NEONATAL ORBITAL TERATOMA*

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"A TERATOMA is a true tumour or neoplasm composed of multiple tissues of kinds foreign to the part in which it arises" (Willis, 1960). It is, in fact, a congenital tumour containing representatives from all three germinal layers. Birch-Hirschfeld (1930) and Kirwan (1935) adopted the theory of Marchand-Bonnet, who suggested that "a teratoma is formed by wandering embryonic cells derived from blastomers detached from their connexions and able to give rise to other structures by means of differentiation".

According to Duke-Elder (1952), "the most complicated types of teratoma obviously represent a frustrated and abortive attempt at the formation of a human body—a foetus *in foeto*—an attempt which has broken down and resulted in a distorted and chaotic disarrangement".

Teratomata are classified by Duke-Elder (1952) as follows:

- (1) A complete foetus implanted in the orbit (orbitopagus parasiticus).
- (2) A portion of a second foetus in the orbit.
- (3) A tumour consisting all three germinal layers forming a shapeless mass without regular arrangement.
- (4) A tumour containing representatives of two germinal layers only.

The tumour grows rapidly and assumes large proportions, filling the orbital cavity and leading to destruction of the eye through proptosis and exposure of the cornea.

A review of the literature by Burnier and Salles (1945) showed that seventeen cases of true orbital teratoma had been reported up to that date, and the following cases have been reported since 1945: Harbert (1949), Pesme and Maupetit (1951), Kamel (1954), Ardouin, Leplat, Boulanger, and Lenoir (1958), Vancéa, Triandaf, Dobrescu, and Cernea (1958), Braun-Vallon, Joseph, Nezelof, Ribierre, and Lagraulet (1958), Girard, Fountain, Moore, and Thomas (1958), Davis and Alexander (1959).

The present case belongs to the third category in Duke-Elder's classification, and is of interest because an orbital teratoma is so rare, and because the eye was saved in only one of the cases previously reported.

* Received for publication November 2, 1961.

Case Report

A baby born on December 7, 1960, had proptosis of the left eye and marked chemosis of the conjunctiva.

Examination.—The globe was normal and the cornea of normal size, but completely covered by the upper lid, so that lid suturing was unnecessary. The globe could not be pushed back. There was no increase in the proptosis when the child cried. Palpation of the orbital borders revealed an elastic mass in the lower outer quadrant of the orbit, and x-ray examination showed that the left orbit was enlarged and that density was increased in that area (Fig. 1).

FIG. 1.—X-ray of orbits.

FIG. 2.—Tumour when dissected.

Operation.—As it appeared necessary to operate under general anaesthesia, it was decided to wait until the baby was a few weeks old. However, the proptosis became gradually more pronounced and the chemosis more marked, and palpation showed that the growth was increasing rapidly and extending along the whole of the lower orbital border.

The baby was therefore operated upon when only 22 days old. The skin was incised along the lower orbital border, and as soon as the periorbita was incised, a large cystic mass appeared into the wound. There was no difficulty in dissecting and delivering the tumour (Fig. 2); there was a small adhesion to the infero-posterior part of the globe. Sutures were applied to the periorbita and skin and a draining tube was left in at one side of the wound. There was a considerable degree of enophthalmos.

Result.—Recovery was uneventful. There seemed to be no impairment of the ocular movements, and an x-ray examination of the skull 8 months after the operation showed no sign of recurrence.

PATHOLOGICAL REPORT

The specimen was examined by Prof. Norman Ashton of the Institute of Ophthalmology, London, who gave the following report:

Macroscopical examination shows an irregular cubic mass measuring $31 \times 30 \times 24$ mm., weighing 9.97 g., and having a volume of 10 ml. The tumour consists of a solid white mass of tissue containing areas of bone and at one end a large fluid cyst.

Microscopically, the tumour consists of a complex and heterogeneous mass of a variety of tissues derived from all three germinal layers (Fig. 3). Among those which can be identified are fat and fibrous tissues (Fig. 4).

FIG. 3.—General view of tumour. $\times 2.75$.

FIG. 4.—Fat and fibrous tissue. $\times 114$.

Bone cartilage (Fig. 5) and bone marrow (Fig. 6) are also seen.

FIG. 5.—Bone cartilage. $\times 50$.

FIG. 6.—Area of bone formation, showing active bone marrow. $\times 50$.

Other structures identified are angiomatous tissue (Fig. 7); pancreas; neuro-epithelium and central nervous tissue; intestinal mucosa (Fig. 8).

FIG. 7.—Angiomatous areas, showing several large vessels lying in a mesenchymal matrix. $\times 114$.

FIG. 8.—Intestinal mucosa. $\times 50$.

Ciliated epithelium (Fig. 9); keratinizing squamous epithelium (Fig. 10) and dermal appendages (Fig. 11, opposite) were also identified.

FIG. 9.—Ciliated epithelium.
× 293.

FIG. 10.—Keratinizing squamous
epithelium. × 114.

FIG. 11.—Hair follicles in sebaceous glands. $\times 50$.

The tumour is a non-encapsulated teratoma of the orbit.

Summary

A case is presented of teratoma of the orbit in the newborn. The tumour was removed through an incision in the skin along the lower orbital border. The case is reported because of the rarity of the tumour and because the eye has been saved.

We should like to express our gratitude to Prof. Norman Ashton of the Institute of Ophthalmology, London, for the examination and report on the tumour, and also for the micro-photographs.

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