ON THE
CAUSE OF THE OCCASIONAL
PRESENCE OF SPERMATOOA
IN THE

FLUID DRAWN FROM THE SAC OF COMMON HYDROCELE OF
THE TUNICA VAGINALIS.

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THE existence of spermatozoa in the fluid of encysted hydrocele was unknown to the profession until the publication of the paper by Mr. Liston, in the last volume of the Medico-Chirurgical Transactions. In his cases, spermatozoa existed in incalculable quantities, thousands, probably, in any single drop of the fluid; and although in the first observation, they all appeared motionless, yet in subsequent instances these bodies presented their ordinary vivacious movements, and the customary lashings of the caudal appendage. It is not my purpose here to inquire how these bodies came to be found in the fluid of encysted hydrocele, but to draw attention to facts subsequently observed, and since published.

At one of the meetings of the Medico-Chirurgical

Society, a paper was read by Mr. E. A. Lloyd, which described spermatozoa observed by him actively moving in the fluid of common hydrocele, and they have been since seen by Mr. Liston, myself, and probably many others, in the ordinary dropsy of the tunica vaginalis testis.

Some fluid was sent me by Mr. B. B. Cooper, to attempt to detect the presence of spermatozoa; I found it to be of a clear yellow colour, slightly unctuous feel, frothing much upon agitation, coagulated by heat into a firm albuminous clot, and by nitric acid affording a dense white precipitate. It was long before I found any spermatozoa in this fluid; at length I discovered well-formed spermatoid bodies, though very sparsely mingled with the fluid. In about five different portions, each being about half a drop, I counted about two dozen of them, some with the body and tail cleanly formed, others with the ragged membranous-looking appendage at the junction of the caudal process with the body, which by some authors has been considered the remains of the original cell envelope, and as a proof of recent origin. (Vide Pl. III. fig. 2.)

The number of the spermatozoa, it will be observed, in proportion to the quantity of fluid, differed so materially from that mentioned in Mr. Liston's published communication, as to lead to the conclusion that the cause of their presence was essentially distinct; and in the discussion that followed the reading of Mr. Lloyd's paper, it was suggested that possibly some of the seminiferous

tubes had been punctured in the operation for evacuating the fluid. That this is not an improbable solution of the difficulty in accounting for the presence of these bodies, I shall attempt to explain.

Spermatozoa have been but rarely found in the fluid of common hydrocele, for although they have been detected in some three or four cases, yet repeated examinations after various other operations have been made without their presence being discovered. Mr. Liston has instituted several microscopic examinations of the fluid of various hydroceles, and I have investigated others without finding a single one. If, however, the fluid of common hydrocele be examined from twenty-four to forty-eight hours after evacuation, and especially in hot weather, numerous filamentous and actively moving bodies may be observed, which may, not improbably, have been sometimes mistaken for spermatozoa. These active filaments are, however, vibriones which have subsequently become developed in the fluid after decomposition, and are identical with those found in common serum under similar circumstances.

Lastly, it is highly improbable that any careful surgeon would wound the body of the testis, in the operation of discharging the fluid of a hydrocele. I believe, however, the relative position of the vascular cord, vas deferens, and the epididymis, in this disease, notwithstanding the excellent observations of Scarpa, are not very generally known. I shall, therefore, extract a few passages from that author's

work on hernia, as highly valuable in illustrating my point.

Writing of the gradual increase of scrotal hernia, this illustrious pathologist says :—" On the tumour augmenting in size, as there is a proportional increase of the distension and compression caused by the hernial sac on the cellular substance, which encloses the spermatic vessels situated behind the hernia, it happens that these vessels are separated, and therefore change their position with regard to the hernial sac. For in proportion as the hernia increases in size, the spermatic cord undergoes a kind of decomposition, just as if the cellular substance were drawn in two opposite directions. On which account, in a very large scrotal hernia, the spermatic artery, the vas deferens, and spermatic vein, are no longer found united into one cord behind the sac, or between its posterior side and the sheath of the cremaster muscle, but are separated, and sometimes even removed to a considerable distance from each other."

"Le Dran wrote, that in operating on a large scrotal hernia, he met with the spermatic cord on the anterior surface of the hernial sac."*

"Having demonstrated that, in scrotal hernia of long standing and of large size, the spermatic cord, in consequence of the constant pressure exercised on it by the hernial tumour, is at last separated in such a manner, that the artery and the vas deferens

* *Operation de Chirurg.* p. 127.

are found on the one side, the veins on the other side, removed from the posterior to the lateral part of the hernia, and even to the anterior surface of the sac, I conjectured that the same separation and change of position of the vessels of the cord ought to take place also in cases of inveterate and large hydrocele of the vaginal coat of the testicle, which coat supplies the place of the hernial sac in congenital scrotal hernia ; in which disease it is an undoubted fact, that the separation and transposition of the vessels of the spermatic cord occur in the same manner as in *common* scrotal hernia. This pathological truth I have in fact repeatedly met with in the dead bodies of those who have been affected with a large hydrocele for a long time.

“ I have not added any remarks, with regard to the danger of wounding the spermatic vessels in a case of operating on an old and large hydrocele by puncture or incision, as I have done in detail in speaking of the precautions which it is proper to take in making the incision into the sac of an old and large scrotal hernia, because the circumstances with regard to the transposition of the vessels, being the same in both cases, the same precepts would be understood as applicable to both diseases ; and because, although the puncture of a hydrocele has been very frequently followed by a copious effusion of arterial blood into the vaginal coat, no well-established fact was, to the best of my knowledge, referable to the injury of the spermatic artery.” *

* Operation de Chirurg. p. 75.

Having thus detailed Scarpa's discovery of the altered relative position of these vessels, I will proceed to describe a preparation in my possession, which fully illustrates this point.

I had an opportunity of removing from the body of a man recently dead, a common hydrocele of the tunica vaginalis, and before opening the sac, I injected the vas deferens with mercury. This done, the front of the sac was opened, the fluid discharged (but not examined, for this happened before our attention was called to the subject by Mr. Liston), and the cavity inflated, tied up, and when dried, a large portion of the tunica vaginalis was cut out, to expose a view of the interior.

The body of the testicle was situated at the bottom, posterior, and somewhat internal part of the cavity; and the vascular cord was seen running along the posterior wall of the sac, and emerging at the upper part, far behind the most prominent part of the swelling. The vas deferens, however, was situated quite external to this, and removed from the vascular cord nearly one inch. At the lower part, it approached the testis, made a few of its larger coils, from which commenced the lower head of the epididymis. As the latter body ascended again, it was still further separated, or dissected as it were, lying upon the lateral aspect of the sac, and distant from the body of the testicle about an inch and a half; it continued to ascend, until it reached to nearly an inch and a quarter above the testis, where the position of parts was as follows:—The testis and vascular cord at the most posterior part of the sac; the vas

deferens next to it, but distant about half an inch ; and lastly, the epididymis still more external, and three quarters of an inch more external and anterior to the vas deferens. At the upper part, the epididymis suddenly crossed the vas deferens, and descended in a curved line towards the body of the testicle, in which it finally merged. (Vide Pl. III. fig. 1.)

From this description (which is taken not from an old and large hydrocele, but from one of very moderate size) it will be seen that the epididymis and vas deferens are placed by no means out of danger of being punctured by the trochar, and the wounding of even a single tube might well afford the few spermatozoa found in the specimens of fluid referred to above, the more especially when we remember the squeezing or pressure often made to evacuate the few last drachms of the contained fluid.

Important practical hints may be deduced from this disposition of parts, as it must necessarily lead to a very careful examination of the surfaces of the swelling, whether by transmitted light, when the hydrocele is tolerably transparent, or by accurate manipulation of the scrotum, prior to selecting the point of puncture in this apparently trivial operation. It appears to me that the position at which the trochar should be entered, ought to be made much more towards the mesial line than is usually adopted, and that the antero-lateral or antero-external aspect should in future be avoided, unless after the most careful and accurate examination the true position of the parts should be determined.