

## A CASE OF CARCINOMA MYXOMATODES OF THE TESTIS OCCURRING IN INFANCY.

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(PLATE XXX.)

I AM indebted to Dr. Harold E. Watkins of Newton-le-Willows for the opportunity of examining and recording this case.

**CASE.**—The patient was 15 months old when the mother first drew the attention of Dr. Watkins to the enlargement of the testis. It was diagnosed as a tumour, and the diagnosis was confirmed on consultation with Mr. A. H. Burgess of Manchester. Operation was postponed for a short time because the child had a febrile attack, and the testis was removed by Dr. Watkins when the patient was 16½ months old (March 1909). There was no infiltration of the cord and the operation was successful, the child being quite well five months later.

The tumour is confined within the tunica albuginea. It measures 1½ in. in length, 1½ in. in breadth, and 1 in. in thickness. It is marked on the surface by a shallow groove showing the position of the hilum. On section the tumour is white and has a somewhat translucent appearance. The larger part of the tumour, corresponding to the body of the testis, is surrounded by an apparent capsule. The remaining portion, corresponding to the corpus Highmori, is not so distinctly encapsulated.

**Histological structure.**—The apparent capsule mentioned above is seen to consist of the body of the testis stretched and flattened by the growth of the tumour within it. It is present around the larger portion of the tumour, but is absent over the portion corresponding to the corpus Highmori. There is no sharp inner boundary to the capsule, as it is infiltrated by the tumour.

The tumour itself consists of epithelial tubes embedded in a somewhat loose fibrous stroma (Plate XXX. Fig. 1). The tubes are lined by one or more layers of cubical or low columnar epithelial cells. In some places there are alveoli completely filled with cubical or polygonal cells. Most of the epithelial cells are distended with large globules of mucigenous material, and the lumina of the tubes contain mucin and also, in places, desquamated cells containing mucigenous globules.

Each tubule is surrounded by a zone of very delicate mucoid tissue, separating it from the more definite fibrous stroma. This mucoid zone is less evident where the tumour is infiltrating the capsule than in the more central parts of the growth. The mucoid tissue gives the staining reactions of mucin but somewhat faintly.

The origin of this mucoid tissue is interesting. In the alveoli where the mucoid zone is not well marked each of the epithelial cells will be seen to contain a large globule of mucigenous material situated between the nucleus and the base of the cell (Plate XXX. Fig. 2). These globules escape from the cells into the subjacent connective tissue and so give rise to the mucoid zone. Thus the epithelial cells appear to be secreting mucin both into the lumen of the tube and into the subjacent tissue.

The tumour is not encapsulated, but infiltrates the flattened body of the testis which forms the apparent capsule and also, to a less extent, the connective tissue of the corpus Highmori. Seminal tubes can be found embedded in the tumour in all parts (Plate XXX. Fig. 3). They are few in the centre of the tumour, and their numbers increase as the periphery is approached. Wherever they are found they appear quite healthy.

Mitotic figures are very numerous in all parts of the tumour, and are confined to the epithelial cells. There is no sign of fatty degeneration, but one or two myelin globules can be detected in frozen sections. All parts of the tumour are in a condition of active growth, and the mode of growth is expansive as well as infiltrative.

#### THE NATURE OF THE TUMOUR.

The tumour is thus an infiltrating epithelial tumour, and must be called a carcinoma. Naturally one hesitates to diagnose a carcinoma in a child 16 months old, but, after a careful examination of sections from all parts of one-half of the specimen, I can come to no other conclusion. It may be more completely described as "carcinoma myxomatodes."

#### THE ORIGIN OF THE TUMOUR.

Considering the different structures from which the tumour may have arisen, one naturally thinks of the possibility of its having originated in a mixed tumour which is not infrequent in the testis. Of this origin there is no evidence whatever. There are no signs anywhere of a pre-existing mixed tumour.

We can likewise exclude the epithelium of the tunica vaginalis (germ epithelium), as the tumour has originated within the testis and is growing outwards.

The epididymis can also be excluded for the same reason. Wherever the epididymis appears in the sections it is quite healthy and is not infiltrated by the growth.

Neither has it originated in the seminal tubes. These tubes, wherever seen, are quite normal in appearance (Plate XXX. Fig. 3), being only flattened by pressure in some places. Moreover, the characters of the tumour epithelium, composed as it is of cubical cells, are not those which we should expect had it originated from the seminal epithelium.

We are thus left with the rete testis and the intratesticular ducts (vasa recta) which pass to it from the seminal tubes. In favour of this origin is the fact that the tumour has evidently arisen in the neighbourhood of the corpus Highmori and is growing outwards in all directions. The characters of the epithelium also correspond closely with the epithelium of the normal ducts (Plate XXX. Fig. 4).

The rete can be seen in some sections. It is greatly distended so as to form a cavernous structure which is filled with albuminous material. The epithelium is perfectly regular and shows no signs of

proliferation. There is, however, direct evidence that the tumour has originated in the vasa recta. In some sections (Plate XXX. Figs. 5, 6) a duct can be seen in which the epithelium at the end next the rete is perfectly regular and shows no signs of proliferation, while at the other end proliferation is taking place actively and giving rise to irregular groups of cells which are infiltrating the surrounding tissue and are evidently part of the tumour. In this end mitotic figures can be seen in the epithelial cells.

I conclude, therefore, that in this specimen we have a case of carcinoma myxomatodes of the testis originating in the intratesticular ducts.

The specimen is thus of great interest, both as a case of carcinoma of the testis and as a case of carcinoma in infancy.

I have been able to find accounts of three cases of carcinoma of the testis occurring in infancy.

One is recorded by Howard Marsh (1875), with a pathological report by H. T. Butlin. The patient was *æt.* 2 years. Another is recorded by Schlegtendal (1885) in a child 20 months old. It is described as an adeno-carcinoma, and the patient died from recurrence of the growth. The third is recorded by H. J. Clark (1900) in a child 8 months old, the tumour being first noticed at the age of 10 weeks. The illustration given of this tumour suggests that it was similar to the one here recorded.

#### REFERENCES.

1. CLARK, H. J. . . . . *Brit. Med. Journ.*, London, 1900, vol. ii. p. 1160.
2. MARSH, H. . . . . *Trans. Path. Soc.*, London, 1875, vol. xxvi. p. 138.
3. SCHLEGTENDAL . . . . *Centralbl. f. Chir.*, Leipzig, 1885, Bd. xii. p. 597.

#### DESCRIPTION OF PLATE XXX.

- FIG. 1.—Section of the tumour showing tubes lined with epithelium lying in a connective-tissue stroma. Each tube is surrounded by a clear zone of mucoid tissue. ( $\times 70$ .)
- FIG. 2.—From the infiltrating part of the growth. The basal portion of each epithelial cell is distended by a large mucigenous globule. ( $\times 300$ .)
- FIG. 3.—Above is seen one of the tubes of the growth lined with cubical epithelium. Below this, extending transversely across the section, is a seminal tube. ( $\times 300$ .)
- FIG. 4.—Section of a normal testis from an infant showing the ducts (vasa recta). A seminal tube is seen cut obliquely. ( $\times 300$ .)
- FIG. 5.—Section of the tumour. Above is seen a portion of one of the spaces of the distended rete. On the left side of the section is seen a duct, branching at the upper end. The epithelium at the upper end is quite normal, but at the lower end it is proliferating irregularly and forming part of the tumour. The duct contains some structureless albuminous material. ( $\times 70$ .)
- FIG. 6.—The lower end of the duct seen in Fig. 5, showing the irregular proliferation of the epithelium. ( $\times 300$ .)

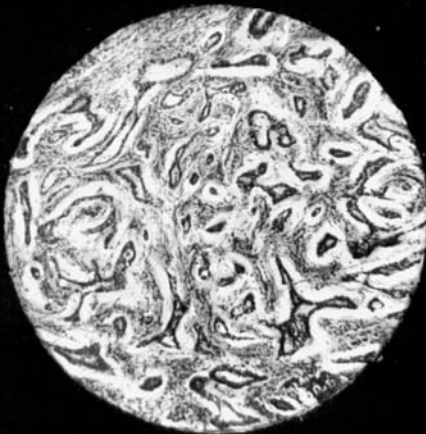


Fig 1

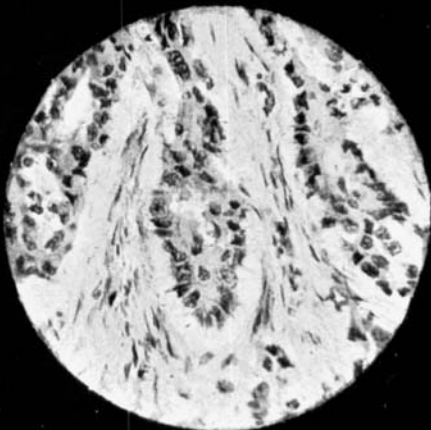


Fig 2

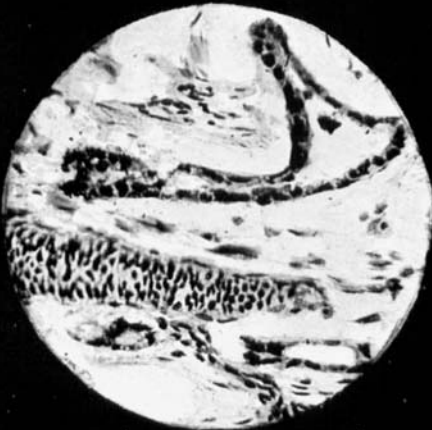


Fig 3



Fig 4

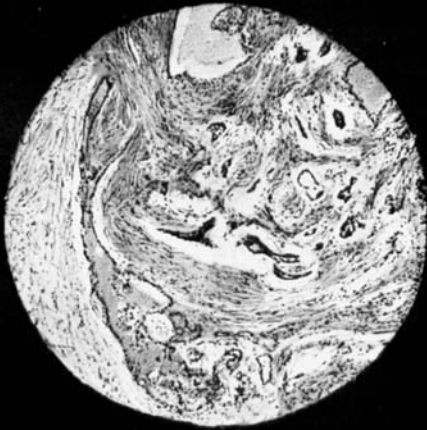


Fig 5

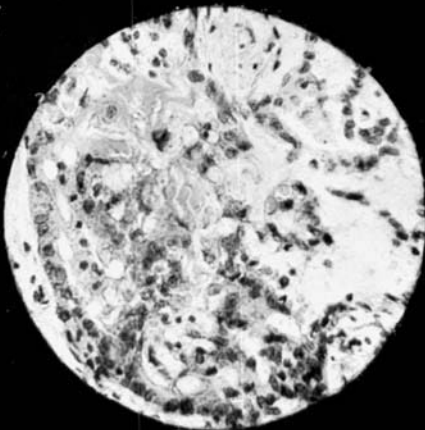


Fig 6