

ON THE RADICAL CURE OF HYDROCELE BY EXCISION OF THE SAC, WITH NOTES OF TWENTY-TWO CASES.

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IN previous numbers of THE LANCET¹ I have recorded several instances of radical cure of hydrocele by excision of the sac, and called attention to the good results attending this mode of treatment, which I have now adopted in twenty-two cases, brief particulars of which will be found in the table given below. A consideration of these cases may perhaps be of interest, as they serve to illustrate the chief conditions which call for the performance of this operation.

ten days or a fortnight the patient is usually able to get about wearing a suspensory bandage. Though some thickening remains at the seat of operation for a time it gradually subsides, and in the course of a few months the scar will have almost disappeared, the scrotal tissues moving so freely over the surface of the testis that it is often difficult to detect that any operation has been performed. In cases of encysted hydrocele the operation differs only in the fact that the entire sac is removed. The chief conditions which call for the performance of this operation are as follows:— 1. When a patient is anxious for a radical cure, but does not wish to run the risk of an unsuccessful attempt by injection. It was for this reason that excision of the sac was performed in many of the cases. 2. Old hydroceles, where the sac wall is thickened and rigid, and consequently incapable of completely collapsing after the fluid is drawn off by tapping. It is under these conditions that the treatment by injection is liable to fail. Considerable thickening of the sac wall was present in many of the cases, while in Cases 2 and 7 this condition was very marked, the tunica vaginalis being in places more than a

TABLE OF CASES OF RADICAL CURE OF HYDROCELE BY EXCISION OF THE SAC.

No.	Age.	Date of operation.	Nature of hydrocele.	Previous treatment.	Remarks.
1.	47	June, 1886.	Vaginal.	Tapped four times.	—
2.	40	April, 1887.	"	Tapped seven times; injected once with carbolic acid.	The sac wall was very thick.
3.	53	May, 1887.	"	Tapped three times.	—
4.	38	July, 1887.	"	Tapped three times.	—
5.	58	January, 1888.	"	Tapped eight or nine times.	Suppuration in the tunica vaginalis after last tapping; sac wall thick and inflamed.
6.	44	July, 1888.	"	Tapped several times; injected once with iodine.	Testis adherent to the anterior wall of the tunica vaginalis.
7.	55	February, 1889.	"	Tapped three times.	Sac wall cartilaginous, from a quarter to half an inch in thickness.
8.	43	February, 1891.	"	Tapped twice.	Multilocular hydrocele.
9.	25	March, 1891.	Encysted.	None.	Present for many years; size of orange; thick sac wall.
10.	62	April, 1891.	Vaginal.	Tapped twice quite recently.	Twenty years' duration; sac wall calcified; scrotum gangrenous; pus in the tunica vaginalis; radical cure of inguinal hernia on same side also performed.
11.	23	May, 1891.	"	Tapped twice; injected once with iodine.	Hæmorrhage into the tunica vaginalis after last tapping; thick sac wall.
12.	31	December, 1891.	Encysted.	None.	Size of orange; radical cure of inguinal hernia on the same side also performed.
13.	45	May, 1894.	Vaginal.	Tapped three times.	—
14.	51	October, 1894.	"	Tapped twice quite recently.	Bloody fluid drawn off at the second tapping, followed by suppuration in the sac and sloughing of the sac wall.
15.	31	February, 1895.	"	None.	Present for several years; recently contracted gonorrhœa, followed by acute epididymitis and suppuration in the tunica vaginalis; the sac wall was thick and inflamed.
16.	54	February, 1895.	"	Tapped twice recently.	Many years' duration; blood drawn off at the second tapping; re-filled rapidly. The tunica vaginalis contained blood-clot and fluid; the sac wall was very thick.
17.	18	August, 1895.	"	Tapped several times; injected once with perchloride of mercury.	The sac wall was thickened.
18.	18	March, 1896.	Encysted.	None.	—
19.	22	June, 1896.	Vaginal.	"	Bilocular hydrocele; radical cure of inguinal hernia on the opposite side also performed.
20.	7	July, 1896.	Encysted.	Tapped twice.	Present since infancy; size of small orange; thick sac wall.
21.	62	August, 1896.	Vaginal.	None.	Several years' duration.
22.	33	September, 1896.	"	"	Present since boyhood.

Briefly described, the operation is carried out in the following way. The cavity of the tunica vaginalis is laid open by a vertical incision, from two to three inches in length, made from the front through the tissues of the scrotum. The fluid contents of the hydrocele having escaped, the tunica vaginalis is dissected out on either side up to the point where it is reflected on the testis and lower part of the cord. The whole of the parietal layer is then removed by cutting through it close to its reflection upon the cord and testis with a pair of scissors. All bleeding having been arrested, the wound is then closed, no drainage having been employed in my recent cases, and if pressure is maintained by pads of wood-wool so as to keep the deep parts of the wound in apposition, and the scrotum is afterwards kept well elevated, healing quickly takes place, and at the end of

quarter of an inch in thickness and of cartilaginous consistence. In Case 10, where the hydrocele had existed for a period of twenty years, the sac wall was in addition distinctly calcified. 3. When injection has been tried and failed. In Case 2 the hydrocele had been previously injected with carbolic acid; in Cases 6 and 11 iodine had been used, and in Case 17 perchloride of mercury, but in each instance without success. 4. When suppuration has taken place in the sac of a hydrocele after its contents have been removed by tapping. This complication, which is liable to occur after evacuation of the fluid in old hydroceles, was present in Cases 5, 10, and 14, and in each the tunica vaginalis was in an inflamed and unhealthy condition. In one instance, Case 10, the scrotal tissues over the front of the swelling were distinctly gangrenous. In Case 14 the sac was at first incised and drained, but as the discharge, which was mixed with broken-down blood clot, showed no signs of abatement

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the tunica vaginalis was afterwards excised and the wound closed, with the result that healing took place without any further suppuration. In Case 15 suppuration had occurred in the sac of an old hydrocele as the result of an attack of gonorrhoeal epididymitis. 5. When a hæmatocele follows the operation of tapping a hydrocele. This complication was present in two instances, Cases 11 and 16, the thickened condition of the sac wall, which was incapable of collapsing, doubtless accounting for the occurrence of the bleeding. 6. When a hydrocele is associated with an inguinal hernia upon which it is desirable to perform a radical cure. Both these conditions were present in Cases 10, 12, and 19. 7. Two rare conditions in which the operation proved extremely useful were those found in Cases 6 and 8—viz., (a) an adherent condition of the testis to the anterior wall of the scrotum, where it formed a distinct prominence, the result of previous tappings and an unsuccessful injection with iodine; and (b) a multilocular hydrocele, the cavity of the tunica vaginalis being divided by numerous septa into distinct compartments, a condition which could not be satisfactorily treated by any other measure than by excision of the sac. 8. In cases of encysted hydrocele the entire sac can be excised, and the whole of the secreting surface is therefore removed, as in Cases 9, 12, 18, and 20. A reference to the table will show that advanced age is no bar to the operation, five of the patients being over fifty and two over sixty years of age. As regards the result of the operation, I have not met with a single case where there has been a recurrence of the hydrocele; and provided it is carried out in the way described, care being taken to remove the whole of the parietal layer of the tunica vaginalis, I am of opinion that excision of the sac is the only certain method of radical cure.

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FOREIGN BODY IN THE LENS FOR SIXTEEN YEARS, THE LENS REMAINING CLEAR.

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A MAN, aged thirty years, married, of healthy appearance, with good family history, and an intelligent person, came to the Central London Ophthalmic Hospital on Sept. 17th, 1896, complaining that when he was reading a paper four days previously he noticed that there appeared to be a cloud over the left eye, which somewhat obscured the print whilst reading, and the cloud had remained up to the date of coming to the hospital. Nothing peculiar was observable about the eyes by daylight. Tension was normal in both, the pupil reflexes were all present, both eyes were quiet, and there was no inflammation. He had had no blow on the eye or accident of any sort. Right vision = $\frac{6}{60}$ without glass, Jaeger No. 1 up to 14 centimetres; left + 1.75 = $\frac{6}{18}$, Jaeger No. 8 at 25 centimetres indistinctly without glass. He was positive he could see quite well with the left eye up to four days before. On examination in the dark room, the left lens was found to be cataractous, with many well-marked striæ, stellate, partially obscuring the fundus; at the posterior part of the lens was seen, indistinctly by reason of the striæ, what appeared to be a fine piece of glittering wire, with a small spot of opaque posterior capsule immediately behind, and forming a white background to the assumed foreign body. The object was, allowing for it being seen under a high lens, about three millimetres long and half a millimetre broad, lying nearly vertically as regards its length in the lens, inclined slightly towards the temporal side, and having the lower extremity slightly curved forwards. On the anterior surface of the iris (a blue-grey one), in the lower and nasal quarter segment of the iris circle, was a fine blue-black line about a millimetre long running parallel with the pupillary border of the iris, and half-way between that border and the ciliary border, but rather nearer the pupillary border. There was no opacity in the cornea. The right fundus was normal. The patient could not at first recollect any accident to the eye, but on pressure he suddenly remembered that sixteen years previously, when he was fourteen years of age, he filled a bit of old gas-pipe with gunpowder and it prematurely

exploded by accident. This occurred to the right side of the face, on which are two powder marks, but he declared that neither of his eyes was in any way affected by the explosion. As it was doubtful at this first visit what the object was, atropine drops were ordered and he was told to come again in four days. On the 21st the left lens had become more opaque. Vision = $\frac{6}{60}$. The foreign body could not be seen so distinctly; the fundus was quite obscured. The specific gravity of the urine was 1024; it was acid, and there was no albumin or sugar. The eye was quiet. The patient was admitted to the hospital with a view to the extraction of the lens and the foreign body. On the 24th, on examining the lens, the opacity had entirely cleared up, save very small and short striæ at the periphery; the foreign body stood out clearly to the view in the lens; the fundus was easily seen and was normal; and the vision with + 1.75 was $\frac{6}{12}$ two letters. In face of this extraordinary condition the operation was postponed. On Oct. 1st the vision = $\frac{6}{60}$; the opacity of the lens returned and increased. The foreign body seemed to have shifted slightly with regard to the opaque spot in the capsule behind it. The eye was quiet and the lens seemed to be rapidly softening. On the 5th the lens (left) was removed by a semilunar incision at the sclero-corneal junction with an iridectomy. The lens was very fluid, slightly milky in colour, and easily delivered; one small drop of vitreous presented, which was incised. This was probably due to the posterior capsule being lacerated by the foreign body or from degenerative changes set up from the original impact; it tore on delivery of the lens. On examination of the débris of the lens, which had lost all its form, no foreign body was discovered, but on raising the upper lid it was found resting on the ocular conjunctiva just above the section, having been delivered with the lens. On the 6th the eye was quiet and remained so until the 15th, when the patient was discharged, the eye having made a rapid recovery from the operation. Vision + 10 D. = $\frac{6}{60}$. There was some small amount of soft lens matter remaining, but not sufficient to obscure the fundus. On the 29th the eye was quiet. Vision + 10 = $\frac{6}{12}$. On Nov. 23rd vision + 10 = $\frac{6}{9}$. There was a fine thread of capsule intersecting the pupil.

Dr. Norman Maclehoose, pathologist to the hospital, reports on the foreign body: "There is no possible doubt as to the fragment being iron or steel; it is heavy, sinks rapidly in water, slowly in glycerine, is strongly attracted by the magnet. There are one or two fine filaments of wool or cotton adhering to it, but no evidence of incrustation with new cells or organic matter. The foreign body measures $2\frac{1}{2}$ mm. long and $\frac{1}{4}$ mm. broad."

Remarks.—There seem to be many points of interest with regard to this case. First, as to how the foreign body got into the lens. It is assumed that the fragment was shot into the man's eye when he was aged fourteen years by the explosion of the loaded gas-pipe, and it seems difficult to refuse this explanation of its presence, backed up by the local evidence. This is the solitary accident in the man's life. There are powder marks on the right cheek and presumably a charred powder stain on the iris of the left eye, in a line with the direction the foreign body would take in travelling from right to left. That there is no corneal opacity is not important, as the original wound would be very small, and time (sixteen years) could well obliterate it. That the stain on the iris is not physiological may safely be accepted as its plane runs at right angles to the course it ought to pursue were it so, and also from its peculiar coal blackness. Presuming that the foreign body passed from right to left, pierced the cornea at its sclero-corneal junction, passed through the iris, and lodged in the posterior part of the left lens, and taking into account the position in which it lay, then there is local evidence all along the line of this theory of its presence. Secondly, it set up no irritation at the time. The size may account for it not setting up any change in the lens at first, and one can best realise what that size was by describing it, when viewed by the naked eye on a bit of white notepaper, as like half of a small eyelash. Its real measurement has been given. Thirdly, that for sixteen years the lens remained clear. Of course the man's statement has here to be believed, but he ought to be a good judge on this point, he being a carpenter, an occupation in which at times of taking measurements (antero-posterior) binocular vision is almost a necessity, and he would soon have found it out if one eye was failing. His statement of its discovery is very clear, and luckily when the lens changes did come they were watched by three skilled ophthalmoscopists and seen