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CASE OF

Large-round-celled Sarcoma of the Testicle in a Unilateral Cryptorchis.

*Extirpation ; Cure.*

BY

EDMUND C. WENDT, M. D.

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CASE OF LARGE-ROUND-CELLED SARCOMA OF THE  
TESTICLE IN A UNILATERAL CRYPTORCHIS;  
EXTIRPATION; CURE.

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THE literature of the subject of retained testicle is sufficiently meager to warrant the report of a case of this kind, which was observed at the German hospital in this city some three years ago. Perhaps the case derives an additional interest from the fact that the operative interference was followed by speedy relief from a dangerous and distressing condition, a relief which has apparently resulted in an absolute and permanent cure. I said apparently resulted, because, although more than three years have now elapsed since the successful operation, without any recurrence of the malignant disease, it might still be premature to infer a permanent immunity from a local return or secondary deposits.

B. F., aged sixty-one, a watchmaker, a native of Germany, was admitted to the German Hospital February 26, 1878. His family history was unimportant. He remembered no serious previous illness. The patient had been born with cryptorchidism on the left side. About the middle of December, 1877, he first noticed a distinct swelling in the left inguinal region. This rapidly grew larger until the tumor reached its present dimensions. Simultaneously with its development he began to suffer from local pains, which were especially severe at night. Their intensity was, however, never such as to necessitate the use of narcotics. At that time he was living in Alabama, where he was subjected to various modes of treatment by different physicians of that State. The tumor, meanwhile, rapidly grew larger, and at length the patient determined to seek medical advice in New York. On admission to the hospital he presented the appearance of a middle-sized, rather anæmic man, of feeble muscular development. He weighed 124

pounds. An examination revealed no abnormality of the internal organs. His appetite was fair, the bowels costive, and micturition normal. In the left inguinal region a large oval tumor was found. Its general direction corresponded



FIG. 1.

to that of Poupart's ligament. It extended from near the left anterior superior spine of the crest of the ilium to about the lower border of the right pubic bone, and about one and a half inches to the right of the median line. The penis was pushed to the right side. The scrotum contained the right testicle, which was apparently healthy. The tumor measured eight inches in length, three in breadth, and twenty-one in circumference. It was somewhat movable, and the integument covering it was found to be non-adherent. Palpation revealed an upper very firm and nodular portion, and an inner somewhat softer part. Fluctuation was nowhere distinctly felt, nor was any spot of marked tenderness discoverable.

On March 6th the operation of extirpation was performed, with strict antiseptic precautions. The incision was made parallel with Poupart's ligament, and the tumor was gradually dissected out. A few cystic cavities containing some clear yellowish fluid were punctured. It was ascertained that the tumor did not extend into the peritoneal cavity. A pedicle was secured by two strong ligatures, and the wound was closed with catgut. A drainage tube was inserted into its lower end. The wound healed kindly, without a single untoward symptom, and the patient was discharged cured on the 27th of May, weighing almost 120 pounds.

The tumor was found to weigh nine ounces. On longitudinal section its cut surface presented a mottled appearance, in which a

grayish, pale-fleshy color predominated. Glistening streaks of white tissue were seen to separate the encephaloid surface into

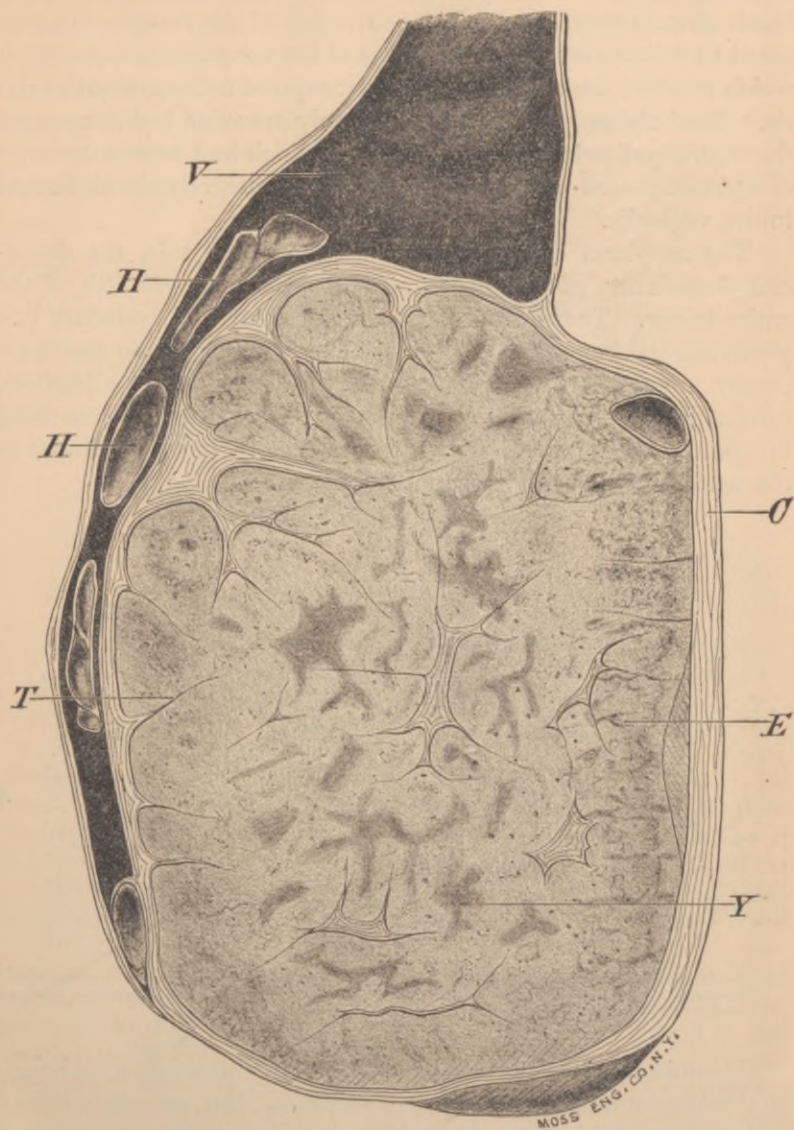


FIG. 2.—CROSS-SECTION OF TUMOR, SLIGHTLY REDUCED IN SIZE.

C, capsule; T, trabeculae; V, tunica vaginalis, containing (H) cysts; E, portion corresponding to epididymis; Y, the central yellowish markings. The reddish punctate appearance is indicated by black dots.

many irregularly-shaped areas. The central portions showed rounded or club-shaped masses of a distinctly yellowish hue. Here

and there the surface was streaked with reddish lines, or was punctated with similar dots. The parenchyma bulged out above the cut surface, the receding portions corresponding to the white tissue bands already mentioned. This convexity of the surface was supposed to indicate the cellular richness of the neoplasm, a supposition which received the confirmation of subsequent microscopical analysis. The bulging portions had a coarsely granular look, except at the central yellowish areas. The cysts, which had been externally conspicuous, were now found to involve exclusively the thickened tunica vaginalis.

The neoplasm evidently involved the epididymis, the degenerated remnants of which occupied about one lateral fifth of the entire tumor. There was, however, no well-marked boundary line separating it from that portion which corresponded to the testis proper. A thickened, fibrous capsule, the altered tunica albuginea, surrounded the entire growth. From this capsule the branching fibrous trabeculae proceeded inward, gradually growing thinner as the center of the tumor was approached.



FIG. 3.—SECTION OF TUMOR, showing broad connective-tissue band at C, and the general plan of arrangement of the sarcoma cells at S. The connective tissue shows infiltration, and oval patches of heaped leucocytes at P. (Hartnack, Oc. 2, Obj. 4.)

On microscopical examination the tumor was found to belong to the large-round-celled variety of sarcoma. But, although it clearly belonged to this type of neoplasm, it had a greater proportion of mature fibrous tissue than is generally contained in such growths. Of the seminiferous tubules no trace was discoverable. The bulk of the sarcoma was made up of closely-placed, large, rounded, sometimes polyhedral corpuscles. A great majority of the latter were provided with spherical or ovoid nuclei, and distinct bright nucleoli.

The body of these cells was, as a rule, quite coarsely granular. This applies, however, only to the examination of fresh specimens. In hardened sections the cell-bodies appeared shrunken, and the nuclei seemed proportionately large. Indeed, portions of the tumor resembled only aggregations of free nuclei, imbedded in a sparing amount of a delicately fibrillated connective-tissue matrix. The broad or narrow fibrous-tissue bands, which traversed the growth in all directions, gave to some sections a distinctly alveolar appearance. The areas thus marked off from one another presented an extreme ir-

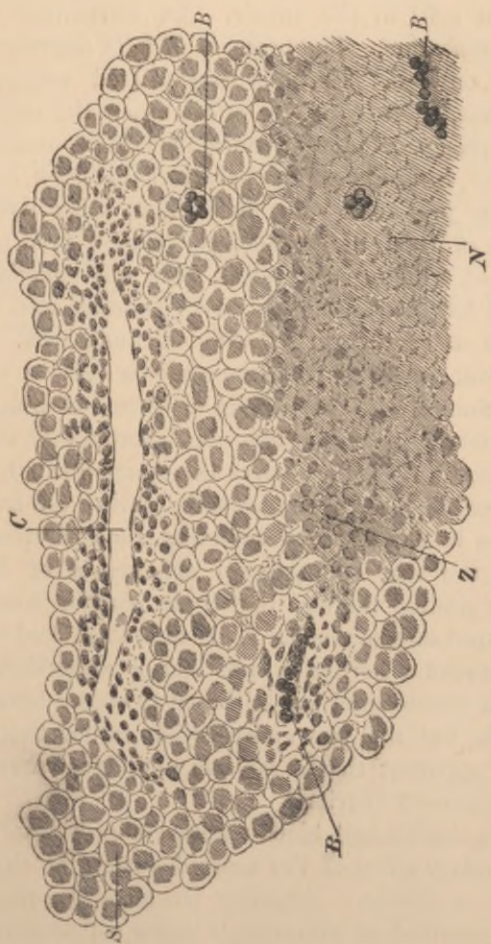


FIG. 4.—THIN SECTION VIEWED WITH A HIGHER POWER.  
C, Lymphatic tissue-cleft, showing three leucocytes; B, Blood-vessels; S, Ordinary rounded sarcoma cells with their large nuclei; Z, The zone of infiltration around N, a portion of the tumor exhibiting coagulation necrosis. (Hartnack, Oc. 3, Obj. 7.)

regularity of size and shape, no two being found alike. As regards the vascularity of the tumor, though not excessive, it was richly developed. The component cellular elements of the growth were

in direct juxtaposition with the thin walls of the blood-vessels. In no instance could a separating adventitia be made out. There were portions of the tumor which showed capillary extravasations. It may incidentally be mentioned that the red blood-corpuscles had retained their integrity of structure in all such hæmorrhagic foci. This circumstance was not alone answerable for the mottled naked-eye appearance of the sarcoma; for these hæmorrhagic collections only accounted for the red streaks and dots microscopically visible.

The yellowish color, previously mentioned in connection with the gross appearance of the tumor, was due to fatty changes in some of the constituent cells of the tumor. An interesting point was noticed in this connection. The presence of fatty degeneration was detected readily enough. Portions thus altered assumed only a very faint rosy tint; or remained colorless, when the sections were submitted to a process of double staining with hæmatoxylin and eosine. Moreover, in osmic acid a characteristic black look of the fatty granules was produced. But there were other portions, the gross appearance of which did not materially differ from that of the fatty districts, but which, nevertheless, were microscopically quite distinct from the latter. Such areas were generally seen to occupy about the middle of some larger collection of round cells. Irregular in shape, and never separated from the sarcoma cells by connective tissue, these portions of the tumor were composed of a more or less homogeneous or faintly granular mass. As before stated, it appeared fatty at first sight, but it failed to give the reaction of fat. Besides, such masses appeared to be, in a measure, marked off from neighboring structures by a narrow surrounding zone of spherical corpuscles, having the size and general appearance of leucocytes. Close inspection elicited the fact that these portions were entirely composed of altered sarcoma cells. This alteration had resulted in rendering their nuclei either quite indistinct or altogether invisible. Here and there a blood-vessel was still seen to course between these degenerated cells, but this was an exception rather than the rule, for it was quite apparent that a far less abundant vascularity distinguished these altered districts.

Whether this diminished blood-vascular supply was a primary cause, or a secondary effect of the morbid structural changes, is a difficult matter to decide. Arguing on general principles, the former may be received as affording a more satisfactory explanation. At any rate, it would appear that the very rapidity of growth in this neoplasm had led to a necrobiotic metamorphosis of some of its cellular constituents. The change which the cell areas just described underwent very probably corresponds to a somewhat



advanced stage of coagulation necrosis, as described by Cohnheim and others. The next step in retrograde metamorphosis would probably have been true fatty degeneration, such as was found to have already taken place in some portions of the tumor. Coagulation necrosis, viewed in this light, must therefore be considered as a phase of declining cell life, analogous to the condition of cloudy swelling. And both states are to be regarded as the precursors of fatty disintegration. The writer is led to explain this matter at some length, because he has never before encountered precisely this stage of transformation in the cellular elements of a sarcoma.

One other point may receive mention here. Between the aggregations of large, round sarcoma corpuscles there appeared, at certain intervals, crevices, clefts, and openings. A distinct endothelial lining could in many cases be seen along these interstices. As an exceptional occurrence, leucocytes were seen within such channels. Red blood-corpuscles were never encountered there. It is safe to assume, therefore, that these spaces represent lymph-channels. On the other hand, it does not appear what important rôle—if, indeed, any—they played in the growth and development of this particular tumor. Still their presence here is a fact that I think should not be overlooked.





