ABSTRACT OF A CLINICAL LECTURE ON THE DIAGNOSIS OF URETHRAL AND VESICAL DISEASES.

Delivered at University College Hospital on November 21st, 1871.

BY SIR HENRY THOMPSON,
Surgeon to the Hospital.

I COMMENCE to-day my usual course of lectures, modified somewhat by circumstances. Thus I desire to condense a little my opening remarks on diagnosis to-day. I may premise that I give this course of lectures on the diseases of the urinary organs, because my wards offer you so large a field for their study, and also because there is no class of diseases in which you can afford so much relief to the patient as in this, or so certainly mitigate suffering. There are no diseases more painful, and none the relief of which will gain you more gratitude from your patients.

In the matter of diagnosis, however, it is of the greatest importance that it should be a correct one, and not only correct, but rapidly made. I have now to say what I have said to you before, that I interrogate all these patients on the same system, and I advise you to follow this plan. I employ only four questions for urinary patients, and I advise you to use these four questions also, and always in the same order. The first question is, Is there any deviation in the frequency of passing urine? The second is, Is there any pain in the act? The third, Is there any blood in the urine? And the fourth is, Are the characters of the urine altered [quality and quantity]?

We shall see that in all cases of urinary disease these four questions are sufficient, together with the supplementary inquiries which arise out of them; yet we know how often such cases are misunderstood—indeed, the simplest are often mistaken, through not pursuing a systematic method in arriving at a diagnosis. First of all, let us look at the question of *frequency*. Almost every disease of the urinary organs produces some deviation in the natural frequency of passing urine. As a rule, let it be understood that a man in health does not generally rise at night to pass urine, and that he passes it during the day about five or six times; but when there is any degree of inflammatory action in the mucous membrane of the bladder, however slight, frequency of micturition is induced. Now, how does cystitis produce this increased frequency? When the mucous coat of the bladder is inflamed, it cannot bear to be much extended; and when the bladder contains five or six ounces of urine, or even less, the sensitive mucous membrane suggests that it should be emptied: instead of comfortably containing fifteen or sixteen ounces, it cannot endure the extension, and calls on the muscles to contract without delay. There is one, and one only, of these affections which does not necessarily produce, at first, frequent micturition. I speak of stricture: here it always occurs after a time; but a man may have a considerable amount of stricture for years before he is troubled in the way referred to. Calculous disease produces cystitis, and thus causes an increased frequency in passing urine. Now, as a supplementary question, you should next ask, Is the frequency greatest at night or in the day? If a man have calculus in the bladder, he is not so much disturbed at night, but in the day he is frequently micturating—all movements make him do so. Now, that extremely common complaint, *hypertrophy of the prostate*, is worse at night than by day, as far as frequency of passing urine is concerned. Hence, if a man of about sixty years of age says that he has but recently had urinary troubles, and these are greatest by night, the case is almost made out; you may be sure that a very little further inquiry will demonstrate the fact that he is the subject of hypertrophied prostate.

I come to the second question of *pain*. This question is of greater significance. Suppose the patient says he feels pain. Where do you feel pain—low down in the belly? Then there is almost certainly chronic cystitis. Suppose he says that his pain is in the penis or perinæum, you must ask if he feels the pain before, during, or after, passing urine. If the pain be before, that is because the mucous membrane is becoming uneasy in consequence of distension. If he find it painful during or after passing urine, and in the end of the penis, he is likely to have stone; and especially, also, if the pain be increased by exercise. The pain is at the end of the penis in stone. It is almost pathognomonic of calculus to find the pain near to the end of the penis during and after micturition. In chronic prostatitis, the pain is also at the end of the penis. This simulates calculus in the bladder more than any other disease.

The third question is, Has *blood* passed? This brings us nearer still to the point. Blood may be seen in cystitis, but very rarely. The mode and the circumstances in which the blood has passed, however, determine the nature of the disease. An elderly man, who passes blood in-

timately mixed with the urine, dark in colour, and not altered much by circumstances, with frequent rather than painful micturition, has probably hypertrophy of the prostate. In calculus of the bladder you find blood: it is as common in calculus as hæmoptysis is in phthisis. Then a calculous patient will find blood in the urine after a drive or a ride, or after hunting, and none if he keep quiet; or he may pass a drop or two with the last expulsive effort at micturition, and with pain at the time. Such urine is usually rather florid in tint, while, generally speaking, blood passed from the kidney remains long in the bladder, and, from contact with the urine, becomes brown in colour—it is like porter. This, also, may happen when the bleeding is due to hypertrophy of the prostate.

Lastly, Is the *character* of the urine perceptibly changed? A man will often tell you his urine is thick; but he does not discriminate between the thickness of pus or mucus, and that from deposited salts, as lithates. Patients are generally very much disturbed unnecessarily on account of thick urine. In this cold weather, the urine, on cooling, deposits its lithates readily, where none would be seen in summer; and you may tell him that, if he apply a little heat to it, he can see for himself that it will become quite clear again, which is never the case if the thickness be due to organic matters like pus or mucus; and if this be not an habitual appearance, you may make light of it. If, on the other hand, a heavy deposit of lithates be constant, you must look into his habits and correct his digestion—probably restrict some indulgence in diet. If, also, the urine do not become clear with heat, you have an organic compound to deal with, and you must find out carefully the source of it.

Let me advise you always to make your patient pass his urine into two vessels for examination. I should not thank you for an examination of urine passed into one vessel; for whatever a man may happen to have lying in the urethra—a passage which is by no means always clear and sound—passes with it. Let him pass an ounce or two into one vessel, and examine only what you find in the second vessel. If there be gleety discharge, if there be stricture of the urethra, you will find shreds of pus and mucus and blood-corpuscles in the first glass, but not in the second. In chronic prostatitis, always in hypertrophy of the prostate, sometimes there will be a deposit in the first vessel, which would much mislead you if you imagined it to come from the bladder or kidney. This specimen you must examine for albumen, for sugar, and you must inquire also the quantity passed *per diem*. Well, then, if a patient have told you that he has frequency of passing urine, increased by exercise; that he has pain at the end of the penis; that he passes blood; and that his urine is changed, you may arrive at a pretty good diagnosis of his case. But you would be very much to blame if you did not further examine the man: you must pass an instrument. It is best to be straightforward with patients and tell them so. People have too much common sense to be dealt with otherwise than plainly in these matters. You need not always sound a man with a stiff rigid metallic instrument at first, who has never had an instrument of any kind in his urethra. It is best to take a soft instrument, pass it gently into the bladder, which produces very little discomfort, and so diminish the patient's fear. You can then say, pass another instrument (which will give you a little more pain), and ascertain completely what is the matter.

[Sir Henry Thompson then exhibited the various instruments used in the diagnosis of diseases of the bladder and urethra, and explained their several uses—promising to continue the subject on the next occasion of his lecture.]

THE ANTISEPTIC TREATMENT OF WOUNDS.*

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YOU will all, doubtless, have seen the scattered notices in the medical journals of the "Antiseptic Treatment of Wounds"; and many of you will have read with much interest the admirable Address in Surgery given by Mr. Lister at the annual meeting of our Association in August last. To this novel mode of dealing with wounds I would invite your close attention, convinced as I am that the results, so to be obtained, far outweigh any of the usual sequences of the more ordinary surgical dressings—whether they be looked at from the ready and successful response to the surgeon's art, or from the safety and comfort so ensured to the anxious patient.

My short summer holiday this year was spent in Edinburgh; and

* Read before the South Midland Branch of the British Medical Association, October 10th, 1871; and before the Shropshire Scientific Branch of the British Medical Association, October 27th, 1871.

to the kind courtesy of Mr. Lister I owe the opportunities of close observation of his treatment in many and severe cases in his hospital practice. On the lessons there learned I have based my subsequent surgical work, and on them, too, as a foundation, I venture to speak to-day, bringing forward some few cases which have been under my own care, and describing, as clearly as I may, the modes of dressing which are employed. Throughout I am but the humble exponent of the views of a most able surgeon, and my only merit is that of having seen what I attempt to paint.

"Segnius irritant animos demissa per aures,
Quam quæ sunt oculis subjecta fidelibus."

Whether the so-called germ-theory of disease be or be not correct, is no part of my purpose to inquire; the process would be simply wearisome and ill-managed. The only postulate I ask you constantly to bear in mind is that, for the successful dealing with wounds on antiseptic principles, it is imperative thoroughly to *exclude the external atmosphere as such*; and a most rigid obedience to this requirement can alone command the desired success, whether the air be *per se* a toxic agent, or whether it be dust-carrying, and so but a vehicle of those impurities which determine the occurrence of suppuration in an open wound. It is imperative, in other words, that the air in contact with the exposed portions of a wound shall be fully charged with some convenient disinfectant: so charged, it may be admitted to wound or cavity without risk to the patient or anxiety to the surgeon.

Taking, then, the simple case of an ordinary abscess, in which immediate incision is needed, the antiseptic treatment must be carried out as follows. 1. Destroy any putrefactive material about the integument of the part by washing it thoroughly with a lotion of carbolic acid (one part of the acid in twenty of water). 2. A constant cloud of fine spray must be kept up by an assistant, so managed that the hands of the operator and the part to be incised are always enveloped in the spray: one or more of Richardson's spray-producers may be needed for this purpose. The carbolic acid solution for the spray will be sufficiently strong if made of one part of the acid to a hundred of water. 3. The knife employed must first be dipped in carbolised olive oil (one part of the acid to ten of olive oil). 4. The incision being made, the abscess-cavity may, as far as possible, be emptied by gentle pressure. If any vessel should have been divided and need a ligature, it should be tied with some prepared carbolised catgut, and both ends of the ligature be cut off short. 5. The wound may thus be dressed: A piece of "protective" oiled silk, coated with copal varnish, and then covered with a layer of dextrine, so as to retain a little of carbolic acid lotion (one part to forty of water) on its surface—cut not much larger than wound—should be dipped in the lotion just named and then applied; on this a pad of the antiseptic gauze* must be placed, large enough to overlap thoroughly the wound, and not less than eight layers in thickness. Between the seventh and eighth layers, or those most distant from the patient's surface, must be placed a single layer of macintosh cloth, so as to prevent direct soaking of any discharge through the gauze-covering, and to insure that any moisture which may be poured out shall pass through many antiseptic layers and over some wide space before it can possibly be exposed to the impure influences of a septic atmosphere. 6. For the retention of this covering in place, a strip of the above-named muslin (cut to the width of, and rolled up as, an ordinary bandage) may be applied. The slightly adhesive character given to the muslin will make the requisite turns fit very easily, and be less liable to displacement, than the common calico roller. 7. If it be necessary to wait for some little matter—to replenish the bottle of the spray-producer with the lotion, to change the assistant, etc.—the wound should be covered with a piece of rag, dipped in lotion, containing one part of acid in forty of water. This, for convenience, is known as "a guard". 8. Subsequent dressings—first every day, then at longer intervals—must always be managed in the same way. The spray will need to be unremittently kept up; the fingers to be soaked in the lotion or wetted with the spray; all adhering discharge carefully washed away; and the protective outside pad and bandage applied as before. 9. To small operations, removal of tumours, etc., the above process is thoroughly applicable. If the wound made be deep or tortuous, a tent of lint—a narrow strip—dipped in carbolised olive oil (one part of the acid to ten of oil) must be introduced before the sutures are inserted. At the end of twelve or twenty-four hours this tent may be removed; it will have absorbed the serum oozing from the deeper part of the wound, and so have prevented distension of the deeper parts, and possible formation of pus. 10. In larger operations—*e.g.*, amputations—a larger volume of spray must be secured from two or more of the usual spray-producers, or from the apparatus employed by Mr. Lister. [A new spray-pro-

ducer, which seems likely to be very effective, has just been sent to me by Mr. Gardner, surgical instrument maker, South Bridge, Edinburgh.] Sponges should, before using, be dipped in carbolic acid lotion (one to a hundred): when soiled, they must be washed, first in clean water, then in a lotion of one to forty; and then, just before using, in a lotion of one to a hundred. 11. The following cautions may not be out of place. *a.* The lotions for spray-producers need very careful filtration before being used. It is exceedingly easy to choke the fine apertures through which the spray is delivered. *b.* Hold the muslin-padding closely down over the wound until the layers of bandages shall have retained it closely in place; and leave no channel by which septicific air may reach the wound, unprotected by several layers of gauze-bandage. If dressings be loose or displaced, air will soon reach the surface of the wound, and in twelve hours suppuration will be established. *c.* Redress so soon as any trace of stain shall have shown itself at the outer edge of the gauze covering. *d.* Sinuses and wounds opening into mucous canals are ill-fitted for thorough antiseptic treatment.

The advantages may be briefly summed up:—1. The dressing is clean, almost inodorous, and singularly painless. 2. The formation of pus as a consequence of the injury, surgical or accidental, is, with due care, prevented. 3. Erysipelas and pyæmia, if not absolutely extinguished, are very rarely seen. 4. The wounds are free from local irritation; no swelling of incised integument and no local redness are to be noticed. 5. There is no constitutional disturbance (traumatic fever) after even severe operations. The dressings are infrequent, and in themselves free from irritating material. 6. The wounds heal rapidly.

CASES.—I. *Abscess in Leg*.—T. W., aged 10, was admitted July 18th, 1871, with a large abscess in the calf of the right leg. An incision was made under the spray, and antiseptic dressing was employed. No pus was discharged after the first day. The blood-clot filled up the incision, and soon became organised. On July 25th, he was discharged cured, having been a week under treatment.

II. *Abscess in Breast*.—E. T., aged 17, was admitted September 12th, with an acute and large abscess in the right breast. An incision was made September 13th under spray; the dressing was as above. No pus was discharged after the first three days. On September 26th, she was discharged cured, the breast being quite well.

III. *Large Chronic Abscess*.—J. W. aged 17, was admitted September 12th, 1871. She was the subject of old hip-joint disease on the left side. The limb was shortened an inch or more, and the femur was dislocated upwards and backwards on the dorsum ilii. There was a large fluctuating swelling on the left thigh, fully six inches long by four broad, reaching upwards nearly to the trochanter, downwards below the middle of the thigh. It was first noticed six months previously. On September 13th, chloroform was given, and I made a free incision into the swelling on antiseptic principles, letting out thirty ounces of fairly healthy pus, with shreds of areolar tissue. No constitutional disturbance followed. The girl became free from pain, and could at once eat and sleep. Subsequent dressings were applied about every two or three days. Now from an ounce to two ounces of pus are discharged at each dressing. The shreds of tissue are no longer to be noticed. Within the last week some small fragments of carious bone have come away, so the abscess is most probably connected with the old bone-disease.

IV. *Large Abscess in Lumbar Region over Right Kidney*.—W. J., aged 38, was admitted October 5th. He was much emaciated, and could not stand upright. He had a swelling in the right lumbar region nearly of the size of a small foetal head. Pulse 120; temperature 103 deg. He had hectic fever, much sweating, and loss of appetite. On October 6th, under chloroform, I incised the swelling, evacuating nearly thirty ounces of pus. The dressing was applied as above described. Pulse 96; temperature 98.4. The hectic never returned, and the man is much better. The back is dressed every two or three days, and about an ounce of pus is discharged. I have had occasion (October 15th) to open also for him a large abscess in the perinæum, due, it would seem, to the urethra giving way behind a tight stricture; but this wound, through which some urine filters, could not be subjected to antiseptic dressing.

V. *Compound Fracture of Left Tibia*.—M., aged 12, sustained a severe compound fracture of the left tibia in the upper third on September 16th, 1871. On September 18th, I saw him in consultation. Two inches of the tibia were denuded, and there was a deep wound into the calf separating the muscles from the posterior surface of the bone. The wound was filled with blood-clot, which was just beginning to become offensive. I injected some carbolic lotion (one in twenty) beneath and into the substance of the clot. The limb having been securely fastened on a side-splint, the usual antiseptic dressing was applied. A fortnight later, I heard that the boy was doing very well. There was no pus-formation to be seen; no putrefaction; the blood-clot was becoming organised.

* For detailed description of this gauze, see BRITISH MEDICAL JOURNAL, January 14th, 1871, page 31. It is supplied by Messrs. Macfarlane, chemists, South Bridge, Edinburgh.

VIII. *Fracture of Right Leg at the junction of Middle and Lower Thirds: Severe Transverse Wound two inches above the Ankle down and into the Tibia.*—W. M., aged 54, was admitted September 8th, 1871. He was thrown down this morning at 8 o'clock, when at work with a reaping-machine. The right leg was seriously injured. When he was seen at 2 P.M., there was found to be a simple fracture of the tibia at the junction of the middle and lower thirds. There was a wound about two inches above the ankle-joint, gaping widely; all the tendons, etc., were divided down to the bone, and the knife of the reaper had made a groove into the tibia itself. He had lost a good deal of blood. The limb was much swollen. The two points of injury, doubtless, communicated. There was hardly an inch and a half of clear skin space between them, and pressure above the fracture made blood well up from the wound below. The leg was put up in a swing splint; the skin was washed, and the wound mopped out with carbolio lotion (one to twenty), and a tent of carbolised oiled lint was introduced to the deepest part of the wound. The tent was removed in twenty-four hours. There was large oozing of blood-stained serum on the dressings throughout the first eight or ten days. The man had had no constitutional disturbance. He had eaten meat since the day after admission. He needed no sedative, and had very little pain. On October 4th, from some want of care in the dressing, and the consequent admission of air, a few drops of pus were noticed for the first time, and small suppuration (never more than half a drachm in two days) afterwards continued. On October 23rd, the wound was all but well; the fracture was sound. He was ordered to have a starched bandage applied.

IX. *Incision into Knee-Joint.*—G. B., aged 23, was admitted August 11th, 1871. He had disease of the right knee-joint of fifteen months' standing. Since an accidental slip the symptoms had been much aggravated. The joint was much swollen, and he could not bear the slightest movement; there was also much pain on pressure. The limb had been confined at home by a long splint, and a weight, working over a pulley, attached to the foot; but these measures had given very small relief. Destruction of cartilage was, no doubt, going on. On August 11th, chloroform being given, I made a free incision on the inner side and parallel to the right patella, letting out at once about a tablespoonful of sero-purulent fluid. Antiseptic dressing was applied. The interrupted splint and pulley was reapplied. The relief was immediate; the man was at once able to eat and sleep. No constitutional disturbance followed. The joint soon became smaller. The blood-clot, which ultimately became organised, filled up the incision, and through the intestines of this clot for ten days or more pus slowly oozed. On September 12th, the wound, which had not been dressed for the past eight days, was now quite well. On October 5th, a starched bandage and paste-board support was ordered to be applied to the limb. The patient was allowed to move about on crutches. On the 20th, he could bear some little weight on the limb, and was in very fair health.

XI. *Incision into Knee-Joint.*—R. F., aged 17, was admitted September 19th, 1871. She had had for some long time weakness in the left knee. Pain and swelling about the joint came on six weeks before admission, since which time she had kept her bed. On admission, the left knee was much swollen; fluctuation was perceptible; she shrieked on the slightest movement. She had lost flesh; had no appetite; and could only sleep with large doses of opium. On September 23rd, Mr. Eddowes made an incision on the inner side of the patella, letting out sero-purulent fluid mixed with blood. The patient was under chloroform. Considerable relief followed. In two or three days the appetite was much improved. There was no constitutional disturbance; no redness around the wound; no pus from the wound. On October 3rd, the joint was much diminished in size.

XII. *Ovariectomy.*—S. A., aged 32, the subject of marked ovarian disease, was tapped in July 1871, when thirteen pints of fluid were removed—a solid mass remaining in the left iliac fossa. On September 21st, ovariectomy was performed. Carbolio acid spray was employed, and antiseptic dressing. The pedicle, which was thin, was tied in two halves with catgut, and returned. On the 30th, it was necessary to break up the adhesion of the lower part of the wound to relieve the distension from contained fluid. There was a large effusion of blood into the lower third of the abdominal cavity. No putrefaction, however, occurred, and no pus formation until a month after the operation; then it was superficial, from accidental displacement of the dressings. The woman is steadily recovering.

REMARKS.—The two cases of acute abscess call for little remark: one was quite well in a week; the other in a fortnight, from date of incision. The cases of chronic abscess have exhibited no sign of constitutional irritation since the evacuation of the contained matter. Both have been much relieved by the procedure; and, as yet, without the risk and dangers which not uncommonly follow the emptying of large

collections of matter. Both instances of compound fracture were so severe that a few months ago I might justifiably have thought of an immediate amputation. In not one particular has there been in either case a trace of uneasiness either to patient or surgeon. The power of making incisions into large articulations, without even a fear of after trouble, is of no small interest; and one, if not both, of these patients will probably owe their limbs to the antiseptic dressing. More than once have I seen amputation through the thigh for less marked states of joint-disease. In the ovarian case, I claim nothing more than the prevention of putrefaction, in the large quantity of blood effused into the peritoneal cavity, by the dressing employed. And, too, so far as one single case may be a precedent, this shows also that the spray of carbolio acid (one to a hundred) does not irritate even the sensitive lining of the abdominal cavity. Other cases might well have been added to the list; but I have chosen these as marked instances of surgical procedure, of not infrequent occurrence, and, I might truly add, not uncommonly followed by tedious recovery or by serious after-trouble when the more usual surgical dressings are employed.

ON A REGULATED TEMPERATURE IN THE TREATMENT OF DISEASE, ETC.*

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GENERAL REMARKS.—The conclusions deducible from these observations regarding the physiological and therapeutical effects of maintaining a high uniform temperature in such diseases are the following.

1. The results are similar in kind, though differing in degree, with all the modes of application; but, upon the whole, they are more decided and satisfactory with the combined poultice and bag than with either of the others.

2. An uniform high temperature has a powerful general action on the system. But the most striking influence is exerted on the skin, free perspiration usually occurring within half an hour after the agents have been applied, and in some cases continuing for some hours afterwards.

3. In a considerable degree, as a consequent of perspiration, there is a reduction of the general temperature. This, however, is not constant; but where an increase is associated with perspiration it is not great, and does not exceed 0.2 or 0.4 deg. Should there be no perspiration, the general temperature is occasionally increased as much as a degree.

4. As a rule, the high temperature does not excite the heart, but appears rather to have a tonic effect on that organ; for in the majority of the patients there was a reduction in the number of pulse-beats per minute, and it was also generally fuller in volume. Occasionally, however, where perspiration did not appear, there was some, though not a great, increase in the action of the heart; but it is also to be observed that, when sweating was excessive, an enfeeblement of cardiac power was the result.

5. A reduction in the respirations usually occurs when these are abnormally frequent. When, however, there is no perspiration, there may be an increase in the number, but only to a slight extent.

6. According to the testimony of the patients, pain and oppression in the chest are usually relieved, and sometimes entirely removed, and a general feeling of relief is experienced. This remark applies not only to the ordinary bronchial affections, but also to those exacerbations of phthisis pulmonalis in which oppression of breathing is associated with a suppression of perspiration; for relief in that condition was obtained in the cases observed by a restoration of the cutaneous discharge.

7. Perspiration is induced in many cases of renal disease with dropsy, with consequent advantage to the sufferers, and afterwards diuresis may be more free.

8. The application of an uniform high temperature is useful in such disorders as lumbago; the pain in one of the two cases treated being entirely removed, and in the other considerably alleviated, immediately after the application.

9. Its local action on the sensory nerves is not unduly great; for, unless the heat be raised to an unnecessary height, the different media through which it is applied are not complained of by the patients.

10. Its local effect as a counterirritant, so far as is indicated by the vascularity of the integument, is considerable, and may even be so increased as to produce vesication of the surface.

With respect to the results which followed the renewal of the water every half hour during two hours—none of the applications being meanwhile removed—I have only to remark that, as they were very similar

* Concluded from page 640 of last number.