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CLINICAL LECTURES,

IN COURSE OF DELIVERY DURING THE PRESENT SESSION
AT GUY'S HOSPITAL,

BY BRANSBY B. COOPER, ESQ. F.R.S.
(Published with Permission of the Lecturer.)

MONDAY, JAN. 18, 1841.

LECT. IX.—On the Radical Cure of Hydrocele.

Now, gentlemen, I proceed to speak of the radical cure of hydrocele, and although you have not seen me perform any operation lately for such a purpose, still I shall go into the subject at some length, because it is one of every day experience. You do not see patients with hydrocele brought into the operating theatre, for these cases are so common that they are not brought under the eyes of the hospital surgeon, but are treated by the dressers in the surgery; and this, while it shows you the advantages enjoyed by a dresser in a large hospital, also proves how important it is for you to be thoroughly acquainted with the nature and treatment of a disease of such very frequent occurrence. I need not, therefore, make any apology for going into the minutiae of the operation, and illustrating some practical points, which I trust will prove of service to you, by reading a few cases from my private note book.

Different modes of treatment have been adopted for the radical cure of hydrocele; incision, injection, the seton, and the application of caustic. The operation by incision I told you before was given up on account of its dangerous consequences; and although I believe the seton is still not unfrequently used in a neighbouring hospital, I have fully determined never to employ it again myself. I have used the seton five or six times, and in four of those cases the subsequent inflammation was so great as to endanger the life of the patient. Caustic is, I believe, not much used; and on the whole, injection of the sac appears the standard method of operating for radical cure. I will, however, give you some cases in illustration of each of these plans. Now, in the first place, as to the nature of the fluid to be injected; if it be the first time of injecting, you would use about two-thirds of port wine and one-third of water, but if the sac have been injected before, pure port wine is not too strong. Then there are some who say that the strength of port wine is uncertain, and that if you use wine which has been many years in bottle it is weaker than new wine; they, therefore, recommend the sulphate of zinc, because you can always regulate the strength of its solution with accuracy. A drachm of the sulphate to sixteen ounces of water is the proper strength; but I prefer the wine, for the simple reason that I have been more successful with it than with the zinc. However, for the last two

or three years I have not used either one or the other, but have used a solution of iodine instead—two drachms of tincture of iodine and six drachms of water; two drachms of which mixture may be injected and left. I have a note here stating that Dr. Henry Goodeve has used this injection in India in 276 cases, and has only failed twice. Since I have used the iodine I have not had a single case where the injection failed to effect the radical cure, and only one where I had to repeat the injection. This was a case where the tincture of iodine that I used was bad, and as I felt convinced it would not succeed, I repeated the injection four days afterwards with some which had been properly prepared. The chemists will tell you more of this matter than I can; but if the tincture be made without the admixture of hydriodate of potash, a precipitate forms when you add the water, and the mixture is quite useless, but when properly made the watery solution is perfectly bright.

The manner of injecting a hydrocele is very simple; but still you must be cautious to avoid several errors which a careless or ignorant person might commit, and which I shall point out to you. Always place your patient on a sofa, or let him lean back in a chair, because any one is liable to faint, however bold he may appear; and then, if you have operated while he is erect, he falls, probably upsets the basin, hurts himself, or frightens his friends, all which appear very clumsy, especially in a private house. Having taken all the precautions I warned you of, before introducing the trocar, you oil the instrument in order to facilitate its introduction, then make the scrotum tense, and push in the trocar with a sort of semi-rotatory thrust. You know when it is in the cavity by the freedom with which it moves about, and when you feel this, withdraw the trocar and push on the canula quite up to the nozzle, in a direction obliquely upwards, and not backwards towards the testicle. The fluid of the hydrocele escapes, and while this is going on you must take care that the canula is not either wholly or partially withdrawn: for if wholly, you cannot complete the operation; if partially, there is a liability of throwing the fluid into the cellular membrane of the scrotum. It is well to have the fluid for injection and all the apparatus close by you; for probably while you were going to the other end of the room to get them, the patient would be meddling with the canula, and it would be a very poor excuse for you, after you had injected the cellular tissue of his scrotum with wine, to say, "Oh, that's not my fault, you ought not to have touched the instrument." Depend upon it, gentlemen, caution in these apparently trifling matters is of no slight importance to the success of a surgeon. You should also take care that the pipe of your india-rubber bottle and the canula

fit each other; for if you are not using your own instruments, it would be very awkward, when you came to inject, to find the fluid forced anywhere but where you wished to send it, and the patient will be scarcely satisfied if you are obliged to tell him that your instruments are out of order, and that he must come again in six weeks. All such mischances are easily avoided by a little care. Then, as to the quantity of the fluid to be injected. I think the best rule is to fill the sac to about two-thirds of its capacity, and you will regulate the period which you allow it to remain by the degree of pain. From three to five minutes is about the usual period, but when the patient feels sick, and complains of pain extending up the thighs and loins, you will just turn the stopcock and let off the fluid. I understand that Mr. Liston throws in and immediately lets off the fluid, and then injects a second quantity, and I hear very rarely fails; but I have not practised it myself, as I am perfectly satisfied with the iodine. Now, the fluid having run off, do not let the patient walk home, for I shall read you a case directly, where so much inflammation was thus excited, that sloughing of the whole of the scrotum followed. But suppose, when you turn the stopcock to let off the injection, no fluid appears. The patient looks a little anxious, and you say, "Oh, I know what it is: a little bit of cellular tissue has stopped up the canula," and then you pass a probe along the canula, but still no fluid appears; and then you know what you have done, and that you have infiltrated the cellular tissue of the scrotum with the wine or zinc solution. In this case there is only one mode of proceeding, and you must make free incisions along the scrotum, and then foment them very freely, to dilute the acid fluid, and you will be fortunate if your patient does not lose a third of his scrotum by sloughing.

About eight years ago a patient came to this hospital with hydrocele, and one of the dressers proceeded to operate, everything apparently going on well until the period arrived when the injection should have been withdrawn, when, to his dismay, only a few drops of the fluid could be regained. He immediately ordered the patient to bed; employed antiphlogistic means and fomentations; but notwithstanding every precaution, the patient had sloughing of the scrotum, completely laying bare the tunica vaginalis; but he ultimately recovered, though at great risk of life. The only omission in the treatment of this case was that the scrotum was not freely incised, to evacuate the fluid from the cellular membrane. There is a case mentioned in Sir Astley Cooper's work on the Diseases of the Testis, of a man who was operated on by one of the dressers. He had great difficulty in injecting the fluid, and the man complained a great deal, and when the injection was attempted to be withdrawn it would not escape. In fact, the cellular membrane had been injected, violent inflammation and gangrene ensued, and the man died in a week.

Now, gentlemen, with regard to the after treatment, in the first place, never let the patient walk home after injection. Even after simple tapping I have several times known inflammation thus set up sufficient to bring about a radical cure; and I know of several cases where the patient has walked after injection, where great sloughing, and in one case death, ensued. I have notes of a case here where acute inflammation was thus set up, which terminated in gangrene and death in thirty-six hours, though the sac was not injected. William Knowlson, aged 64, was tapped in the surgery by one of the dressers, and about twelve ounces of common serum evacuated. Injection was not practised. He walked about four miles on the same day, and in the night was attacked with acute inflammation of the tunica vaginalis. The next day he was seen by a parish surgeon, who treated him for strangulated hernia, and afterwards sent him into this hospital, when there was great swelling of the scrotum and prepuce, and much irritative fever. Active treatment was adopted, but in less than twelve hours symptoms of gangrene of two-thirds of the scrotum came on, when stimulating poultices were applied, and he

took calomel and opium with wine, porter, quinine, and as much nutriment as possible; but he died within 36 hours from the first attack. Sir Astley Cooper also mentions cases where dangerous symptoms came on after the patient had been allowed to walk; and one among others, of a gentleman who went down to Birmingham in the mail soon after injection, and sloughing of the whole of the scrotum followed. He also gives two cases, where he thought suppuration was thus produced. Other points in the after treatment must be regulated on general principles.

Here, gentlemen, is one of the cases which have led me to abandon the use of the seton, and to recommend you to follow my example. A military gentleman, age 52, had twice submitted to injection of the tunica vaginalis, but without success. I therefore determined to employ the seton, which I passed with a long needle, after having drawn off the fluid. On the evening of that day there was but little uneasiness, and the seton was left in. The next morning he was doing well; inflammation not beyond the desirable extent; but at the evening visit there was considerable pain and swelling, with great anxiety of countenance. The seton was withdrawn, and leeches and cold lotions applied to the part. A dose of calomel and opium was also given.

Aug. 20. Delirious all night. Tumor increased in size, dark-coloured and ecchymosed. Port-wine poultice; fomentations; calomel and opium.

Evening. Delirium continued; bowels open; pulse 130, very compressible; tongue dry; brandy and water; ammonia and opium.

21. Scrotum in a state of slough; had a better night, less delirium; pulse 100; tongue moist. From this time he slowly improved, and ultimately recovered.

I had another case, in Job's ward, of a patient who had had hydrocele frequently injected without success. I therefore passed the seton. Violent symptoms followed. Suppuration took place. I therefore laid the tunic open, and the man ultimately recovered, but with great risk.

Sometimes considerable thickening of the tunic is concomitant with hydrocele, and such cases are better treated by incision than injection. Sir Astley Cooper met with a case where the tunica vaginalis was not only thickened, but ossified. He took it to Mr. Hunter, to show him as a curiosity, who appeared much pleased, and put it in his pocket. (Laughter.) Here is a preparation of a case seen by Mr. Cock, where the tunic had ossified and come away after sloughing. I had a case some time ago in Stephen's ward, of a man 64 years of age, with a large hydrocele, which had formed so rapidly and was so heavy, that it was considered by all as a case of hæmatocele. I punctured it, however, and drew off a pint of brownish serum, when I found the whole tunic thickened, cartilaginous, and at the upper part ossified. I did not inject, the testicle being also enlarged, and the fluid soon reformed in equal quantity. I operated a second time by laying the whole tunic open, put a piece of lint in, and the patient perfectly recovered. Sir Astley Cooper once operated on a gentleman from Barbadoes by incision, in whom the tunica vaginalis was thickened, and so hardened as to resemble cartilage. It was divided into cavities, some containing a glairy fluid, and some purulent matter. He recovered.

Here are notes of a case which occurred many years ago in this hospital. One of the surgeons performed the operation by incision, and the introduction of lint dipped in oil, a common practice at that time. Suppuration took place, and such a degree of constitutional irritation, that the man died.

The next cases I come to will point out to you how improper it is to operate when a hydrocele is in an inflamed condition. A physician was the subject of hydrocele, and had frequently had the fluid drawn off. Upon one occasion the doctor, in attempting to reach a book fell, and struck his scrotum against a chair. Finding the part swollen and painful he went to his surgeon, who tapped

him. No water passed, and he suffered considerable constitutional irritation from the puncture. This being subdued, an incision was made into the tunic, and a large quantity of blood evacuated. The tumor granulated, and the doctor was permanently cured. It therefore shows how necessary it is in acute hydrocele, or when from any accidental cause an additional source of inflammation is excited, that local means should first be employed to subdue inordinate action, before the patient be submitted to a puncture of the inflamed tunic.

Sloughing and suppuration are not the only ill consequences resulting from the effects of injection; for I remember a gentleman who submitted to this operation under the care of Sir Astley Cooper; wine and water being the injection used, which did not at the time produce more than the usual degree of pain. In twenty-four hours after, however, the patient complained of uneasy sensation about his jaw, attended with difficulty in swallowing, and shortly afterwards positive tetanus supervened. Calomel and opium were administered in large doses; fomentations were applied to the scrotum, which did not appear inordinately inflamed; and the patient ultimately recovered, although at one period the case seemed hopeless. It may be worthy of remark that this gentleman was a native of the south of Spain.

Caustic used to be employed as a means for the radical cure of hydrocele; potassa fusa being placed upon the scrotum to produce an eschar, which being removed, a fresh application destroyed the tunica vaginalis, and the fluid was thus evacuated, and sufficient inflammation followed to prevent the recurrence of the disease. This practice seems to have been discarded from the difficulty in regulating the extent of the inflammation which ensued, which not unfrequently ran on to an alarming degree. Mr. Cline, I remember, in a case in St. Thomas's hospital, applied the caustic to an elderly patient, the subject of hydrocele, which terminated fatally, from the excessive inflammation which it produced. From the result of my experience there is no mode of practice so safe as that of injection; and of all the injections I prefer the iodine, employed in the manner I have described, and as recommended by Dr. Goodeve, as it produces less immediate inflammatory action, and yet most surely induces that altered action of the vessels of the tunic, which seems to prevent the further effusion of serum.

Perhaps a few words may be said as to the varieties in the quantity of fluid which collects in different cases of hydrocele. From four to six ounces is the quantity most commonly met with, but more than a quart has in some cases collected. Mr. Morgan had a case in which a quart had accumulated. Under such circumstances, where the distension of the tunic has been permitted to become excessive, I think the palliative means alone should be first employed; and that when a fresh accumulation forms, the injection may then be employed, as the tunic has had time to contract. The quantity of injection thrown in should be no more than sufficiently to distend the sac, so as to secure its contact with every portion of its surface; which about half the quantity of the fluid withdrawn is sufficient to effect. Slight, gentlemen, as you may have hitherto considered hydrocele, I trust I have shown to you, that the mind of the surgeon should be employed, as well as his hand, before he attempts to relieve a patient from this disease.

MR. ADAMS'S INSTRUMENTS FOR STRABISMUS.

TO THE EDITORS OF THE PROVINCIAL MEDICAL AND SURGICAL JOURNAL.

GENTLEMEN,—Having performed 350 operations for strabismus with more than usual success, I am induced to forward to you the accompanying wood-cuts, and remarks on the instruments I have employed, to the use

of which much of my success may be attributed; so far, at least, as regards the perfect performance of the operation, for out of so large a number of cases only *three* required the muscle to be redivided on account of its reunion to the globe too near to the natural insertion to admit of the eye being quite straight, and *none* for the want of a perfect division. Should you publish this description of the instruments (so necessary to the perfect understanding of this new mode of operating) I will forward to you, in the course of a few days, a full account of all the steps of the operation, with a few remarks on strabismus.

The following instruments are adapted to the principal stages of the operation, viz. for steadying the eye; for separating, securing, and retaining the muscle; and lastly, for effecting a perfect, clean, and safe division of the muscle.

First, then, of the tenaculum for steadying the eye. An important step in the operation is that of steadying the globe of the eye previously to taking hold of the rectus muscle by means of the blunt hook. For this purpose various sharp hooks have been employed; and all operators, at least those who have had sufficient experience, are agreed on the advantage and necessity of an instrument of this kind, though to most of the hooks which have been hitherto used the serious objection offers itself, that they produce a distressing pain by pressure on the globe, and even thereby occasion sometimes sickness and fainting. In order, then, not to forego the advantages of a sharp hook, and at the same time to obviate the injurious effects, I venture to propose, with a confidence resulting from repeated trials, a hook, the form of which, whilst it relieves the patient of the ill effects of pressure on the globe, facilitates the fixture of the globe with the least possible injury to the tunics of the eye, the sclerotica included.

The hook, or tenaculum, of which a figure is annexed, was made by Weiss. It consists of a slender stem, an inch and a half long, fixed in a handle of the length of four inches. The stem is bent near the point at an acute angle, so that the returning part, which forms the hook, is one line in length, and its extremity at the distance of half a line from the stem.

The use of this instrument I would, then, suggest to the profession; and it will be seen that the hooked part of the stem is bent upon itself at such an angle as to require its introduction into the sclerotica, not by a sudden thrust at a right angle with its stem, but by a gentle motion in a line with the direction of the handle of the instrument, and so as to enter the sclerotic obliquely, thus rendering all direct pressure on the globe unnecessary, as the motion is to draw the eye outwards, and not to press it backwards.

The acuteness of the angle of the improved sharp hook, and the shortness of its reflected extremity, are a sufficient protection against its being thrust through the sclerotica.

That it facilitates the operation, by bringing the parts more directly under the eye of the operator; that it gives him a perfect command over the motions of the globe, which must otherwise be difficult to control; and that it lessens pain by allowing all the steps of the operation to be conducted within view, so that there is no danger of inflicting unnecessary injuries in parts out of sight; are facts too self-evident to need further comment.

I may add, that if there be one thing more necessary than another towards the success and safety of all operations on the eye, it is the being able to obtain the utmost steadiness of the organ by such means as shall cause the least pain, thereby rendering the operation more supportable, and less liable to the accidents of resistance on the part of the patient.