BANGS. (L.B.)

Clinical Observations of Diseases of the Testicle.

BY

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The following cases which have come under my care seem to me worthy of being reported, because they have some clinical and diagnostic features which are interesting and which may perhaps be suggestive of discussion. It is possible, also, that one or more of them will help to make still clearer the question of ætiology of affections of the testicle. For, while admitting the possibility of cases being caused by "reflex irritation," I believe that, under the light of modern pathological teaching, the theory of "metastasis" is no longer tenable, and that by far the greater number of cases of inflammation of the testicle are due either to direct injury or to the extension of inflammation from the prostatic urethra through the vas deferens. For several years it has been my custom to examine by the rectum the prostate and vesiculæ seminales of those afflicted with disease of the testicle, as well as to examine the seminal cord wherever and as far as it was within reach—*i. e.*, from the testi-

* Read before the American Association of Genito-urinary Surgeons at its second annual meeting, September 19, 1888.

cle to and within the inguinal canal. My experience has been to rarely find the seminal vesicles involved, excepting in tubercular disease, but usually to find more or less tenderness (definite complaint being elicited from the patient) of the corresponding side of the prostate gland, and often a slighter density, if not a distinct swelling, of that side. It was this experience which led me to object to castration in one of the cases reported in this paper, and, tentative treatment being adopted, the diagnosis was cleared up and the patient relieved by the passage of a calculus.

Not long since a married man, aged forty-seven, was sent into St. Luke's Hospital as a case of "strangulated hernia," and came under my care. On admission, his history and condition, as condensed from the records made by the house surgeon, were as follows: He was an unintelligent laboring man, and stated that for about nine months he had had obscure and dull pains in the right groin which he attributed to "rheumatism."

About two months before entering the hospital a "lump" appeared in this region. At first it did not disturb him or attract his attention very much, but, as it gradually increased in size and became painful, he sought medical advice. Under some form of treatment the tumor disappeared, but reappeared after a week. For three months past he has been unable to work, the tumor has been continually present, and the pain, which had of late greatly increased in severity, had been distinctly located in it.

In the right groin and projecting somewhat below it was a small tumor of about the size of an egg. It was tender on palpation and flat on percussion, gave an impulse on coughing, and was non-reducible. The scrotum on that side was empty, and the patient said that he never had had a testicle there, but just at the lower extremity of the above-described swelling was apparently a testicle which seemed to form a portion of the tumor. The tumor and the adjacent parts were so sensitive that a positive differential examination could not be made. Inasmuch as there were no evidences of strangulation and as the patient's

general condition was fairly good, it was deemed best to treat him expectantly. Rest in bed and an ice-bag to the tumor were accordingly prescribed. A week later, the inflammatory conditions having subsided, the tumor was still non-reducible and almost indefinable, but it was evidently composed of more than one part, one portion being an inguinal hernia and the other probably an undescended testicle. The patient being etherized, an incision was made directly over the tumor and the tissues were carefully divided until an irregular mass was found lying in the inguinal canal. The tissues and the tumor were so amalgamated by old and recent inflammatory deposits that the tumor was separated with great difficulty, but its lower extremity was found to be a cyst, which, being laid open, was demonstrated to be a true hydrocele of the tunica vaginalis. Further careful dissection made clear the component parts of the tumor. On the inner side of the inguinal canal was found a small omental hernia, its sac being formed by a prolongation of the peritonæum covering the cord. The larger mass of the tumor was a pulpy and degenerated testicle, in a state of resolving inflammation. The cord proceeding from its upper and posterior part was of double its normal size and indurated, and, as far as it could be followed into the abdomen, was found to be in this condition. The omental hernia was reduced, and the cord, having first been seized high up in the inguinal canal by hæmostatic forceps, was divided and the testicle removed. As the vas deferens was cut, a little spurt of pus-like fluid was seen to take place from its canal. Unfortunately, this escaping material was lost, being washed away by the irrigation, which was very thorough, but it was so manifest that the bystanders saw it easily and commented upon the probable future condition of the wound. The stump of the cord was ligated with silk and stitched into the upper part of the inguinal canal by catgut sutures. On the following day, while inspecting his dressings, I found that the patient had a distinct purulent discharge from his urethra. The discharge was greenish in color, could be expressed from the whole length of his urethra, and was so abundant as to soil to a very noticeable extent the exterior of the dressings. The patient denied that he had had any disease, and would not even

admit exposure. No evidence of any urethral disease had been seen by myself or the house surgeon at the repeated examinations to which the patient had been subjected prior to the operation. The urethra was ordered to be irrigated regularly twice daily with a solution of 1 to 40,000 of the bichloride of mercury. Suffice it to say that the patient did well, and a month later was discharged from the hospital entirely healed.

The interesting features of this case naturally present themselves. In the first place, the question of diagnosis was not a simple one. The symptoms, objective and subjective, were those of an inflamed, incarcerated hernia. But absence of the testicle from the right side of the scrotum, together with the statement of the patient that he had never had a testicle on that side, would lead to the supposition that it formed a portion of the tumor in the groin, and still it might yet be in the cavity of the abdomen. The diagnosis was not made positive until the operation, because the acute inflammatory process had so united the tissues that the separate parts of the tumor could not be distinguished without dissection.

The second interesting feature to which I ask your attention is the condition of the cord and the escape from its canal of fluid looking like pus. This fluid had the appearance of pus both as to color and consistence. It escaped from a tube which at the time was swollen and hardened by inflammatory action, as was proved by the fact that after the operation the portion of the cord left in the upper part of the inguinal canal gradually softened and disappeared. In my own cases of castration and in those which I have witnessed I have never seen such an escape of fluid, nor can I find record of any. In view of these facts and of the further one that on the following day the patient had a distinctly purulent discharge from the urethra, I shall assume that the fluid was pus. Upon this

point, and also upon the relation of the urethritis to the other conditions, I should like the experience of the association. Did the orchitis precede the urethritis? Or, was the urethritis the primary disease, which abated, as is well known it usually does on the appearance of the complication, only to reappear after the subsidence of the latter? My own opinion, based upon the stage of the inflammation of the cord as contrasted with that of the testicle and upon the fact that the urethritis was distinctly purulent without any intermediate stage (both together implying an affection of some duration), is that the man had had a urethritis which, with characteristic tergiversation, he had denied. An examination of the urethral pus for gonococci might have thrown some light upon this part of the question, and it was ordered to be made, but I find none recorded in the history. An interesting if not valuable scientific observation, therefore, seems to have been lost.

The following case is presented as a type of chronic inflammation due to prolonged irritation of the prostatic urethra, complicated by hydrocele of traumatic origin:

This patient was a young and healthy mechanic, aged nineteen, whose family and personal history was very good and who was entirely free from venereal disease of any kind. Between four and five years ago, while lifting a heavy weight, he "strained" himself, and immediately felt a sharp pain in the right testicle, which at once began to swell. The pain was intense, compelling him to take to his bed, and it lasted acutely for several days. The swelling, more persistent, slowly diminished, and disappeared entirely at the end of four months. He was then perfectly well, and remained so until about three months prior to his coming under my care, when a heavy weight fell upon him across the upper part of both thighs and striking his scrotum. A few minutes later he experienced pain in both testicles, and they began to swell. The pain disappeared in three days, while the swelling slowly increased,

that of the left being greater than the right and extending up into the groin. About a month before the taking of this history a small "pimple," as he described it, appeared on the base of the scrotum, opened spontaneously, and has continued to discharge up to the present time. As long as he can remember he has had attacks of frequent urination whenever he has "taken cold," being obliged to urinate as often as every hour. At such times he has a burning sensation in the urethra, and when the bladder is full a slight burning pain over the pubes. A day or so after coming under observation he had a sharp, stinging pain in the glans penis. On examination, he had double hydrocele, that of the left side being the greater, but the fluid was not enough to interfere with the examination of the testicles. The right testicle was normal, while the left testicle was double its proper size and tender. Its epididymis was indurated, irregular, and somewhat knotty, and the whole testicle gave the impression of an irregularly indurated organ with intervening soft spots. The left cord up to and within the inguinal canal was moderately enlarged and indurated. At the lower portion of the left side of the scrotum, somewhat anteriorly, was the red and everted opening of a sinus from which exuded a thin pus. The fluid in the tunica vaginalis was moderate in quantity, and the patient's sufferings were due entirely to the condition of the left testicle, in which he complained of great pain. *Per rectum*, the prostate was sensitive, particularly in the median line and upon the left lobe. The latter was somewhat thicker than normal, and light, gentle pressure upon it from the tip of the finger caused the patient to wince. In order not to weary you with detail, it may be briefly stated that, in spite of being kept in bed and of all treatment, his condition did not change much, but followed a very chronic and relapsing course. Rest in bed, applications of ice, etc., did relieve the acuteness of his pain and seemed to reduce the swelling somewhat, but both would increase again, especially if, under the impression that he was getting well, he moved about any.

He then passed under the care of another surgeon, who, in view of the sufferings of the patient, the character of

the enlargement of the testicle, the sinus, and the chronicity, felt warranted in making a diagnosis of tuberculosis, and proposed castration. I dissented from this opinion. It seemed to me that there were two elements in this case which, if considered separately, would oppose such a diagnosis, and therefore not justify so heroic a measure as castration. One was the chronic hydrocele due to a traumatism, which may or may not have been also the exciting cause of the orchitis. On the latter point the patient's history was not clear. The other was the relapsing and chronic condition of the left testicle. Admitting, for the sake of argument, that the traumatism *was* the cause of the onset of the inflammation, why should the latter persist, and at times with intensely acute exacerbations? It was true that many of the objective symptoms pointed to tuberculosis, and, as is well known, the latter may even excite acute inflammation in the organ in which the deposit is taking place. But against the tubercular hypothesis were (1) the definite enlargement of the cord thus early in the history of the patient's disease (and, moreover, it was not nodular); (2) the frequent exacerbations and the *acuteness* of the pain as contradistinguished from that of tuberculosis; (3) the symptoms detected by examining the rectum were those only of inflammation of the left side of the prostate and prostatic urethra, and there was none of the knotty induration of the seminal vesicle which is frequent in tubercular disease; and (4) the long history of occasional attacks of frequent and painful urination prior to the injury, together with pain in the glans penis. In view of these facts, I expressed the opinion that the cause of the state of the testicle would be found in the prostatic urethra, and advised further tentative procedures, and a more careful exploration for stricture, or for any other of the known causes of irritation of the deep urethra. It was evident that this irritation had been

of sufficient grade and long enough continued to excite a localized pus formation in the testicle, with subsequent discharge of the pus through the above-mentioned sinus.

A few days after, the patient passed through the urethra, with great straining and pain, a mulberry (?) calculus half an inch long by a quarter of an inch wide. This produced another acute attack of pain, etc., in the testicle, which subsided in three days. After this the patient steadily improved, and when I saw him, two months later, there was some fluid in the tunica vaginalis, which I aspirated. The testicle was nearly normal as to size. The sinus had closed spontaneously, leaving a line of induration in the tissues of the scrotum leading to a corresponding nodule in the testicle, and there was still a slight amount of thickening of the epididymis.

It is possible that some surgeons would be inclined to classify the foregoing case among the so-called "pseudo-tubercular," * but I think that the discovery of the cause—*i. e.*, the *calculus*—proves it to be a simple chronic orchitis. By way of emphasis, permit me to narrate briefly one other case similar in some of its details, but strongly contrasting in its final outcome:

This patient was also a young mechanic, aged twenty-seven, and free from any cardiac, pulmonary, renal, or specific history. He had been married for five years and had one healthy child. In the early part of 1885, while at work, he was struck on the right testicle by an iron clamp. He says that the testicle "swelled" to double its natural size. It was not painful (excepting for the first few moments after the blow), nor did it interfere with his working, but it was somewhat in his way, incommoding him slightly in locomotion. It remained in this condition till the middle of 1886 (over a year), when it became slightly painful, and increased slowly in size till he came under

* A term to which I strongly object as meaning nothing, for it is either "tubercular," or it is not, and if something else, it therefore can not be "false" tuberculosis.

my observation in February, 1887. After carefully eliminating, as far as possible, all other disease, the diagnosis of chronic hydrocele was made, and several ounces (eight) of fluid were aspirated. The body of the testicle was slightly enlarged, denser than the left, and tender. The epididymis was in a similar state, and the cord up to and within the inguinal canal was of about double its normal size. There were no nodules and there were no rectal symptoms. A second aspiration was done three weeks later. After this he was free from pain, the testicle apparently became softer and smaller, and, with the exception of the hydrocele, showed no tendency to diseased action. The patient's general condition was better, he had none of the pain in the groin and down the anterior aspect of the right thigh, of which he had formerly complained, and he was able to return to his work, which was very laborious, obliging him to lift ponderous masses of iron. The fluid in the tunica vaginalis rapidly reaccumulated without any evidence of increase in the size of the testicle proper. As the scrotum again came to be of such a size as to interfere with his labor, I sent him into St. Luke's Hospital, and in May, 1887, performed upon him Volkmann's operation for the radical cure of the hydrocele. The wound healed rapidly, and in less than two weeks I permitted him to return to his heavy work. In July there was a sudden and rapid increase in the size of the right testicle, accompanied by considerable pain in it. It measured longitudinally 4 inches by 2 inches laterally, was of an unevenly indurated surface, and tender on pressure. The inguinal and femoral glands of the same side were also enlarged and hardened. The patient's general condition was beginning to deteriorate, and, it being evident that a new and acute condition was now present, he was immediately sent into the hospital again. As my tour of duty had ended, my colleague, Dr. McBurney, removed the testicle, together with the diseased glands in the groin. The wound did not heal well, and in less than a month the patient returned to his work, but not so well nor so strong as formerly. In October of the same year (two months later) his left testicle, without any injury or known cause, suddenly, and at night while he was in bed, became intensely painful. The pain radiated into the left groin

and lumbar region and down the left thigh. He came to me the next morning, looking pale and haggard, evidently suffering greatly, and said that for a week previous to this attack of pain he had noticed enlargement of that side of the scrotum, with dragging pain in it, which was relieved by a suspensory bag. These symptoms had not interfered with his work or general health. I found the body of the testicle, the epididymis, and the cord swollen and tender, and a moderate amount of fluid in the tunica vaginalis. A few days' rest in hospital relieved this acute condition, and, three ounces of hydrocele fluid being aspirated, he returned to his work again. It is not necessary to detail the subsequent events in this case more than to say that the body and epididymis slowly increased in size, and became more or less hard, with intervening soft points, and tender to the touch, and there was a varying amount of fluid in the tunica vaginalis. He is still under observation. His general health is fair and he is able to work at his trade, although he has now evidences of consolidation at the apex of each lung.

It will be observed that in this case also there was a traumatism which excited a hydrocele and a mild grade of orchitis. In the preceding case the latter became subacute, relapsing acutely from time to time, while in the case under consideration the inflammation seemed to be better after the radical treatment of the hydrocele. It persisted in a mild way, nevertheless, and was without any associated bladder symptoms. The physical conditions of the two patients were strikingly alike till later, and, indeed, a prognosis based upon these alone would have been much worse in the case which ultimately proved to be simple chronic inflammation. In the second case, however, the rapid and acute changes which took place two months after the Volkmann's operation were highly suggestive of malignant disease, but the microscopical examination of the testicle and lymphatic glands rendered the diagnosis of *tuberculosis*, which had been made, no longer doubtful.

The following is the report of Dr. Frank Ferguson, pathologist to the hospital:

Incisions in the testicle reveal many cheesy areas which in size are between a pin-head and a walnut. Neither to the unaided eye nor under the microscope can the healthy structure be recognized. A few isolated tubes are indeed seen between the cheesy masses, but they are distorted and crowded out by the inflammatory elements and fibrous tissue associated with the development of tubercles. The cheesy areas present no special features. Giant cells have not been noticed. The bacilli of tuberculosis are abundant.

Another interesting clinical feature in this case seems to me to be in the rapidity of the tubercular process and in the large amount of fluid in the tunica vaginalis, in these respects varying from the ordinary slow and insidious development of this disease.

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