and thirty nine and one was forty-one.

This form is usually described as the common form but M Fournier places it much lower than other manifestations.

B. Rheumatic arthritic form

This form is very acute, like an attack of ordinary acute rheumatism. It occurs with equal frequency in both sexes and is perhaps even more common in

females than in males. It attacks like acute rheumatism several joints at once but is afterwards generally confined to one and that one is most frequently the elbow. The knee so often the seat of hydrops is not often affected with this severe form. The appearance presented by the joint is different to that in acute synovitis. There may be effusion into the synovial sacs but the most striking feature is the oedema of the soft parts round the joint accompanied as a rule during the height of the attack by redness of the skin. The swelling is often very great and when the elbow is affected may reach from the wrist to the shoulder. The slight effusion into the synovial sacs is probably secondary to the effusion in the adjacent tissues as seen in an acute attack of periostitis near the end of a long bone. The joint is very tender, hot and full of pain and at any attempt at movement the pain is generally excruciating. The general temperature

is not much elevated but the local is often considerably so. This condition of swelling may be mistaken for phlegmonous erysipelas and I know of one case in which an incision was made into the wrist joint under the idea that the joint was full of pus. This conditions affects the fibrous tissues and secondarily the synovial membranes and cartilages. It may occasionally suppurate (Gonorrhoeal syndesmitis it has been termed)

The occurence of this form may be summed up as follows

Though it has no relation to the severity of the urethral discharge it generally comes on during the acute stage (being in this respect unlike the hydrarthrosis form which is usual after the discharge has become chronic) and it occurs in adults under middle age.

It is as frequent in females as in males if not more so. In 12 cases recorded by Davies Colley 9 were females

It may attack any joint but most often the elbow (8 in 12) and then the wrist.

Like acute rheumatism it first attacks several joints and then as a rule confines itself to one
It's seat is in the fibrous tissue of the joint. There is great oedema, pain, redness and tenderness to touch. The ligaments soften and the cartillages are disorganized
There is little synovial effusion.
At first it may be confounded with acute rheumatism and after with phlegmonous erysipelas, bursitis, lymphangites, phlebitis, gout or pulpy degeneration of the synovial membrane.
Suppuration may occur or fibrous ankylosis result.

C. Simple Artheralgia

Simple articular pains may be observed in the course of a recent urethritis and coincidentally with other symptoms of urethral rheumatism & with long standing urethritis and then most commonly without other manifestations. There is nothing abnormal to be seen in the joints. There is plenitude of motion and no redness or swelling-

The joints can be moved without any cracking being heard and on pressure are hardly tender and often absolutely painless.

D Knotty or Pseudo-gouty form

This is a complex form involving joints and periarticular fibrous tissues. There is a peculiar periarticular deformity, resulting either in hypertrophy of the osseous extremities or in hyperplasia of the peripheral fibrous tissues and constituting about the joint nodosities which present some analogy in their aspect to those of gout. The joint affected may be painful or not, red or not, and may be completely immoveable or susceptible of imperfect motion. To the touch the affected joint is sometimes found surrounded with diffuse solid oedema and in others it gives the sensation of a subcutaneous osseous tumour or of a hyperostosis. This form has been met with in phalangeal joints and in the great toe. The urethral origin is proved as in all cases they have always

coincided with other unmistakeable manifestations of urethral rheumatism. In all cases without exception they were presented in non-rheumatic and non-gonty subjects. This form is of long duration and may last many months

Urethral periostitis and periostosis are of pretty frequent occurrence though generally confounded with the articular manifestations.

This variety presents two form

(a) One a simple inflammatory lesion of the periosteum (periostitis)

(b) True tumours adhering to the periosteum resulting probably from a plastic infiltration between the membrane and the bone (periostosis).

(a). Urethral periostitis

Pain is felt by the patient at some circumscribed point over the bone. Very acute suffering is caused by pressure on the part (often limited to the size of a shilling) At the seat of the tenderness there is generally some.

swelling and the skin may be somewhat congested and red. This tenderness persists for a few days and then vanishes but in rare cases it may continue and plastic material form a node.

(b) Urethral periostosis.

Solid exudations may occur. The exudation forms a tumour on the surface of the bone, flattened, diffused, immoveable and adherent to the bone. It is painful at first but after a time it is less so. It is of long duration and may persist for several years though M. Fournier says it nearly always terminates by resolution.

Seat of urethral rheumatism.

No joints can be said to be exempt and on the whole the knee is the most often affected

In ten cases by V de Mérie Six had urethral rheumatism in one or both knees. One in the hip. One in the jaw. One in the ankle and in the tenth several joints were affected at the same

time. Duplay and Brun say they have seen it most frequently in the wrist, elbow and smaller joints as in the phalangeal joints of the hands. The following is a table of 81 cases observed by Mr Fournier, Brandes and Rollet

Knee 64 Ankle 30 Hips 15
Wrist 10 Fingers & toes 15 Shoulder 10
Elbow 8 Sternum & Clavicle 3 Tarsus 2
Lower jaw 1 Tibia & fibula 1 = Total 159

Fournier gives the following table of his observations

Synovial membrane of joints 51
Tendons 10 Muscles 10 Bursae 6
Sciatic nerve 5 and 9 cases in which it was impossible to say where the pain really was"

Besides the joints the ocular tissues are often affected and the bursae of muscles and tendons especially the tendo Achillis. Ricord says "Severe pain in the plantar region apparently in the fashia is common" Dr Lieberman records a case of urethral

rheumatism in the crico-arytenoid joint. Urethral rheumatism is less prone to change its seat than acute rheumatism. This is evident from the above table in which it is shewn that at 159 joints were affected in 81 cases, an average of nearly two joints per case. The proportion is very much greater in acute rheumatism In 10 cases of 19 by Foucart only one joint was affected and also in 3 of 34 by M Brandes and 10 of 28 by M Rollet. This gives a ratio of about $\frac{1}{3}$ in which urethral rheumatism a single joint but more extended statistics tend to modify this. In 34 cases reported by Brandes the knee was affected in 28 and was the first joint affected in 15.

When urethral rheumatism does extend, the joint first affected does not recover its normal condition but remains in a state of inflammation thus differing from acute

rheumatism but approaching rheumatic gout.

Urethral rheumatism occasionally attacks the heart but this is a much more common complication in acute rheumatism. No affection of the lungs or pleurae has as yet been noticed. Rollet has seen one case in which the seat of the rheumatism was a bursa accidentally developed over the acromion process and Cullerier met with urethral rheumatism in the bursa patellae." In 29 cases recorded by Pye Smith the feet were affected in over 20. The ankle, sole, heel and instep being usually painful. The knee was inflamed in 14 cases, the wrist in 6, the shoulders in 3 and the hip and elbow in 1. The toes were often painful but the fingers seldom. The muscular form is tolerably frequent and affects the muscles of the extremities and the arms and thighs principally. Cloquet says the hip is the most often implicated.

All articulations and all fibrous structures of the body may be attacked not even excluding the spinal dura mater. M. Cloquet says that in women the coxo-femoral articulation is the most often affected while in men it is the tibio-tarsal articulation. M. Gibert places the most common seat of urethral rheumatism in the calcanean articulation and says the pain is often refered to the tendo Achillis. In recent cases of this disease the structures connected with one or more of the articulations are acutely inflamed. The cavity of the joint contains a various amount of serous effusion according to its form and size, the knee for example, being considerably distended while a smaller joint is more moderately enlarged. In more advanced cases the joints are found to contain either sero-purulent or purulent materials the cartillages may become eroded and finally the articulation may become completely disorganised or ankylosed.

The relation of Urethral rheumatism to the urethral discharge is very uncertain and variable.
In 3 of 28 cases the pains began a week after the discharge commenced. In one three, in two four, and in one six weeks after and in three only after nine months and in the remainder of the 28 cases at intermediate times. In a few cases there was still free discharge but in the majority it was diminished and in some even reduced to a slight gleet denied by the patient and only to be ascertained on inspection. Dr Pye Smith is of opinion that "Urethral rheumatism once established is independent of the urethral discharge and he was unable to observe any constant relation between them direct or inverse". Sometimes the urethral rheumatism occurs with the commencement of the discharge and sometimes one, two or three days later; and the rule which

has been laid down that the pains are severe in proportion to the severity and abundance of the discharge rests upon no foundation, for they are met with in acute and subacute forms of urethritis and in that which is manifested by only the slightest discharge. It is not rare to find the urethral discharge suddenly stopping when the articular pains come on, to return when they have been relieved. Urethral rheumatism may precede the urethral discharge and such cases are usually more severe. The discharge is often more profuse for a few days preceding the outbreak of the rheumatism and this is especially to be noticed in long standing cases. M Velpeau states "that the discharge continues unaltered for some little while after the invasion of the urethral rheumatism but is subsequently greatly modified and almost always much diminished."

Complications

M. Fournier states that sciatica figures among the many complications of urethral rheumatism. In an ordinary case of urethral rheumatism sciatica springs up without any apparent cause and in a few days disappears. It has been noticed in several attacks of urethral rheumatism. He (M. Fournier) refers to two cases in "Home on Stricture" besides those in his own practice.

In some cases the sciatica alternates with other rheumatic symptoms.

The evolution is different to ordinary sciatica. It begins and reaches its summit suddenly. The pain at first is excessive and after becomes bearable and by the 4th or 5th day relative ease is established and continues.

It is easily curable by the ordinary treatment

Attention is called to mistaken sciatica which is really a mistaken hygroma of the ischiatic bursa.

Eye.

A form of general inflammation of the eye very often accompanies urethral rheumatism and is indeed so frequent that it ought perhaps to be described as a symptom and not as a complication of urethral rheumatism. It is usually preceded by the articular symptoms. It may be termed a static or sympathetic inflammation. M. Rollet says it is always a keratoiritis. It begins with a slight pain and watering of the conjunctiva and it subsequently affects the sclerotic and not infrequently the iris. The caruncular are red and injected and there is sometimes much photophobia. The most characteristic appearance is the injection of the fine radiating vessels of the sclerotic which form a ring round the cornea. The iris is generally involved secondarily. and is inflamed as a rule to a less or more superficial esctent than in other forms of iritis so that there

is much less chance of adhesions to the capsule being formed and tubercular excrescences are probably never seen on the surface. One eye is usually affected first and the other follows. I have seen a case in which the right eye inflamed first and a week after its recovery the left was attacked. It is quite distinct from the ophthalmia of direct contagion and never leads to such disastrous consequences. Pus is not often secreted and the inflammation as a rule subsides in a few days. "It occurred in 7 of 29 cases and more than once recurred." (Pye Smith). I have collected notes of 27 cases all followed or preceded by urethral rheumatism and of those $\frac{2}{3}$ had inflammation of sclerotic and iris. One third of the conjunctiva only. One case only caused ulceration and the rest yielded readily to treatment. Dr Hemey relates a case terminating in staphyloma iridis but says that such a result must be very rare.

Cardiac Complications.

That urethral rheumatism may attack the heart must now be admitted by all, but that it is exceedingly rare and very easily overlooked may in some measure account for previous denials of any cardiac complications. Most of the recorded cases have been noted by continental observers.

This complication occurs without any appreciable cause, warning or predisposition. It generally commences from four to five weeks after the commencement of the articular symptoms but it has occurred without any manifestations of urethral rheumatism elsewhere. All the valves of the left side of the heart have been affected but the aortic most frequently. The cardiac affection is usually mild in character and revealed by slight symptoms which are easily overlooked. Two fatal cases have been recorded by Desnos & Lorain.

Endocarditis is more frequent than

pericarditis. M. Marty collected ten cases. Out of these ten, seven suffered from endocarditis and three from pericarditis. In eight the cardiac affection was preceded by the articular affection but in two there was no rheumatism.

Table of ten cases (Marty).

Brandes (2 cases).

1. Urethral rheumatism. Endocarditis and murmur with first sound
2. Urethral rheumatism. Pericarditis

Hervieux (1 case)

Rheumatism. Endocarditis. Aortic obstruction

Tiscier (2 cases)

1. Rheumatism. Endocarditis. Mitral incompetence
2. Rheumatism. Pericarditis. Murmur with 1st sound

Voelker (2 cases)

1. Rheumatism. Endocarditis. Reduplication of 1st sound
2. Rheumatism. Endocarditis. Partial aortic obstruction

Lacassagne (1 case).

No rheumatism Pericarditis

Desnos (1 case)

Rheumatism. Endocarditis. Double aortic murmur.

Marty (1 case)
No rheumatism. Endocarditis. Aortic obstruction.
A few words are necessary to explain the history of the case in the above table.
M Brandes (Arch de Med Sept 1854) records his two cases.
In the first, urethritis was twice followed by urethral rheumatism. After the joint affection the patient felt palpitations. The first sound was prolonged and rough. Pulse 100 and hard. These symptoms disappeared with the articular pains in a few days.
The second case is of a more persevering type. Six attacks of urethritis followed each time by urethral rheumatism and during the sixth attack pericarditis occurred with palpitation and increased cardiac dullness. Rapid resolution.
M Hervieux (Gaz. med de Paris June 1858) Urethritis for five weeks. Urethral rheumatism coming on in a fortnight.

Ordinary attack followed by palpit-
-ations. Basic bruit during the first
sound. In four weeks all the symptoms
except the bruit has disappeared.
Tixier (Thése de 1866).

1. Urethritis with considerable effusion
and rheumatic pains and coinciding
with a remission of the pains cardiac
complications arose shewing mitral
incompetence and afterwards con-
-siderable hypertrophy and finally
death from the cardiac complications.
2. Rheumatic diathesis. The urethritis
was followed by the rheumatism
for about seven weeks. Then general
malaise and high temperature at
night. Pericardial pain. Sound
muffled and impure. This lasted for
two weeks and after it had resolved
the urethral rheumatism left in about
a week
Vaelker (Thése de 1868)
Two attacks of urethritis and with
the second without apparent cause
urethritheral rheumatism and on

admission into hospital besides the joint affection there was a reduplic-
-ation of the first sound at the base
In the second case at the end of four weeks of urethral rheumatism pain at the heart and a murmur with the first sound. In three weeks the murmur had disappeared
Lacassagne. (Arch de Med Jan 1872)
Two days after the urethritis had made its appearance the patient suffered from griping pains in the lower part of his chest. Friction was heard. He improved in five days, the improvement coinciding with a remarkable reestablisment of the discharge which had been quite suppressed during the invasion of the pericarditis. There was no rheumatism
Mr Marty's case will be recorded in full further on
Dr Cianciosi (Bulletino delle Scienze Mediche 1880) records a case of cardiac complication in a patient of good

family who had had his gonorrhoea checked at once by strong injection Malaise occurred soon after with a mitral murmur. There was no rheumatism

M Morelin in 1879 said he had collected all the cases of recorded cardiac complications in urethral rheumatism, in all 13 in number. Two of pericarditis and eleven of endocarditis. Three only are noted as having suffered from acute rheumatism previous to having a urethral discharge In five cases the first manifestations of articular mischief occurred during a urethritis. In five cases the antecedents of the patients are not mentioned.

Age does not appear to influence the development of cardiac complications In thirteen cases the youngest was 23 and the oldest 50.

M Bandin also relates a case in which no urethral rheumatism was developed.

In 29 cases of urethral rheumatism collected by Pye Smith a basic bruit was present in one and this observer says that this was accidental and that he had never seen or heard of a clear case of endo-or pericarditis following urethral rheumatism
Dr Habershon is so far as I have been able to ascertain the only English observer who has recorded a case. He records one in which the first sound was replaced by a murmur over the tricuspid and pulmonary areas.

Nerve Centres

Ricord has described the effect of urethral rheumatism on the nerve centres. He says that "Paraplegia and hemiplegia may occur from increased effusion within the serous membranes of the brain and which follow the same course as the joints.

Muscular atrophy

Often comes on in the course of an

Mr Marsh records a case of flat-foot rapidly produced on both sides by inflammatory softening of the ligaments in a young man who was at the time suffering from gonorrhoea

attack of urethral rheumatism. It develops insidiously and may break out after the first symptoms of articular affection or may be long deferred. It has a predilection for the muscles about the large joints and more especially the esctensors
(Undy Thèse de Paris 1878)

Lungs and Pleurae

I have been abnable to find and recorded complications under this head.

Kidneys and Urine

No complication has been described in the kidneys through nephritis might occur from esctention of the urethral inflammation.

The urine does not exhibit much change. There is no albumen or sugar present. If the discharge is recent, the urine is of lower specific gravity and often contains oxalate of lime. Pus corpuscles increase the density of the deposit which subsides on repose so that it seems more copious than

in health. The pus corpuscles are somewhat different in their appearance to those of normal pus. They are rather larger, less granular and more transparent and less rapidly acted on by acetic acid. In some may be seen molecular motion in others none. The former properties seem to depend upon imbibition of urine and the latter upon their being surrounded with mucus which defends it for a time from the action of the acid. They ultimately yield the same nuclei as normal pus. There is perhaps slightly more of the pavement epithelium from the bladder but very little cylinder epithelium from the ureters. The presence however of the pus without excess of vesical or renal epithelium might guide in the diagnosis of the source of the pus. A peculiar form of micrococcus has been described which will be fully discussed under the Pathology of this disease.

Symptoms.
These I think are best described under the heads of Acute and Chronic
The acute is the rare form while the chronic (for want of a better name) is the form which has been most commonly and almost exclusively described.
I Acute form.
The onset is very acute. Much fever, rigors and profuse sweating show that some poison has been absorbed into the blood. Few hours elapse before some or usually several joints become very full and painful. The swelling at first quickly appears exactly on the line of junction of the bones forming the articulation.
The temperature is from 100 to 102.
The onset is something like that of acute articular rheumatism and is often so sudden and severe that the patient takes at once to bed. It comes on without any known immediate cause. It may be preceded by malaise and loss

of appetite. The pain is most acute and is always worse where the articular surfaces of the bones touch each other and is much increased at night. Besides this spontaneous pain, most acute suffering is caused by pressure. There is little or no effusion into the synovial cavity of the joint but oedema esctends above and below the affected joint and there is an obscure feeling of fluctuation for which incisions in two recorded cases have been made. The inflammation may resolve but if it continues for any length of time the joint may be destroyed. In a few days the inflammation leaves all the joint but one in which it concentrates itself with great severity. This may be one of the larger joints. It may be in the knee or wrist or in the carpus or tarsus. It seems to be most frequent in the elbow and wrist. It is quite as common in females as in males if not more so and it

usually comes on before the urethral discharge has exeisted for any length of time and in subject under middle age. "Prostitutes seem to have a special immunity from this acute form which usually attacks young married women and those who without becoming prostitutes have been in-fected by an illicit connection (Davies Colley)

II Subacute or Chronic form.

as ordinarily observed this form may come on at any period of a urethritis but it generally occurs when the discharge has diminished to a slight gleet or apparently disappeared. The urethra is never found in a healthy state and though very rarely acutely inflamed has usually a slight glairy mucous exuding from it.

M Velpeau states that "Urethral rheumatism appears from the 2nd to the 4th weeks or later. In some cases there seems to be a sort of incubative stage for some days during which the patient is aware of a painful tension

in the joints and muscles which outwardly exhibit no change. This form presents no acute symptoms. There is slight general depression and no tendency to metastasis as one joint only is affected at a time. In a day or so there is pain in the loins and swelling and dull pains in the soles of the feet, heels and ball of the great toe, very soon involving the ankles. Soon some particular joint becomes painful and swollen. The pain is worse at night and on pressure. The knee or wrist may become painful possibly after some strain. Malaise and anorexia come on. The tongue is foul and the pain, helplessness and general illness give rise to restlessness and depression. An anaemic condition of the patient is among the first symptoms.

The fibrous structures are specially attacked. The loins, palmar and plantar fasciae, the tendo Achillis, the sheaths of nerves as the great

sciatic. Muscles and their aponeur-
oses are also attacked as the fleshy
parts of the arm, forearm or thigh.
The pain while the joint is at rest
may be slight though on movement
severe and the tenderness well
marked. The pain may be greater
or less before the swelling appears
and is evidently due to a sub-
acute inflammation chiefly of
the periarthritic structures. It
gradually affects the shoulders, elbows
and hands. The affected joints are
white though the veins over them
may be turgic and the chief enlarge-
ment is periarticular. Sometimes
there are no premonitory symptoms
and the patient's attention is not
attracted to the joint till effusion
has taken place and motion
is painful and impaired. Some
slight wandering pains may
be noticed before the joint is
affected. The amount of oedema
on the dorsum of the hands and

feet when neighbouring joints are affected and of the upper part of subcutaneous surface of the tibia when the knee is involved is often remarkable and after a time the skin in these situations may become red. The sweating as a rule is very slight. Along with, or perhaps even before, the articular manifestations, conjunctivitis sets in, affecting one or both eyes and although of a well marked catarrhal kind usually passes off in a few days with little or no treatment.

If the joint affection last for any considerable time the general health suffers very severely. The exacerbations of pain in the limbs increase and are followed every morning by profuse sweating. The urine is scanty and the bowels constipated. The tongue is coated and the face hectic. The pulse becomes feeble and there

is great effusion in the joints and constant dull aching pain causing complete loss of appetite and sleep, the patient remaining bedridden for months so that the limbs are permanently contracted unless great care and skill be used in attending to their position. Suppuration rarely occurs in the affected joints.

This form is very obstinate and even when a patient appears well in bed, when he gets up, all the symptoms may return and this state of fluctuating recovery and relapse may last for months.

Pathology.

Opinion is much divided upon the essential nature of urethral rheumatism

Mr Duplay & Brun consider that profound alterations of the ligamentous structures are indicated by the abnormal movements which may frequently be communicated to the

joints and that the articular cartillages are often attacked in the later stages of the disease: of the cases published by him three are males and three are females. All were the subject of a purulent discharge from the urethra. They (Duplay & Brun) do not consider the acuteness or abundance of the discharge has any influence in determining this form of rheumatism

Dr Prout (Stomach & Urinary diseases (540 & 403) say "A very troublesome form of rheumatism, nearly allied to rheumatic gout, sometimes attends & follows common gonorrhoea. When I state that this species is nearly allied to common rheumatic gout I mean as to symptoms. Whether these two diseases are absolutely identical I do not pretend to say but I believe them to be nearly allied in their nature and symptoms.

Four leading views as to the pathology of urethral rheumatism may be mentioned

I That it is simply a form of acute or subacute rheumatism associated with a urethral discharge.

It is not for these reasons.

(a). One joint is usually affected chiefly and there is little tendency to metastasis

(b). It is much more chronic than ordinary rheumatism

(c) The eyes are rarely affected in acute rheumatism

(d) Salicylate of soda is inert.

II That urethral rheumatism is a trophic or nutritive disorder due to reflex disturbance; the urethral inflammation affecting primarily certain centres in the spinal cord and brain, the altered condition of these giving rise to the articular changes.

This theory is not sufficient to account for all the varied phenomena.

It should run a more regular course and the centres once affected would go on acting irrespective of the continuance or not of the urethral discharge.

III Due to a specific poison.

It is not for then

(a) Urethral rheumatism ought to be very common considering the number of patients affected with urethritis

(b) It ought to run a regular course like other specific diseases.

(c) One attack ought to afford immunity or at any rate partial immunity against any subsequent ones

(d). No evidence of the absorption of a specific poison is found on an examination of the lymphatic vessels and glands in the neighbourhood.

(e) It has been known to occur after the use of bougies

IV Mild form of pyaemia due to absorption of material from the

urethra.
I hope to show that this disease is distinct from the specific syphilitic rheumatism as well as from the ordinary constitutional or gouty rheumatism but that it is systemic and that the system is vitiated by a morbid material which has been absorbed into the blood as in pyaemia. Mr Barwell say: It is a slower form of pyaemia, than the ordinary purulent infection, produced by inflammation of the prostatic veins, but that he has no cases to prove this position from dissection."
I do not think the prostatic veins are necessarily affected nor is it at all necessary to prove such inflammation as accounting for purulent infection. I think the morbid condition of the mucous membrane of the urethra which causes the discharge, that is imperfect cell formation, may extend

directly to the capillary structure causing the same imperfect balance of nutrition and similarly an imperfect state of cell formation. Thus we had the circulating blood in direct contact with this diseased state and by which the healthy process of assimilation is unbalanced. Even another theory is available if we suppose a quantity of morbid material to exist in the urethra, direct endosmosis might take place through the capillaries into the blood for I do not think it has even yet been satisfactorily proved that pyaemic infection depends necessarily on the passage of cells into the blood. I think the morbid material or rather cells found in the blood in pyaemia may be developed in the blood.

This absorption goes on continually during the course of

the disease. The abnormal condition
of the blood is not maintained
by the assimilation of the new
materials of the blood to its
altered state, as in the case when
a specific virus such as the vaccine
or syphilitic is absorbed, the
insertion of which into the blood
in however small a quantity,
alters the whole of the blood, and
the alteration thus produced, incon-
-ceivably slight though it is, is
long maintained, in fact the
blood exactly assimilates to its
altered state the materials derived
from the lymph and chyle; thus
when once inoculated retaining
by the exactness of its assimi-
-lation the taint which it first
received though after a time it
may not have in it one of the
particles which the taint first
affected. This is the case in
syphilitic rheumatism while in
mettoral rheumatism the diseased

state of the blood is maintained by the daily and even hourly absorption of morbid material from the urethra, the new blood being still all the time assimilated to its normal state; thus as soon as the supply of the morbid material is cut off, the blood gradually eliminates the poison and returns to its healthy state. With regard to the peculiar immunity of women from the usual form of this disease I think it may be owing to the greater thickness and coarseness of the vaginal epithelium to that of the urethra. The urethra in women is rarely affected with gonorhoea. It is possible also that they are less liable to it from their not being pulled down by anti phlogistic treatment and the indiscriminate use of copaiba. One case occurring in a married lady is sufficiently characteristic to allow its being

admitted here. She had pain in the heels, effusion into the knees, inflamed sclerotic and usual constitutional symptoms. She had been 12 months under treatment before I attended her and had made no improvement. Her husband said he had been subject to a gleet and that his wife had also had the "whites" ever since their marriage. (Here I may remark that in private practice it is a pathological doctrine to be firmly held that the "whites may and do cause urethritis). On examining her I found the vagina healthy, the urethra slightly inflamed and a glairy fluid issuing from the os uteri, the lips of which were red and inflamed. I formed the opinion that the state of the urethra and uterine mucous membrane (the epithelium of which is very similar in character to that of the urethra) caused the continuance of the rheumatism and set myself to cure the

local condition by application of nitrate of silver and tannin pessaries and injections, at the same time giving quinine and steel. The recovery was tedious with many relapses. It is now eighteen months since I had the case in hand and for the past six months there has been no relapse. The lady is now in robust health and has gained over a stone in weight.

Dr Albert Neisser in 1879 contributed an interesting account of the micrococci to be seen in gonorrhoea pus but whether they have anything to do with the causation of urethral rheumatism or whether they are only micrococci merely modified by their locality has not as yet been made out. It may be well to describe their appearance.

If a thin section, be spread on a slide, of gonorrhoeal pus and allowed to dry and then tinted

by pouring over it an aqueous solution of methyl. violet and again dryed and examined with a very high power, the nuclei of the pus corpuscles are seen of a dark violet blue, their protoplasm being scarcely visible; and in addition to these there are more or less numerous heaps of micrococci, which have a characteristic appearance readily recognised. The individual micrococci are round and of some size, colouring deeply. They also colour with a strong solution of iodine and eosin, but they are not thereby so well distinguished from the granule masses of pus cells as by methyl-violet. In methyl-green and indulin they are uncoloured. With an imperfect objective they appear to be surrounded with a line of light which perhaps corresponds to a mucoid investment. The.

separate individual micrococci are however rare; usually two micrococci lie together so closely as to give the impression of a single organism of a figure of eight shape. These variations in form that are met with may best be understood by a description of the process of development.

The isolated micrococcus is round but soon increases to an oval body and then there appears a constriction in the middle which soon proceeds to complete division and the formation of two new micrococci. It is uncertain whether the numerous combined forms are due to the prolonged duration of this stage or to the extreme rapidity of the process. Finally however the two separate and remain apart at a distance from one another about equal to the width of a single micrococcus. Soon each of these separate organisms

begins to elongate and this time at right angles to the original dehiscence. By its division a group of four originates and the continuence of this process leads to the formation of colonies of micrococci, each containing ten, twenty or more individuals which are surrounded by a mucoid investment, easily recognised by softened illumination of the field. These micrococci are most frequently found on the surface of the pus corpuscles, and rarely upon epithelium cells. In some of the pus corpuscles thus covered with the micrococci the nucleus cannot be seen, indeed, appears to be absent, and in others it could be observed to shrink as the micrococci grew into the corpuscle. This observation disposes of the possible suggestion that these micrococci are merely the product of the breaking up of the nuclei of the pus corpuscles.

The micrococci have been found in 35 cases of gonorrhoea of different duration from three days to thirteen weeks. They could not be found in a case of chronic gleet of eighteen months. Every case examined contained this organism and no other and this form was absent from every specimen of pus examined from other sources and also in simple vaginal secretion. They were abundant in the vaginal secretion of two young girls who had been abused by a man suffering from urethral rheumatism. These same organisms were found in abundance in the pus from the eyes of seven infants suffering from ophthalmia neonatorum in the Royal Maternity hospital of Edinburgh. Of from one to sese days duration and in two cases of gonorrhoeal ophthalmia (true) in two of the mothers.

I have recently carefully examined

and compared these organisms in cases of simple gonorrhoea and in cases of urethral rheumatism and I have been unable to find out any organic differences or microscopical appearances between them Since 1879 Bokai of Pesth and Bockhard of Würzburg not only agree with Neisser's views but say they have established their truth by the successful inoculation of the cultivated organisms Dr Sternberg of the United States army, on the other hand, succeeded in cultivating these organisms but failed to innoculate them successfully and he came to the conclusion that the micrococci which are found in gonorrhoeal pus are not peculiar to it but that they are identical with what is called by Cohn, micrococcus ureae.

More recently Dr Kammerer of Freiburgh reports (Centralblatt für

Chirurgie 1904) that he not only found gonococci (as he calls them) in the urethral discharge of a man with gonorrhoea, but also in the purulent fluid from the knee joint of the same patient. Dr Kammerer also refers to two cases recorded by Petrone, in which gonococci were found in the fluid removed from joints affected with gonorrhoeal arthritis

One of the latest experimenters on this subject Dr Welander of Copenhagen has recently published an account of his observations (Gaz Med de Paris No 25) He found the organisms described by Neisser in 129 cases of acute and 15 of chronic gonorrhoea in men as well as in the urethral discharge of 79 women. Foetid secretion of balanitis contained no gonococci

Dr Welander concludes

"These experiments furnish very strong evidence in favour of the

pathogenic nature of the gonococcus: but he considers that the actual proof is at present wanting on account of the difficulty in cultivating the organisms. He is unable to accept as conclusive the experiments of Bokai and Backhart referred to above:

As these gonococci do not seem to be in any way different whether urethral rheumatism is present or not, it seems extremely doubtful whether further enquiry will shew that their presence has any effect or not upon the production of urethral rheumatism.

Cases

I shall first give notes of some cases of the acute form of urethral rheumatism. These cases have been recorded by Duplay and Brun on the continent and by Dr Davies Colley in this country and it is from their observations that my notes have mostly been made

I Acute inflammation of the elbow, diagnosed as phlegmonous erysipelas Recovery.

J. B aged 19. Lighterman. Admitted to Inner Samaritan Ward May 20th 1878.

This patient had always enjoyed good health with the exception of a previous attack of gonorrhoea Ten weeks before admission after rowing his arms became very stiff so that for a short time he could not use them. They grew better but after rowing a race on March 23rd he noticed lumps in the right ascilla with severe pain in the arm and forearm. After rubbing it with liniments for a few days it got better but a few days later, three weeks before admission, his arm and upper part of forearm again became swollen red, and painful. He attended as an out patient and as the arm got worse he was

admitted with what was called phlegmonous erysipelas about the elbow. There was much swelling and redness of the soft parts and he could not bear the least movement of the joint. Temperature 101. A mixture of persulphate of iron and quassia was ordered

May 23rd.

Redness and swelling somewhat subsided. Movement especially rotation was still very painful I. (Davis Colley) now ascertained that the patient had a gonorrhoea. An ointment of extract of belladonna and Unguentum Hydrag Co was applied to the elbow which was fixed to a splint. An urethral injection of sulphate of zinc (gr to ℥j) was ordered

June 4th

He was transferred to the venereal ward. The swelling and pain gradually diminished and on June 19th he went out with some slight

impairment of the movements of the elbow joint

II Gonorrhoea. Inflammation of right carpus. Recovery.

M.A.C unmarried aged 22. Cook. admitted to Patente Ward (Guys) April 16th 1880.

Family history good. Always healthy. Six weeks before she had noticed a vaginal discharge and scalding during micturition, two weeks after coitus. For three days she had suffered from swelling of the right wrist.

On admission there was great pain and tenderness about the right carpus with considerable heat and redness. There was fair movement of the wrist and lower radio-ulnar joints but she was unable to move her fingers. There was considerable tenderness of the genitals and a discharge was observed. An anterior splent was put on the forearm and the same

ointment as in the previous case was applied. For a long time suppuration of the carpus seemed imminent.

May 10th

Measurement round palm & wrist was 9 and 8 3/4 inches as compared with 7 3/4 and 6 on the sound side. At first she took salicyllate of soda and then iodide of potass and lastly a simple tonic of cinchona and dilute sulphuric acid

May 28th

The wrist was less swollen and tender. A shorter splint was applied to allow free movement of the fingers

June 4th

Extension of wrist could be made through about 10° and flexion 30°

Fingers rather stiff

8th June

Splint removed and patient allowed to get up

June 16th

Still slight scalding during micturition.

July 2nd
Fingers still so stiff that she cannot flex them to within ½ an inch of the palm. Still some scalding and vaginal discharge
July 12th
She went out. Some stiffness of the wrist remains and the vaginal discharge has not quite ceased though the scalding is now absent.

III Acute inflammation of the elbow. Pericardial Rubbing. Balanitis. Recovery.

J S aged 20 a leather shaver. Admitted under Dr Habershon April 28th 1880
History of lumbago in his father and morbus cordis in his mother.
Six ~~weeks~~ months before admission he had had pain in his wrists but was able to work. Three days before admission he suffered from severe pain in the left wrist.
On admission he was suffering from inflammation of the left wrist. A pericardial rub replaced

the first sound over the mitral, tricuspid and pulmonary areas.
Temperature at night 102.
May 2nd.
Pericardial rub not so distinct but a systolic bruit was heard
Profuse sweating.
May 7th.
The left elbow was much swollen and the skin over it was glistening. I (Davies Colley) was asked to see him as it was expected to suppurate. He was thin and anaemic and suffering great pain in the elbow. The left wrist was tender but not red or swollen. Upon examination I found had a phimosis and much discharge from the opening in the prepuse. He had a gonorrhoea and balanitis. No scalding
A splint was applied to the elbow and Mist Copaiba and an injection of Potassae Permanganates was ordered. In four days the discharge dis appeared. The elbow was less

swollen and painful and the skin over it was desquamating. The soft parts were still oedematous. A few days later fluctuation in front of the head of the radius was felt and creaking was heard on rotation.

May 17th

Elbow still very oedematous. Five grains of iodide of potass brought out a rash so the drug was dis-
-continued on the 20th.

May 31st.

Gentle manipulation of the elbow broke down some adhesions an indiarubber bandage was applied to it.

June 6th

Allowed to get up.

June 21st

Quite well with the exception of a little thickening and stiffness of the elbow.

June 29th

Use of joint nearly returned and patient went to the Convalescent.

IV Acute inflammation of right elbow; vaginal discharge; pregnancy; abortion; recovery with impaired movement of the joint.

E.J. age 17, collar maker, single was admitted August 18th 1881

Patient was quite well till 17 days before admission when she noticed pain and swelling in her left hip. This went away and reappeared in the right knee and lastly the right elbow inflamed and the other joints recovered.

On admission the patient looked healthy and was fairly well nourished. The elbow was flexed to a right angle and held immoveably by the patient and any attempt at motion made her scream with pain. There was moderate swelling of the elbow which measured ten inches in circumference while the other one was 8 3/4 inches. The skin was normal

but the soft parts were puffy. There was no rise in the general temperature and no fluctuation but the joint was tender and hot to the touch. The oedema and excessive pain pointed to some affection of the genitals. Menstruation ceased two months ago and she had previously been regular. She was suffering from a white discharge. She denied the possibilty of pregnancy. An alum injection was ordered and 15 grains of Sodae Salicylate three times a day. A splint was applied to the elbow and the Ungt Hydrar Co c Bella-donna was applied.

Sept 6th
She aborted an ovum about the size of a hens egg. The elbow was rather better

Sept 19th
Pil Doveri gr V quartis horis

Sept 23rd
Adhesions of elbow broken down under an anaesthetic

Sept 28th
She was allowed to get up
Oct 4th
Lin Camph Co was ordered
Oct 6th
Range of extension and flexion
from 100° to 105° and rotation
through about 15°
Oct 26th
She went out. The swelling was
nearly gone but there was a good
deal of firm tissue round the
joint. Passive motion employed
for the last month.
Nov 7th
Still slight vaginal discharge.
Rotation was good and flexion
and extention from 90° to 130°.
It is singular that in nine
cases of urethral rheumatism in
women recorded in the Obstetrical
journal that five were pregnant.
Perhaps the fact of the discharge
being accompanied by pregnancy
may render the patient more liable

to an attack of urethral rheumatism.

II Acute inflammation of the elbow: gonorrhoea; primary sore; recovery with some stiffness.

G.S. 19 labourer admitted Dec 22nd 1881.

Eleven weeks previously he felt his elbow very painful at night and in the morning could not move it. In two or three days it swelled. No other joints affected. No history of injury, gout, rheumatism or phthisis.

It was thought at first that he had pulpy disease of the synovial membrane and that excision would be required.

On admission the elbow was at an angle of 105°. Forearm halfway between pronation and supination. There was considerable swelling of the soft parts. The tenderness most marked between the head of the radius and ulna. Active movement was barely perceptible and passive

gave great pain. The range of flexion and extension was from 95º to 115º
Rotation 20º
The circumference of the right elbow was $10\frac{7}{8}$ inches while the left was $9\frac{5}{8}$
On enquiry he told me that three weeks before the elbow inflamed he had had a gonorhoea and six weeks before admission a chancre.
An indurated chancre on the right side of the prepuce, $\frac{1}{2}$ inch in diameter was found and a faint rose rash was observed. The fauces were normal.
He was ordered Mist Hydrar Perchlor 3, ter die and a Martin's bandage
Jan 16th
Chancre nearly well. No other evidence of secondary syphilis appeared.
Feb 2nd
Swelling nearly gone but movement as bad as on admission if not worse. Adhesions broken down under ether. Movements rough as if the cartilage had been eroded at some spot.

Feb 15th
He went out. Movements of elbow joint rough and impaired.
III Acute inflammation of elbow. Synovitis of knee. Vaginal discharge. Recovered with impaired movement of elbow.
L J. aged 27 barmaid admitted May 17th 1882.
No family history of rheumatism
About four years ago she had a sore between the labia which got well of itself. Lately she has suffered from vaginal discharge and scalding. About three weeks ago she felt much stiffness in the shoulders, knees and elbows which she attributed to getting wet. No swelling occurred and the stiffness soon passed off except in the left elbow and right knee which soon became painful and swollen.
On admission the left elbow was swollen and the skin over it was red, hot and oedematous. The skin

had white lines on it as though it had been much more distended. The circumference of the left elbow was 11 inches and of the right 9½ inches. The depression on either side of the olecranon was obliterated. There was considerable pain on movement and pressure and also when the arm was still. The right knee was slightly swollen being 13 as compared with 12½ inches. There was little fluid in the joint and no redness or oedema about it. Temperature not much above normal.

Mist Pot 2vd was ordered and an ice bag applied to the elbow. The knee was strapped with Scott's dressing.

May 22nd

The elbow was better being only 10 inches round. Strapping was applied to it. The knee was also better

June 1st

The elbow still swollen

June 17th

She went out. The knee was well and she

could bear some movement of the elbow.
The temperature was always below 100.4
July 30th
All the swelling had gone but movement was not complete. Passive motion was painful and the patient was disinclined to persevere.
The above six cases are recorded by Dr Davies Colley in the London Obstetrical Journal 1882-83

VII Acute inflammation of the shoulder joint. Recovery with a wasted deltoid
H.W. male aged 29 admitted to Westminster hospital Jan 2nd 1882.
No history of acute rheumatism in self or relations. He complained of pain in elbows, shoulders, ankles and soles of his feet. No swelling or redness. He was quite unable to walk. The pain came on a few days after the urethral discharge appeared. No benefit resulted from 10 grains of iodide of potassium daily. Inflammation of the conjunctiva and mild iritis came on three days after admission. Pain was most severe

in the shoulder and great toe and swelling soon appeared in the shoulder. Several adhesions were broken down under chloroform. Sugar was twice found in the urine but not after the administration of the chloroform.

Jan 15th

The patient discharged himself. Several months after this he had a stiff shoulder and a wasted deltoid

VIII Acute polyarticular urethral rheumatism. Most intense in the shoulder. Hereditary rheumatic diathesis (M Hervieux).

A Baged 25 Male became during the course of a gonorrhoea affected with acute rheumatism affecting all the joints and terminating in six weeks.

Six years after he got another gonorrhoea and in 14 days acute rheumatism again appeared requiring two months treatment. When the pains commenced the discharge diminished, to cease as soon as the joint affections became

generalised; but no sooner did improvement take place in the joints than the discharge returned again, the urethral inflammation become intense and the discharge persisting till convalescence. In this case the rheumatism shewed a tendency to localise itself in the shoulder

IX Acute muscular pains and swelling of knee. Parturition.
(H. Duncalfe Brit Med Journal 1860)

A dissipated young woman applied to me to attend her in her confinement. She had been in the street and had got married. She had had gonorrhaea several times but took no medicine regularly. She was a vaginal discharge and much swelling and redness in the left knee and acute pain in the flexors of the right leg. The pain was worst at the catamenia for which she took large quantities of opium and Tinct Guiac Ammon did her much good. After her confinement the

pain and swelling rapidly improved. The child had ophthalmia neonatarum. Mr Duncalfe goes on to add "that of all forms of rheumatism, the urethral form is the most painful. The muscular form is less acute than the synovial or tendinous

X M C married with a young family got wet while suffering from urethritis and was suddenly sicked next day, out of doors, with rheumatism. He became crippled and could walk only with two sticks as his hips, knees and soles of feet were attacked. His eyes inflamed on the 5th day. About four weeks after having suffered from the rheumatism he began to rub his joints for half an hour daily and in another fortnight so great was the general improvement that he could walk a very considerable distance and in another fortnight he declared that he was well.

XI Gonorrhoea in the husband.
Parturition of wife followed by purulent ophthalmia in infant and urethral rheumatism in herself (Harley. Dublin hed Journal Vol 46).

J 7, a servant about 40; fair and strumous looking, came to me to be treated for a gonorrhoea. It was a tedious case. He was married and his wife was expecting to be confined

Oct 28th

She was delivered of a healthy female child

Oct 29th

The infant's eyes were inflamed and there was a purulent discharge from them which was treated by bathing them with milk and water and putting on a bread poultice.

Oct 30th

The discharge from the eyes had increased and from its character was decidedly gonorrhoeal

Nitrate of silver 4 grains to the ounce was now used. This went on for about a month. The pupil of either eye could be seen only by holding the lids forcibly open and sponging away the thick matter on Dec 5th the eyes were well and healthy

Oct 20th

Two days after her confinement the mother was sieyed with a very violent rheumatic pain in the left instep, left wrist, and back of hand and in the shoulder and muscles of the neck on the same side. She was given Mag: Carb: Pot Bicarb: and Tinct. Hyos: and an anodyne when the pain was very violent. After a few days more it was entirely confined to the wrist and hand. The joint was kept supported and bound up in cotton wool and constantly steeped in decoction of poppyheads with 3i Pot: Bicarb: to the pint.

Nov 3rd
Her mistress' family physician (Dr Little) saw her with me and from our interrogations we ascertained that she had had a profuse discharge before her confinement and also swelling of the labia and buboes and pain in passing water and almost impossibility of walking.
The wrist and hand remained a long time affected. She slowly improved under a decoction of potass and bark and about six weeks after her confinement was able to leave her bed.
April 1878.
There is still considerable stiffness and contraction of the wrist joint when she first begins to use it in the morning.
This is a most interesting case, including as it does, urethritis, urethral rheumatism and gonorrhoeal ophthalmia in three different people.

These previous cases illustrate attacks of urethral rheumatism of an acute type. I shall now pass on to those whose onset and character are of a more chronic type and shall begin by the notes of one of the first cases recorded by Sir Astley Cooper

I Gonorhoea followed by rheumatism, and ophthalmicus. Previous attacks.

"An American gentleman came to me with a gonorhoea and after he had told his story, I smiled and said "Do so and so" particularising the treatment and that he would soon be better but he stopped me and said "not so fast sir, a gonorhoea with me is not to be made so light of, it is no trifle, for in a short time you will find me with inflammation of the eyes and in a few days I shall have rheumatism of the joints"

"I do not say this from the experience of one attack but from that of two and on each occasion I was afflicted in this manner: I begged

him to be careful to prevent any gonorrhoeal matter coming in contact with the eyes which he said he would. Three days after this I called upon him and he said "Now you may observe what I told you a day or two ago is true" He had a green shade on and there was ophthalmia of both eyes. In three days more he sent for me rather earlier than usual for a pain in his left knee; it was stiff and inflamed. I ordered some applications and soon after the right knee became affected in a similar manner. The ophthalmia was with great difficulty cured and the rheumatism continued many months afterwards. Whether it is by absorption of the poison or by the constant irritation of the urethra, I do not know, but explain it as we will, it is certain that gonorrhoea produces ophthalmia and rheumatism and that when

not a single drop of matter has been applied to the eye."

II Admission for chronic Rheumatism. Treatment at various hospitals. Discovery of a glut. Cure

The following is a very typical case. John H aged 35 married. Pale and anaemic; admitted to St George's Lock Hospital Westminster Oct 6th 1882 for chronic rheumatism.

The patient said he had been subject to chronic rheumatism for years and that he had never any venereal complaint. He had been married several years and had had children. He had much effusion in his right knee joint and complained of much pain in his limbs and balls of his great toes when he walked and pain in his elbows and shoulders on movement: dull aching pains at night in all his limbs and especially an acute pain in his back in the mornings. His skin was dry and harsh but he complains

of an exacerbation of sweating following the pain in the back. He had slight congestion of the sclerotic vessels of the eye; denied that he had any discharge from the urethra. I examined it and found the lips stuck together and on squeezing it, a drop of perfectly transparent gleety fluid exuded. He then confessed that he had had a sort of discharge fifteen years before and ever since then found the lips of the urethra stuck together when he made water. He said that he had been treated by many doctors and at several hospitals for rheumatism but that his urethra had never before been examined and that nothing did him any permanent good. As an experiment he was treated with iodide of potass (10 grains to dis) with lemon juice and full meat diet

Oct 23rd

No improvement in pain or effusion

General health if anything, worse.
Tannin and opium injection into
the urethra were begun and all
medicines stopped. Full diet and a
pint of porter was ordered. Up till
December 23rd he gradually
improved though he had several
relapses in the interval and on
December 28th he went out cured.

III A case of Urethral rheumatism
successfully treated by Tincture of Larch
(J. Popham. Dublin Med Jour Vol 36 p 478. 1862)
S C. Mc Kelvey admitted Aug 20th
disabled from urethral rheumatism
affecting nearly every joint.
Six weeks before admission he got a
gonorrhoea for which he took copaiba
and while under treatment he got
very wet and kept on his wet
clothes for some hours. Rigors and
pain in the joints followed. No
treatment was adopted for four
weeks at the end of which time
was admitted into the hospital.
The shoulder, elbows, hips and knees

were much affected and the patient was very emaciated. The joints by contrast, and the absence of fat, seemed much enlarged. Urethral gleet was present.
His face was haggard from pain and want of sleep. Iodide of Potass in bark and an opiate at night were ordered. Vapour baths and a meat diet with porter
Sept 14th
Much the same. Cod liver oil 3ii ter die
Sept 19th
Sarsaparilla was ordered
Sept 21st
Diarrhoea came on. He was put on a milk diet. A mixture of chalk and opium was ordered.
Oct 8th
Diarrhoea stopped. Milk and eggs ordered an opiate at night and Quinia Sulph gr I ter die
Oct 17th
The pains at night were so bad that the iodide of potass was resumed and

an anodyne liniment
Oct 24th
On reviewing the case, the result was most discouraging. The pain was unabated. General health not improved. Crippled state still persisting. Mercury was now given.
Oct 31st
Diarrhoea returned. Logwood and opium given
Nov 10th
Diarrhoea stopped. As the mouth was beginning to be affected the mercury was discontinued. Whis and beef tea given.
Nov 21st
Not much improvement. The tongue was red and there was tenderness over the epigastrium and occasional vomiting and aphonia. The patient lies on his back sunk in the bed. Tincture of larch was now given
Dec 12th
Gradual improvement. The larch does not seem to increase the quantity of

urine. Quinine and Battley continued.
The perspirations were checked. His
Diet was 3 pints of new milk, eggs
and two or three glasses of port
wine daily. The pain in the joints
was relieved by Lin: Camph: Co.
Jan 17th 1863
Up for a few hours daily. Gaining
flesh and looking better. Voice
returned. Meat resumed and
quinine stopped
Jan 24th
Perspirations rather worse at night
said the quinine was stopped
but he is improving
Feb 2nd
Pain at night ceased: He now walks
about and is gaining flesh
Feb 26th
Left cured
Remarks.
Mr Popham said: that this was
an instance of intractable attritic
affection arising from exposure
to cold and wet while suffering

from gonorrhoea. The arthritis was not metastatic as the gonorrhoea did not abate when it occurred. In the treatment, iodide of potass and bark failed. Baths increased the debility. Sarsaparilla and guaiacum were inoperative. Cod liver oil did not agree and amelioration began with the Tincture of larch."

This case well illustrates the way not to treat a case of urethral rheumatism. Iodide of potass and mercury increase the anaemia of the patient. If the urethra had been locally treated, in all probability a cure would have resulted in less than six months even without the Tincture of Larch

III Case of urethral rheumatism by Sir Benjamin Brodie. (Diseases of Joints pp 55 1817).

A gentleman aged 45 in the middle of June 1817 became affected with symptoms resembling those of gonorrhoea. There was a purulent

discharge from the urethra with
ardor urinae and chordee
June 23rd
He first experienced some degree
of pain in his feet. This pain was
not sufficiently acute to prevent
his walking four miles. There
was some appearance of inflam-
-mation of his eyes
June 25th
The pain in his feet was more
severe and the tunicae conjunc-
-tivae of his eyes were much inf-
-lamed with a profuse discharge
of pus. The symptoms increased
in violence; the pulse varying
from 80 to 90 per minute. The
tongue was furred and the
patient restless and uneasy
during the night. The whole of
each foot became swollen.
Inflammation of the synovial
membrane of the ankle came on
and it appeared to me that the
affection of the feet themselves

arose from inflammation of the synovial membranes belonging to the tarso metatarsal joints and toes. The pain was as if the feet were being squeezed in a vice

June 27th

The left knee became painful and next day the synovial membrane was found much distended with fluid. He was now quite crippled. The inflammation of the urethra and eyes was somewhat abated

June 30th

The inflammation of urethra and eyes nearly abated and purulent discharge much diminished. Pain less severe and feet and knee less swollen

July 10th

He began to mend. Swelling of feet much less and that of the knee nearly gone. Pulse still between 80 and 90. Pain much better in feet and knee.

July 13th
Pain in the right knee, elbow and shoulder. The right knee after became swollen but not so much as the left and it soon went down. There was never any perceptible swelling of shoulder or elbow.
Aug 1st
All pains abated. Urethra and eyes nearly well.
August 5th
He was free from all pain except on motion. The joints which had been affected were stiff but he could move on crutches.
From this time he progressively mended, the stiffness in the joints going away very slowly. The shoulder was the longest in recovering
December 1817
He had nearly recovered the use of his limbs and got a fresh gonorrhoea and has had a fresh attack of rheumatism. The symptoms

were in the same order but much less violent. This lasted six weeks and left him very considerably crippled.

V Another gentleman gave me (Sir B. Brodie) the following history. In 1809 he had symptoms of a gonorrhoea and after some time one testicle swelled and inflamed. This was followed by a purulent ophthalmia and inflammation of the synovial membranes. In 1814 he had a similar attack and in 1816 when I was consulted he was labouring under chronic inflammation of the synovial membranes of the knees and ankles completely crippling them.

In a third case the patient had severe ophthalmia followed by inflammation of the urethra The joints were also affected but to no [illegible] of this case

In the 4th case the patient had

strictures of the urethra. He had had four attacks of the disease just described in a few years. In all of them the inflammation of the urethra was the first symptom followed by a purulent ophthalmia and after by inflammation of the synovial membranes and swelling of nearly all the joints. In two attacks the said the urethritis was due to gonorrhoea and in two to the passage of bougies.

VI Case of urethral rheumatism (Prof Hardy Gaz: des Hôp: 1852 149)

A B. cook aged 32 male got a gonorrhoea four months since and 14 days after was seized with violent pain in the ankles and metatarsus of both feet so intense that he was unable to walk for two months. They then ceased and the discharge returned in larged quantity. He resumed work and got a chill when the pains returned and he came to La Pitié hospital (Paris). He was

pale and somewhat cachectic. In both feet but especially the left, the ankle and metatarsus were swollen and excessively painful. There was no fever. Pulse and digestion normal. Slight albuminuria evidently from pachydermatous nephritis, a pretty frequent complication and probably due to the propagation of the inflammation from the urethra He was treated with salicylate of soda which diminished the spontaneous pains but not those felt on motion so that the relief was probably due to the rest and not to the drug, which does not seem to exert the same beneficial effects as in ordinary articular rheumatism

VII This case demonstrates the recurrence of the disease and also the possibility of a personal idiosyncrasy.

Case of Urethral Rheumatism
(J.W. Nunn Lancet Vol II 1871)

A patient at the end of 1862 got a gonor-

-hoea. In January 1863 about three weeks after he was crippled with rheumatism in the feet and ankles which laid him up for three weeks In 1864 he had another attack and also in 1866, each time attacking the ankles and feet. The Brother of this patient was equally liable to synovial inflammation under similar circumstances. I attach some importance to this patient's brother being similarly affected as it is presumptive evidence that his liability to urethral rheumatism was a personal or family idiosyncrasy.

VIII R C aged 21 was attacked with gonorrhoea on Dec 27th 1885 and for two weeks was treated with relief when he was suddenly seized with pain and swelling of the left ankle and both knees and conjunctivitis of both eyes. His tongue was coated. Urine clear. Pulse 96. Appetite good. Slight gleety discharge from the urethra. As the patient was cachectic he was given

a pint of porter and full diet. Iron injections were ordered. The eyes were bathed and Cinchona was given. This was begun on Jan 10th and and on Jan 31st the eyes were well and the inflammation of joints much subsided and on Feb 10th the patient was nearly well again

IX The following case occurred in No 4 Ward Edinburgh Royal Infirmary in October 1883

C S males aged 34 Dark complexioned Hair turning grey

Family history good. Lately he has been intemperate

Previous history.

About 10 years ago while on board ship he had an attack of rheumatism which he attributed to cold but he had a hard chancre and a gleet at the time. His feet and knees were chiefly affected. For two months he underwent treatment for stricture in Nova Scotia during which time bougies were being passed twice or

thrice a week but the pains in the joints got better in less than a month. Three years ago he had a bubo on the left side and no treatment except poultices.

Present history

In July 1883 he got a gonorrhoea and went to a druggist who gave him an injection which stopped the discharge in about a week and immediately after his joints began to be painful

Aug 6th

He was admitted under Dr Affleck. While under treatment the discharge recommenced and the pain did not diminish though the swellings did. He had a high temperature at night on Aug 10th and was given 30 grains of Sodae Salicylatis to do but it had very little effect.

Sept 24th

He went out and went home for a week much improved. While at home he led an irregular life and

the discharge which had stopped came on again as did the pain and swelling.

Oct 2nd

He was readmitted under Dr P.H. McLaren Both knees were swollen. The right the most. He had pain in most of his joints on movement. Both hands were much swollen especially at the carpometacarpal joints. He had much pain in the small of his back. No local treatment was adopted and he was put on a milk diet

Oct 12th

Slight improvement. Patient put on full diet with meat

Oct 14th

Salicylate of soda (10 grs ter die) with gr II of Quinine was ordered. Is much improved.

Oct 18th

He was ordered the following. Ol Eucalyp 3ii Succ Acac 9s Syrup 3i Aq Cinn ad 3xii Sig 3i ter die

Oct 19th
The pain in the joints was more general and the throbbing pain in his epigastrium at night was increased by his medicine
Oct 20th
The pains in the knees better
Oct 23rd
Sleeps less. Slight headache
Oct 24th
The pains were worse and varied much as to the state of the weather
He feels very stiff when he tries to sit up
Oct 30th
The Eucalyptus was stopped and Iodide of potass in bark (gr X ter die)
The case went on in this way till the middle of November when injections into the urethra were begun and the patient left cured at the end of five weeks
X A gentleman aged 26 was subject from boyhood to rheumatic gout. A few years ago he got a gonorrhoea

which was attended by a most severe attack of urethral rheumatism and a residence on the Continent was the only means by which a cure was affected. He married and some few months after again had a severe attack of rheumatism. He recovered and his wife began to complain of leucorrhoea and he was again under treatment for the slightest possible discharge. In spite of all treatment it increased and was followed by rheumatic ophthalmia and inflammation of the bladder and general rheumatism and the disease was no sooner cured in one set of muscles than it broke out in another.

XI Dr Weber (Clin Trans 1877 11/176) records four cases of urethral rheumatism illustrating the effect of salicin and its salts One of these cases could not take either salicin, salicylic acid or

salicylate of soda on account of the sickness produced
The second case took first 15 grains of salicin every two hours and then 20 grains of salicylate of soda for three days without more benefit than rest usually produces in these cases. Giddiness and nausea prevented further perseverance.
The third case experienced somewhat more marked diminution of pain in the joints and pyrexia within two days of the treatment with salicin (15gr every two hours) though the state of the joints and urethra were not materially improved.
The fourth case was after three days use of salicylate of soda distinctly benefited as regards pyrexia and pain and swelling, the state of the urethra remaining uninfluenced.
The difference in the action of these

remedies on different cases of urethral rheumatism is probably due to the difference in the nature of these cases, for some cases of urethral rheumatism though induced by gonorrhoea have a large share of acute or subacute rheumatism, while in others this element is scarcely to be recognised. To the former class belong the 4th case mentioned in which the salicylate acted beneficially.

So far as I can judge salicylate action seems to have no direct action on urethral rheumatism save that of diminishing the spontaneous pains and its failure except in this is often a diagnostic aid between urethral and ordinary rheumatism.

XII The following case which came under my notice this year is worth recording from the different mode of onset in several attacks.

A. B a gentleman has had as many as 8 attacks. The first occurred when he was under 20 and the others at various intervals during the last 18 years. In one attack the first symptom was inflam-
-mation of the urethra with purulent discharge immediately followed by ophthalmia and then by inflam-
-mation of the synovial membranes. In 3 attacks the ophthalmia was the first symptom followed by discharge from the urethra and in the 4 other attacks the affection of the synovial membranes took place without any preceding inflammation of eye or urethra. The disease was not confined to the synovial membrane of the joints but the bursae mucosae were also affected. In some of the attacks the muscles of the abdomen were painful and tender and subject to spasmodic contractions and

there was an occasional impediment to breathing which seemed to arise from a similar condition of the diaphragm. The acute form in this case lasted from 6 weeks to three months but nearly a year elapsed before the limbs were perfectly recovered.

I shall now note those cases I have been able to collect of urethral rheumatism ending in the rare termination of suppuration

I G. H aged 17 a country lad of healthy appearance was admitted to Bristol Royal Infirmary on June 18th 1866 suffering from orchitis and gonorhoea

After a few days he complained of great thirst and other feverish symptoms. The right knee became suddenly full of fluid and very painful so that he could not bear the least movement in bed. He was treated with soothing remedies

and the pain became less. A swelling soon after appeared on the thigh arising evidently from some cause below the fascia; in fact it so much resembled at first sight and upon manipulation a limb affected with acute necrosis that I quite thought this had taken place. A few days afterwards however shewed the thigh full of pus suddenly produced by the bursting of the great reservoir round the knee. As a hole in the capsule gave vent to the pus under cover of the muscles there was but little chance of the pointing of the abcess and in a few days an incision was made letting out 3 pints of thick well formed pus. The incision was made a little above the knee through the vastus esteternus. An abcess also formed below the joint and a bedsore on the sacrum

and the patient was quite a pitiable object. He became so ill that death appeared imminent and he was too weak to amputate.
A little rallying took place and the leg was amputated about the knee about three months after admission on Sept 11th. The periosteum was much thickened and separated so easily from the bone that after the limb was removed, at least an inch of the femur was stripped which was removed by another section with the saw. The stump was dressed with chloride of zinc
The boy was better after the operation and from that time began to mend slowly. A piece of the sacrum exfoliated from the bedsore
The joint when examined shewed a state of acute ulceration of the cartilages and of all the bony surfaces. There was great vascularity of the membranes,

especially round the ulcers where the articular ends of the bones were bared. The stump healed well and he was dismissed cured in three months after the operation.

II Case of Urethral rheumatism ending in suppuration

(H. Duncalfe Brit: Med: Journ: June 9th 1860)

A Based 19 male was attacked with gonorhoea and got a copaiba mixture from a chemist which rapidly checked the discharge but within a week he was siezed with pain in the right groin. He was unable to move. Skin hot and perspiring. Tongue coated with red edges. There was much swelling and tenderness over the anterior and internal aspect of the thigh. The pain was increased by movement and the slightest touch, and towards night it was agonising. The urine was scanty and deep coloured depositing urates. Bowels costive.

There was a slight gleet and scalding with chordee at times He was treated with alkalies, salines and diaphoretics without benefit The right knee and ankle and the left knee were soon affected. In about 18 or 20 days the pain and swelling subsided in the hip. The right knee was still very painful and swollen. Finally it was opened allowing the escape of a large quantity of pus. He ultimately recovered with a stiff knee.

The following cases are examples of gonorrhoea attended with by cardiac complications with or without rheumatism.

I. Case from Le Progrès Médicale Dec 12th 1874 par Desnos & Lemâitre L. Octave aged 35 admitted to La Pitié March 14th 1874 Parents well to do. No previous ailments except a pneumonia in 1863. No scarlet fever, chorea and

no joint troubles
Six weeks before admission he got a gonorrhoea. He was treated with very strong injections. The discharge diminished but on the 25th day, after some days of malaise he left his work and went to bed and was soon in high fever. He was attac-ked with pains all down his lower limbs and these rapidly increased in intensity and localised themselves in his hips and knees. These pains calmed down for a few days only to appear again with less intensity in his shoulders and elbows.
The patient stayed in bed for a fortnight and at length came to the hospital. At that time he had re-covered his appetite and the joint pains had nearly gone. The left knee was swollen and there was a little fluid in the joint. Walking was painful but there was not any pain on pressure. It was quite

easy on pressing the urethra to force out a drop of pus

There was a rough cardiac murmur which had its maximum intensity at the base with the first sound. This murmur was propagated to the left border of the sternum up to the 2nd costosternal articulation. There was also a bruit less loud at the apex but it was evidently a propagation of the other. The bruit at the base shewed all the signs of aortic incompetence. There was nothing abnormal in the lungs

From the 13th to the 20th of March there was no diminution in the bruit. The pain was getting less and the patient was up in the garden. The appetite was very good He was being treated with cubebs and the discharge had entirely ceased. The patient wished his discharge on the evening of the 25th but he had an attack of Syncope

all at once becoming pale and throwing his head back. His pupils were dilated and his eyes turned up. Respiration quickened and stertorous. He rallied and at the same time the pulsations of the heart which had stopped for 25 to 30 seconds became again feebly felt and improved by degrees. Soon a deep inspiration followed. The face reddened and he was covered with perspiration and this finished by clonic convulsions for some seconds. The duration of the attack was about a minute. The patient complained of headache and had another attack during the night and in the morning they became more numerous

March 25th

During visit he had an attack. They increased during the day up to 12 in an hour. During the night he had very numerous fits but shorter in duration

March 26th
At 7 am he seemed better the attacks were less numerous and shorter
March 27th
The fits ceased during the night and he complained of headache and giddiness and lassitude and an invincible desire to sleep. On examining the heart a new bruit was discovered accompanying the second sound and intensified first bruit. Double aortic murmur. No lung lesion.
28th
Great pain in the left knee. The joint was swollen and red and sufficiently painful to prevent sleep.
April 3rd
Joint still red and swollen
May 5th
The patient went to Vincennes
Appetite very good. Murmurs still present but much less marked
The epileptiform fits were due to the anaemia of the brain and the

alternation of the joint affection and the heart mischief point to a common cause.

II Heart complication. No rheumatism. (Hôp Vale de Grace Paris under Prof Ponet) Previous history good. No rheumatic or cardiac predisposition. No joint affection. No history of scarlet fever or small pox. When 5 years of age he had difficulty in running. This lasted two years and did not return. He enlisted on Oct 22nd 1875 and went through the ordinary soldiers life as well as his comrades. At the age of 22½ he got a gonorrhoea on Aug 18th after 8 days incubation. Pain severe and discharge abundant. No general disturbance. He was treated with balsams and injections. Some days after he had several signs of gastric irritation. From August 18th to September 22nd the gonorrhoea continued and ran its usual and ordinary course

Sept 22nd
Violent rigors and intense headache. Pulse strong, full and frequent. Much diarrhoea. Urethral discharge was diminished
Sept 23rd
Condition much the same.
Sept 24th
Much headache and little sleep. Tongue white but moist. Pupils sensitive. No appetite. Great giddiness. Pulse frequent and regular
Sept 25th
Temperature M: 39·1 ent. E: 39·9
General condition the same. Much palpitation. First sound at base a little impure.
Sept 26th
Temp: M: 38·7 E: 40·1
Murmur changed
Sept 27th
Temp: M: 38·4 E: 39·
Sept 28th
Temp: M: 38·6 E 39·6
There was a harsh systolic murmur

having its maximum density at the articulation of the third costal cartillage with the sternum. The patient does not seem to suffer much from the high temperature. Tongue moist.
He was treated by a blister and digitalis

Sept 29th

Temp: M: 38.6 E: 39.4 Much perspiration

Sept 30th

Temp: M: 38.6 E 39.5 Pulse 104

This condition continued until October 20th when the patient was so far recovered as to leave the hospital.

Professor Poncet concludes as follows "Let us now glance over the salient features. In a patient in whom there does not exist the slightest predisposition to rheumatism or heart disease, a gonorrhea occurs, and then all at once without any appreciable cause these endocardial complications occur and of the reality of which no one can possibly doubt.

The malady runs its course attended with rises of temperature almost enough to cause us to form a bad prognosis. These cases are rare, it is true, but that they exist would be easy to prove by observing with a little more care.

III Case of urethral endocarditis no rheumatism (M Baudin 1879).

A dragoon aged 25 admitted July 8th 1879 ten weeks after an attack of gonorrhoea

July 9th

Headache and rigors

July 14th

Palpitation. Cardiac dullness increased. Murmur with the first sound

Opium was given and a mustard poultice over the heart. Temp: 103·2

July 16th

Rasping and fremitus felt all over the cardiac region. Blister and digitalis ordered. Temp: 104 Pulse 110

July 21st

Same condition till today. Pulse more

regular and fever abated.
July 23rd
Much improved. Pulse 80. Temp: 100
July 26th.
Patient convalescent. Slight murmur still perceptible.
No rheumatism was ever developed.
Duration.
The duration of the disease is quite indefinite, varying from a few days to as many months. Professor Gosselin says: Urethral rheumatism lasts perhaps 120 days while acute rheumatism lasts from 15 to 20".
Those cases which commence with the most decided inflammatory symptoms are generally the most amenable to treatment, while those in which they are slight are more likely to be accompanied by passive effusion which is most obstinate. In favourable cases the symptoms may subside early but in the majority of cases

one joint after another is involved in the morbid process whilst those already attacked either slowly recover or remain affected. All the joints of one or more limbs may be simultaneously affected and have been so affected for 10 or 16 weeks, certain of the articulations being but recently invaded whilst others are slowly recovering. In this way every joint in the body may be affected including the jaw, sterno-clavicular articulation and the spinal column

Frequency.

If Dr Noegerath is to be believed when he says that eight of ten adults have had gonorrhoea, then rheumatism following gonorrhoea is indeed exceedingly rare

M Fournier says that "in 1912 cases of gonorrhoea he has seen 31 of urethral rheumatism or about one in 62 cases but as he says this must be very much above the

truth as a large number of cases treat themselves.

Mr Berkeley Hill on the authority of Rollet states "that of 2423 cases of urethritis, one in twenty five, or four per cent had also acute arthritis" In 53 cases amongst the well-to-do classes, that have come under my notice, only one case was complicated with rheumatism, while in the Lock department of St George's Union Westminster about ten per cent I should think suffer from rheum-atic complications

Terminations

I Resolution

II Chronic Hydrops

III Suppuration (extra or intracapsular)

IV Degeneration of the soft parts and cartilages

V White Swelling.

I Resolution takes place in rarely less than from four to six weeks and it may often be delayed for months or even years in debilitated

subjects and when the affection of the urethra is allowed to run its course or will not yield to treatment.

II Suppuration is very rare. Vidal mentions a case in which he opened the joint and Teissl mentions a case under Dr Eisenmann in which death was due to exhausting suppuration. Ankylosis of the smaller joints frequently occurs. I saw a case under M Maurice which ended in abcess and fatal pyaemia. Closquet records a case terminating in suppuration and complete destruction of the ankle joint and fortunate ankylosis

I am disposed to think that a large number of patients who come under our notice with stiff joints, the result of inflammation without suppuration in adult life, may have been the subjects of urethral inflammation of those joints with some erosion of cartillage and subsequent ankylosis.

Recurrence

If a patient contract a fresh urethritis he will hardly escape a fresh attack of urethral rheumatism. I have notes of a case recurring after nine years. During the interval the patient had married, had children and was left a widower and what seemed most likely to change his habit of body, had been in residence for four years in the tropics.

A case is recorded by Bryant in which the urethral rheumatism recurred 16 times

M Bollet details five cases of recurrence in his own practice.

Brandes of Copenhagen records a recurrence in 8 of 34 and M Diday in three of 8 cases.

Sir Benjamin Brodie (Diseases of Joints p 66) records a case twice recurring.

Dr Pye Smith says "The rheumatism does not appear to return when once cured unless a fresh urethritis

is incurred. In 29 cases four gave a history of previous similar attacks

A case is recorded in Cooper's Surgical dictionary in which the rheumatism recurred nine times

Diagnosis.

The diagnosis turns on the existence of a urethral discharge in association with the articular complications. The occurrence of articular inflammations in young adult males or females without any obvious cause should always be regarded with suspicion and an inspection of the urethra should be insisted on. Previous attacks under similar circumstances will confirm the diagnosis and the occurrence of ophthalmia and conjunctivitis with subacute articular symptoms should at once suggest to our minds the possibility of its having a urethral origin.

Differential Diagnosis

From acute rheumatism

(a) Absence or presence of only very slight premonitory symptoms

(b) Less constitutional disturbance.

(c). Predilection for synovial membranes.

(d). Heart seldom affected

(e) Eyes generally doubly affected

(f) Very persistent

(g) In subacute or chronic form it is chiefly confined to one joint

(h) Hereditary influence has no effect.

(i) Salicylic acid fails to relieve.

From Phlegmon

(a) Pain on pressure over joints

(b) Crepitation during passive movement.

From Phlebitis

The great oedema in some cases may suggest phlebitis but the cord-like inflammation along the veins is absent

The age of the patient will as a rule exclude gouty inflammation. It is to be distinguished from pulpy degeneration by noticing all the symptoms.

Prognosis

Ultimately favourable. Life is seldom in danger and no case has without complications proved fatal. A speedy cure is not to be expected and relapses are often and frequent. In young healthy subjects under careful treatment the disease will probably shortly subside, while it will probe protracted and obstinate under opposite circumstances. As a rule urethral rheumatism gathers strength at each subsequent attack and the prognosis becomes correspondingly more unfavourable in subsequent attacks and the patient should be warned the risk of the recurrence of the rheumatism also increases, may is almost certain, with each exposure to and infection from gonorrhoea.

An attack of urethral rheumatism without cardiac complication does not injure the patient life with regard to insuring his life.

Treatment

It is from the absence of any known drug that has any direct influence upon urethral rheumatism that I have chosen my motto. The only drugs that do any good, and that is indirect, are those which tend to improve the patient's general condition.

In most of the surgical authorities I have consulted no mention whatever is made of urethral treatment and in this omission I believe lies the secret of so many very lingering cases of urethral rheumatism. Some few books say "Cure the discharge" but in none have I been able to find how to cure it, and when urethral rheumatism has existed for some time, the very slight gleet accompanying it, is exceedingly difficult to cure

In short I believe that local urethral treatment, and that alone, can cure the rheumatism

This disease is by all considered very difficult to cure and it certainly is so when treated by the usual antiphlogistic and constitutional remedies. Acute inflammation of the urethra is but rarely present, and when it is so the antiphlogistic form of treatment only causes a temporary removal of the scalding and urethral inflammation
Blistering, Scott's bandage, rest, friction and mineral baths I have tried without the slightest benefit.
Iodide of potass and colchicum are worse than useless. The iodide of potass increases the anaemia, weakens the pulse, impairs the appetite and often cause petechia or purpura without relieving the pain or effusion in the slightest.
The best general treatment is quinine and hydrochloric acid or steel and strychnia with port wine and eggs whipped up in brandy and full meat diet

soothing local applications, such as opium fomentations and rest with wet packing, but even then though the appetite and general health improve, the disease cannot be cured and though the pain and swelling almost disappear, as soon as the treatment is left off a relapse occurs.

A very obstinate case of this description came under my notice about two years ago and in which I tried every imaginable constitutional remedy with any permanent benefit. I therefore determined to direct my treatment to the urethra. I discovered a slight gleet remained without any pain or redness and such a perfect absence of any inconvenience that the patient laughed at me when I told him I should try a course of injections. I commenced with alum and lead which brought on a good deal of discharge so I

discontinued it. The discharge then diminished but a good deal of irritation remained. I now gave him a tannin and opium injection. Half a drachm of tannin and two drachms of Tinct: Opii in six ounces of water. This forms in the mixture a dense flocculent precipitate of the gallotannate of morphia. This precipitate is most useful as by using the injection after well shaking the bottle the gallotannate of morphia is precipitated on the sides of the urethra and by keeping the fluid about a minute in the urethra and then letting it very gradually escape it comes away clear. It takes about four hours for all the precipitated solid matter to escape, which can be seen as a dark stain, gradually being deposited on a piece of lint placed over the meatus, and thus by using the injection every four

hours, it is possible to keep a power-
-fully astringent and sedative
application in constant contact
with the urethral mucous membrane.
In the case I referred to I ordered
this to be continued for three weeks.
In that time it cured the discharge
entirely and the rheumatism soon
began to improve and in three
months time the effusion and
pain had entirely disappeared.
All treatment was left off but in
less than a year the patient got
another gonorrhoea and in less
than a month the rheumatism
returned worse than ever, the
effusion was very great and the
pain very severe. He became esc-
-tremely emaciated with profuse
sweats and hectic, in fact with
every symptom of chronic blood-
-poisoning. He went to Bath and
returned better in health, but with
the effusion in the joints just as
bad, and suffering from the same

gleety discharge as when I first treated him. I again ordered the tannin and opium injection which was continued for a month giving at the same time steel and quinine. The discharge was cured and the pain and effusion became much less but the emaciation of the limbs continued and he was quite unable to walk without crutches. I ordered him a Turkish Bath & took him there myself. He weighed 8st 13lbs before the first bath and in six months from that time after 20 baths he was 10st 10lbs. The effusion and all pain had gone from the limbs and the joints had regained their strength. Here let me say a word about Turkish baths.

Very few people ever do themselves any good by a Turkish bath simply because they do not know how to take them. They go at first into a low temperature, the air very often moist and loaded with sweaty

emanations. In this they remain half an hour before they perspire at all and then just as they are moist and begin to feel weak they go into a hotter room. This dries up all the perspiration and they feel still more oppressed; thinking they have had enough they get shampoed and are then passed through a cold douche into the cold room often shivering, out of breath and just in the state to catch their death of cold; how the proper system to pursue is this. However weak the patient may be go direct ~~into~~ into a high temperature, the heat should be radiated and perfectly dry and the hotter the better up to 230°. This can be easily borne for 5 or 10 minutes and the perspiration will be found to break out profusely within two minutes. Even in this heat a sensible shiver is felt when the perspiration first breaks out.

On leaving this hot room the patient should go into a cooler room or have a cold douche if feeling faint. Immediate relief is felt and the perspiration still continues profuse. For myself I alternate the hot room with the cold douche directly I feel weak, often taking half a dozen and returning after each. By this method I can lose 3 or 4 lbs in weight - even when I have drunk as much as two pints of fluid and I come out directly after a douche with a braced up frame, vigorous circulation, clear head and a most ravenous appetite.

Many methods of treatment for metrical rheumatism have been tried which I shall now note a few

Mr Milton used large doses of the nitrate of potass (3i to 3iv per diem)

M Gamberini (Giornale delle Malattie Veneree e della Pelle 1879) advises for the chronic form of this disease hydrochlor-ate of baryta and repeated subcutaneous

injections of tepid water
Many forms of local treatment for the diseased joints have been adopted and among the best is the method of Mr Duplay and Brun who completely fix the joint with plaster of Paris. They say "The application is speedily followed by a diminution of the swelling and cessation of the pain. After 4 or 6 weeks remove the bandages and begin passive movement. If however this (i.e the application of the splint) has not been done until the rheumatism has existed for some time, the joint will be found considerably stiffened or even completely ankylosed which in some cases cannot be prevented."
Complications must be treated on general principles as they arise and their treatment has been exemplified in the cases quoted.
In a recent case I have had under