CLINICAL LECTURE¹

ON

THE MIMICRIES OF PRIMARY URINARY TUBERCULOSIS.

Delivered at the London Hospital.

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I HAVE chosen for the subject of this clinical lecture what I take to be one of the most striking characters of tuberculosis of the urinary organs—its mimetic power. The wider my experience of this disease, the more convinced I am that, owing to the misleading mimicry of its symptoms, its earlier stages are often passed unrecognised or wrongly diagnosed. Valuable time is thus not only wasted, but the disease also is often greatly aggravated by injudicious instrumental efforts to relieve it, or to trace it to its cause. After having watched the progress of over a hundred cases of urinary tuberculosis, I have come to the conclusion that, when it attacks the lower divisions of the tract—the bladder, prostate, and urethra—and is wisely treated, it exhibits as marked a tendency to obsolescence or even cure as the same disease when situated in the lungs. Even when the upper sections, the kidney and ureter, are primarily invaded, the prognosis is, I suspect, more favourable than is generally admitted. I will lay some stress upon (1) the urinary diseases which primary urinary tuberculosis closely simulates, (2) their differential diagnosis, and (3) the dangers of injudicious treatment, dealing in each case only with primary deposits. Ascending tuberculosis of testicular origin is usually obvious, and secondary miliary deposits of a general infection are not only frequently symptomless, but possess no interest for the surgeon, and are always beyond his skill.

A. Primary Renal Tuberculosis.—Clinically, as well as pathologically, you will find that miliary tubercles erupt from beneath the mucous membrane of the renal pelvis, or colonise in the glomerular zone of the cortex. As our knowledge increases, we may be able perhaps to group separately the symptoms evoked by the deposit in each of these differently constructed areas. At present this cannot be done with accuracy, and I can only express my belief that, in the pelvic form of the disease, the initial symptoms are as follows: Blood and pus appear in small amounts in the urine, either coincidentally with renal pain, or very soon after it commences; renal colic supervenes relatively earlier, evoked probably by the ulceration, but later on by the throttling of the ureter by caseous deposit; the stages of the disease are passed through more quickly, and the bladder—that index of the progress and the severity of urinary tuberculosis—is affected earlier. When the deposit is, however, situated in the cortex, it has to break into the renal pelvis before it can give rise to characteristic symptoms. Polyuria, from the irritation of its presence, is perhaps the symptom first noticed or complained of, even before the aching in the kidney. The urine is murky, and contains albumen over and above that due to the trace of pus. The hæmorrhage from these two positions also varies, hence perhaps the divergence in the opinions of writers on the subject. In the early stage of pelvic ulceration the bleeding is usually slight and intermittent; when, however, a cortical deposit sloughs out suddenly into the pelvis, there may be profuse and dark but transient hæmaturia. Place the initial deposit, however, where you will, one area rapidly invades the other, and their different symptoms blend together. Take them in their entirety, and you will find them markedly like those of stone in the kidney, so similar, in fact, that a differential diagnosis in the onset stage is a matter of the greatest difficulty; the renal pain radiating to the testis, groin, thigh, and knee; the recurring, often agonising, colic; the blood and pus in the urine, the frequency of micturition, and the penile pain after the evacuation of the

bladder, are all common to both disorders. If operative procedure in the shape of nephrotomy² or nephrectomy is to be a success it must be employed early, before the lower sections of the tract have become implicated. Everything therefore depends upon a correct and timely diagnosis.

Differential Diagnosis.—Our capacity for differential diagnosis here, as in other and similar difficulties of urinary surgery, will depend much upon our skill in cross-examining for the onset and initial symptoms and upon our due appreciation of the nature and intensity of the irritation which has produced them. We recognise that in stone we are dealing with a foreign body confined more or less loosely in a sensitive space, and dependent therefore for its power of inflicting injury (as evidenced by the blood and pus in the urine) upon the exercise which the patient takes. On the other hand, in tubercle we realise that we are grappling with one or more foci of short-lived tendencies—rapidly productive, therefore, of puriform urine; of caustic and continuous irritative properties—beyond, therefore, the calimative control of posture or of bodily rest. I believe that the best indications for the diagnosis of renal tubercle are to be found in the family history of the patient; in the appearance of pus in the urine very soon after if not coincidentally with the renal pain; and in the powerlessness of absolute rest to affect or subdue the symptoms.

Other differences however exist, and an attempt may be made to tabulate them thus:

Primary Renal Tubercle in Early Stage.

Family history of phthisis or cancer.

Age: Between 20 and 40.

Personal history: Perhaps tuberculous bones, joint, or gland disease; very rarely any previous urinary symptoms.

Symptoms, onset: polyuria of a murky type (the frequency of micturition being due to the quantity passed, not to irritation), vague lumbar pain, or a sudden chill, and severe pain in one kidney, but rarely colic. Some frequency of micturition in the early stages at night from irritation of acrid urine.

Colics appear later, are usually less severe, are more easily under the control of drugs, do not usually retract the testicle, and are preceded by rose red blood if they are induced by ulceration and not blockage.

Hæmaturia: Slight in amount, more or less persistent, uninfused by rest.

Urine: Cloudy at the outset from admixture of mucus and pus. Acid, low specific gravity. Light coloured, depositing a thin layer of pus with streaks of blood, *débris* of connective tissue. Small clumps of caseous material. Albumen appears early.

Tubercle bacillus found, but with difficulty and after much search, in acid urine.

Inoculation of urine deposit into animals (Rovsing, Jacobson).

General condition: Patient ailing, "never feels well," is anæmic, easily tired, but no loss of appetite.

Renal Stone in Early Stage.

Family history negative, or of gout or gravel.

Age: About 40.

Personal history: Negative, except perhaps the passage of sand or gravel; of a "weak" loin; of testicular neuralgia or "sciatica."

Symptoms, onset: vague lumbar aching or a sudden colic. Frequency of micturition, due to irritation; small quantities passed often, and in day—not at night—relieved by rest.

Colics: More or less severe, according to composition and size of stone, followed by blood.

Hæmaturia: Intimately mixed; much more marked than in tubercle; dependent on exercise.

Urine: Clear at outset, containing evidences of calculus in the shape of crystals. Acid, normal specific gravity. Pus later in course of case, and then only forming a deposit when pyelitis has been induced.

General condition: Patient may enjoy first-rate health between colics.

B. Renal Tuberculosis simulating Cystitis.—Polyuria may not always be present, but when it is the frequency of quantity soon gives place to the frequency of irritability. Less is passed at a time and more often. This vesical irritability is due to the acrid state of the tuberculous urine which causes swelling and excoriation (?) of the mucous membrane of the trigone and prostatic urethra. The swelling and congestion is very obvious with the cystoscope.

Dangers of Injudicious Treatment.—The irritability of the bladder, though mild at first, and the presence of pus and *débris* in the neutral urine—for it has now probably passed the acid stage—tempts the practitioner to fly to the routine treatment of washing out the bladder, under the supposition that he is dealing with a subacute cystitis. Often as not by this means subacute cystitis is set up, the epithelium is denuded by the various antiseptics or caustics recommended for

¹ One of several clinical lectures upon the symptomatology of urinary disease. The details of illustrative cases are omitted.

² Knowsley Thornton, *Surgery of the Kidneys*, p. 49.

the cure of cystitis regardless of its cause, and the way is thus unpared for inoculation. Worse still, septic changes are often induced by septic catheterism, and what before was tinder is now fire. This mistake happens much more easily when the renal tubercle is "latent" and does not show signs of life until the bladder gives the alarm. What ought to be our treatment? If a case with symptoms suggestive of renal tubercle did not improve—and they often do most markedly with change of air, fatty food, and sandal oil by mouth—an exploratory lumbar nephrotomy ought to be done, the capsule split, and the pelvis opened through the renal structure. By this means we should at once clear up the diagnosis and remove any stone that was the cause or the effect of the trouble. By opening into the pelvis the lower ureter would be placed at rest and the stream of irritating urine would be diverted. By splitting the capsule the intraglandular tension would be reduced and the pain consequent upon the backward pressure would be subdued. Moreover, the wholesale destruction of the secreting tissue might be averted by relief of injurious tension. By drawing the kidney into the loin and fixing it there any fluid deposit could be evacuated at once and a way left for the subsequent sloughing out of the more solid foci. In emphasising the value of nephrotomy in these cases Mr. Knowsley Thornton has recorded two very instructive cases to which I refer you.³

C. Primary Vesical Tuberculosis simulating Vesical Calculus.—The efflorescence of the first patch of primary vesical tubercle or the first appearance of the track of the invading ureteric or prostatic contagion can be readily and distinctly seen with the electric cystoscope. With the latter sources of invasion we have not to deal at present, beyond mentioning that in each of these separate conditions the portion of the bladder first affected is different. Primary vesical deposits usually appear first upon the posterior wall. Ureteric invasion shows itself first at the ureteral orifice and along the corresponding outer limb of the trigone. Prostatic deposit creeps in at the urethral opening and spreads itself out uniformly in the trigonal submucous layer. The symptoms of primary tuberculosis are very characteristic. A young male, 16 to 25 years of age, often without any venereal history, with a family tendency to tubercle, suddenly experiences a pain in the glans or mid-penis whilst urinating. There is an almost immediate increased frequency of micturition in the day. Soon the night is much disturbed by constant calls to empty the bladder. These symptoms are followed in a variable time, according to the acuteness of the disease, from a few days to a few months, by the appearance of blood in the urine. The blood is often profuse and very bright at one time or other in the course of the early stage, from sloughing out of the deposits: but these attacks are for the most part transitory, and the patient usually only sees a few drops of blood follow the end of the stream of urine, strained out as it were by his efforts to get rid of "something." I am quite aware that upon the symptomatology of this and of other sections of urinary tubercle you are taught differently; but you must realise that in precystoscopic times there were no means, except by rare *post-mortem* examination, of checking our knowledge of the course of the symptoms step by step as they arose. In 76 per cent. of the cases, frequency of micturition and penile pain are the first symptoms, but in the smaller number, in which I suspect a secondary vesical deposit from an extra-urinary focus sloughs out, hæmorrhage is the onset symptom. The stream of urine is often arrested, but if you inquire carefully into the cause for this you will find that the patient checks it *voluntarily* on account of the pain; the sudden cessation, therefore, is not due to the abrupt corkage of the urethral orifice with a stone. After a few months the bladder becomes contracted so that it cannot contain more than 6 to 8 ounces, and so marked is the distension reflex, that the patient will often kick or groan even when the corneal reflex has been abolished by ether, if the bladder is forced by syringe pressure to contain more. The urine from the very first contains traces of pus, and this increases rapidly to a thin but distinctly visible deposit. It is more or less murky, of a light colour, of normal specific gravity, and it remains acid until the surgeon makes it alkaline by interference. At first there are well-marked periods of quiescence, often for a fortnight or more at a time, and in these periods the irritability, pain, and blood disappear, or

nearly so. From this you will readily understand that to a superficial observer the symptoms of primary vesical tuberculosis are very like those of stone in the bladder. We encounter the same irritability, the same glans pain after urination; the blood, pus, and murky urine; the stoppages in the stream, and the periods of quiescence in both. There are, however, points of difference both in the patient, his symptoms, and his urine, which will at once lead you to doubt the existence of stone. His youth, his family history, the distressing irritability of the bladder at night, the sudden and causeless appearance of bright hæmaturia not increased by exercise nor checked by rest, the sudden relief of the suprapubic pain and the rapid disappearance of the glans pain after the evacuation of the bladder; the persistent post-scrotal pain; the very light, acid, murky, scentless, puriform urine which is passed at the very outset of the trouble; and, finally, the periods of quiescence being uninfluenced by violent exercise, point to the tuberculous and not to a calculous nature of the disease.⁴

Dangers of Injudicious Treatment.—Septic infection and excessive zeal sums up the dangers. I will admit that for one not using the cystoscope the sound in doubtful cases is most necessary. Let me, however, urge on you all possible gentleness and cleanliness in sounding. Tubercle resents the slightest manipulative roughness. Put your patient to bed, boil the sound, use it well warmed and oiled, and with as light a hand as possible. I have already mentioned the danger of introducing septic material in washing out the bladder. No antiseptic wash will help you to stamp out tubercle. Germicides will only increase the cystitis and widen the field for invasion. Iodoform has no curative powers. Washing out the bladder with boiled water will relieve the pain in the early stages, and often check the blood. Above all things do not explore digitally and then salve your conscience with the assumption that the drainage will do good. Drainage gives no permanent relief unless the tubercle is removed, and it very often leaves an obstinate perineal fistula; whilst in women with tuberculous bladder it not infrequently produces total incontinence of urine. Opium, sandal oil, sea air, and occasionally washing out the bladder will often work wonders. If these measures fail, there is still the cauterisation of the tuberculous deposits under electric light, or the more unsurgical method of wholesale curettage through a suprapubic incision to fall back upon.

D. Obsolete Vesical Tubercle simulating the Contracted Bladder of Concentric Hypertrophy.—It is of importance to remember that vesical tuberculosis obsolesces by burning itself out. The mucous membrane is more or less completely destroyed and sloughs away. An inelastic, stiff-walled, little reservoir of the capacity of 3 ounces remains. The patient is free from any pain. His stream is forcible, but thin and of short duration; the urine is clear, but he is worried by the frequency of incapacity, being only able to retain a wineglassful at a time. Every half-hour by day and night the urine is passed, and he clamours for some relief from the distressing frequency, the annoyance of the urinal, and the chafing of the abraded, urine-sodden genitals. Similar contraction of the bladder results from other forms of interstitial cystitis, for example, that due to calculus, stricture, perimetritis, etc.

Dangers of Treatment.—The well-known value of dilating, by means of hot water injection, bladders contracted by the concentric hypertrophy of "disuse" suggests to the practitioner the use of the same method in every case of contracted bladder, but often the result is disastrous. There is no bladder so rigid, so inelastic, so intolerant of distension as the "cured" tuberculous bladder. No muscle plane proves so friable as the stiffened fibre-muscular wall left by the disease in question. If you attempt to dilate such a bladder, expect hæmorrhage or recurrence or subperitoneal rupture in the neighbourhood of the ureter. Leave well alone, and modify by drugs the acridity of the urine.

E. Primary Tuberculous Prostatitis simulating Gonorrhœal Infection of the Onanitic Prostate.—The majority of cases of primary prostatic tuberculosis are recognisable *per rectum* by the

⁴ I have elsewhere drawn attention to the deceptive appearances of tubercle of the bladder under electric light. BRITISH MEDICAL JOURNAL, vol. i. p. 990, 1889.

⁵ Sims, BRITISH MEDICAL JOURNAL, 1889, vol. ii, p. 1052; Braxton Hicks, *ibid.*, p. 1091; author, *ibid.*

³ Knowsley Thornton, *op. cit.*

discovery that one or both lobes are occupied by one or more hardish nodules, which vary from small shot to a horse bean in size. Moreover, the persistency of the irritability of the bladder, the unrelievable pain in the perineum and glans penis after micturition, the occasional appearance of blood at the end or at the commencement of the stream, the agony of instrumentation, together with the presence of pus and *débris* in the urine, will be enough to guide you after the rectal examination to a correct solution of the nature of the trouble. Sometimes, however, the deposit is buried in a general swelling of the prostate provoked by the irritation of the tubercle. When this is so, rectal examination—even with a highly-educated finger—is inconclusive, for a prostate of precisely similar shape is encountered after a gonorrhoeal attack has been grafted on a prostate enlarged and indurated by early and excessive masturbation. For my own part, I am myself unable to differentiate between these two conditions, and have lately relied upon an injection of a weak solution of tuberculin, or I have withheld my diagnosis and all topical treatment until the subsidence of the general swelling or the implication of the vas or testis has permitted of a certain diagnosis being made.

Dangers of Treatment.—The usual method of treating chronic prostatitis by deep injections sweeps the tubercle into the bladder, and thus one of the natural barriers to the spread of the disease is broken down. The cauterisation of the prostatic mucous membrane is often followed by severe reaction in tuberculous cases, and tends to excite abscess in the deeper parts of the prostate—a result which in these cases is fraught with danger; for the prostatic tissue under these circumstances is apt to be completely shelled out by sloughing, and an incurable incontinence is the result. Avoid, therefore, all instrumentation.

F. Primary Urethral Tuberculosis simulating Stricture.—I believe a primary urethral deposit to be most rare. It should afford, however, a better prognosis here than in any other part of the tract, for the constant passage of urine over the surface sweeps away the irritating secretions. Although I can only point to one case of *primary* disease—and that I mistook for stricture until I had examined with the electric urethroscope—yet I have had several cases in which the urethra was invaded from foci in the prostate and bladder. A consideration of these permits me to state that when tubercle affects the bulbo-membranous section of the canal it is very likely to be mistaken for stricture, for the swelling offers a decided obstruction to the exploring *bougie à boule*. You recognise the difference between this swelling and stricture by the extraordinary amount of pain which is caused by the most delicate instrumentation, and this even after a strong solution of cocaine has been previously applied. The surface bleeds on the slightest touch, and severe rigors often follow any examination. These are not only alarming, but are positively dangerous when the kidney is latently affected. A perineal fistula—Nature's attempt at a radical cure—often forms rapidly in the postscrotal region. All manipulation is out of the question, but much good may be done by iodoform urethral bougies gently insinuated into the deep urethra, the general health being at the same time well supported.

GRESHAM UNIVERSITY COMMISSION.—A meeting of this Commission was held last week, at 23, Great George Street, Westminster, when there were present Earl Cowper, K.G. (Chairman), Lord Reay, G.C.S.I., the Right Rev. Bishop Barry, Sir William S. Savory, Bart., Sir George M. Humphry, M.D., F.R.S., the Rev. Canon Browne, Mr. James Anstie, Q.C., Professor Burdon Sanderson, Professor H. Sidgwick, Professor George G. Ramsay, Principal G. H. Rendall, Mr. Ralph C. Palmer, and the Secretary, Mr. J. Leybourn Goddard.

CONCEALED POISONS.—Mr. Price, the Salford borough coroner, held an inquest, on May 17th, on the body of an infant, aged 6 weeks, the daughter of Charles Smith, brick-setter's labourer, living at 47, Cook Street, Chapel Street. On Friday, the child being unwell, its mother procured a pennyworth of "Mother's Friend," which contains extract of opium. A dose of this medicine was given to the child in a little water. It seemed to ease its pain at the time, but next morning it was found dead in bed, lying on its mother's arm. The jury returned a verdict to the effect that death had resulted from an overdose of the mixture inadvertently administered.

REPORTS

TO THE
SCIENTIFIC GRANTS COMMITTEE
OF THE
BRITISH MEDICAL ASSOCIATION.

FURTHER REPORT ON ASEPTIC AND SEPTIC SURGICAL CASES, WITH SPECIAL REFERENCE TO INFECTION FROM THE SKIN.

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THE following report upon aseptic and septic wounds is a continuation of that which was published in the *BRITISH MEDICAL JOURNAL* on October 25th, 1890. In that report no wound was called aseptic unless its sterility had been proved by the inoculation of culture media from it. This test has been continued, and, when nothing has grown upon the cultures, the wound has been called aseptic, and, I may add, the subsequent progress of the case has left nothing to be desired.

The dangers and imperfections of treatment which permits of wound infection are self-evident. There is no plan which can allow the so-called harmless microbes to enter and at the same time keep out the harmful. Nor can we rely upon the vital resistance, phagocytic power, or microbe-destroying properties of the fluids and tissues of the body. They are factors beyond control, whilst asepticism is not.

Recent investigations show that few wounds can endure the stringent test of the inoculation of culture media. A wound which does not infect seems to be so unusual that it is worthy of being recorded.

Bloch,¹ who seems to have tested properly a great many wounds, found microbes present in almost every instance. He refers to upwards of forty-six cases, out of which only two were sterile. It must not on this account be inferred that his results were not good; but they did not come up to the highest standard. As a result of his work, this surgeon seems to take a pessimistic view of the possibility of asepsis. He thinks the skin is the source of contamination.

Halsted² has also worked in the same direction. His statements are not precise, but it is said "that test tube inoculations made by us a few days after the operations from the surface of the new cicatrix, from the fine line of granulations, from the surface of the blood clot, from the tip of the gauze plug, and from the bottom of the sinus occupied by the plug, frequently yielded a number of colonies of pyogenic organisms." This surgeon also refers to infection from the skin, and says that, after numerous experiments, he came to the conclusion "that it is impossible to disinfect it by any of the methods which have hitherto been recommended." Mr. Watson Cheyne has also more than once attributed wound infection to the patient's skin.³

These quotations show the comparative rarity of aseptic wounds in the practice of surgeons who aim at their attainment. They also point to a source of contamination to which I propose to allude. Before doing so, brief notes will be given of some wounds which have borne the ordeal of the inoculation of culture media, and which are, therefore, called aseptic.

ASEPTIC WOUNDS.

CASE I. Tuberculous Synovitis of Left Knee; Arthrectomy.—The patient was an unmarried woman, aged 26, and was by no means a good subject for an operation. She says that both of her parents and five brothers and sisters had died of consumption. She herself had had strumous ophthalmia when a child and had had necrosed bone removed from her upper

¹ Bloch, *Revue de Chirurgie*, 1890, p. 819.

² The Johns Hopkins Hospital Reports, vol. ii, No. 5, p. 298.

³ Suppuration and Septic Disease, London, 1889, pp. 8 and 9; also Micrococci in Relation to Wounds, Abscesses, and Septic Processes, *BRITISH MEDICAL JOURNAL*, 1884, vol. ii, p. 553.