

Anatomical Studies, No. 40: On two Anomalies Associated with the 1st Branchial Arch.

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As anomalies of the 1st Branchial Arch are comparatively rare, the following cases should prove of interest:—

(a) UNILATERAL OTOGNATHY IN A MERINO WETHER.*

(See Figs. 1 and 2.)

The condition to be described was observed in Merino wether D.O.B. 21124 (died 12.9.1928 from phenol poisoning) and thanks are due to my former colleague, Mr. P. L. le Roux, M.R.C.V.S., for bringing me the specimen. Recently, another case (see File 258/62, Onderstepoort) came to my notice, a farmer requiring advice as to whether a ram (sire of a lamb with unilateral otognathy) was desirable for further stud purposes. The reply given was that no alarm should be occasioned by the appearance of a solitary abnormality of this nature. Dr. A. D. Thomas has seen the condition in a goat.

Although not a cyst, such a structure as indicated above, would be called a dentigerous or dermoid cyst by clinicians.

In the case in question, occurring at the anterior aspect of the base of the right *cartilago auriculae* was an accessory but miniature lower jaw. It was soft and movable and the labial portion was well defined. The anomaly measured 3 cm. long and 2 cm. at its widest part. At the back was a slitlike opening 0.75 cm. wide leading downwards and inwards to a depth of 3 cm. There were present typical papillae on the upper surface and the usual hairy covering on the lower surface. A firm wart-like structure on the upper surface resembling gum tissue contained an incisor-like tooth.

* Mr. C. C. Wessels, B.V.Sc., Government Veterinary Officer, Bloemfontein, informs me (30/3/33) that a full mouth Merino hamel belonging to a Mr. Victor of Brandfort, Orange Free State, shows this anomaly, the jaw in question (situated at base of left ear) actually secreting saliva. The tooth present is a well-formed incisor tooth.

As to the nature of the teratoma, such a foetal inclusion is sometimes called a parasite, true parasitism implying origin from all three germ layers. According to Bailey and Miller "it is sometimes very difficult, even impossible, to distinguish between true parasitic inclusions and dermoid cysts that are derived from ectoderm" (p. 609).

Figs. 1 and 2. Unilateral Otognathy in a Merino wether.

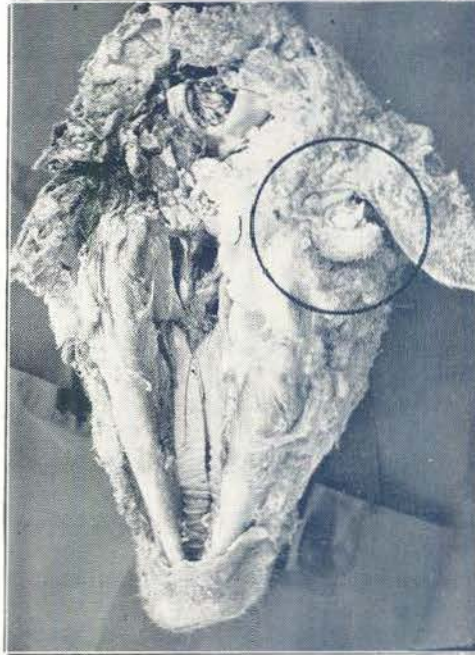


Figure 1.



Figure 2.

Such anomalies are not infrequently found near the line of fusion of embryonic structures, e.g. region of branchial arches. In the specimen under consideration it is clear that it is derived from the 1st Branchial Arch for the ectodermal covering of the Arch is responsible for the epidermis of the lower lip and jaw and for the enamel. Both these derivatives, as can be seen in Fig. 2, are clearly defined.

As to origin, a common view is that a portion of tissue (or even blastomeres) in some way becomes detached from the parent structure and continues to grow in an abnormal situation.

Figs. 3 and 4. Inferior Dignathy in a calf.



Figure 3.

It may be remarked that a common anomaly in the horse, and which is sometimes accompanied by a pre-auricular fistula (Dollar, 1912), although termed a dentigerous cyst, and associated with maldevelopment of the 1st Branchial Arch, is of a different nature. On examination a tooth or teeth of molar pattern may be found in the malar bone and to this abnormality the name *Odontoteratoma branchiale* has been given. (Kitt, 1921.)

(b) INFERIOR DIGNATHY IN A CALF.

(See Figs. 3 and 4.)

This specimen (T. 24—Path. No. 10783), received 9.10.1930, shows (see Fig. 3) not only an outward curving of each half of the "normal" *mandibula*, especially opposite the 2nd deciduous pre-molar; but also a definite twist in the region of the *corpus mandibulae* towards the junction of the right *maxilla* and *premaxilla*. The *corpus* shows altogether 7 incisors. The space thus provided accomodates an

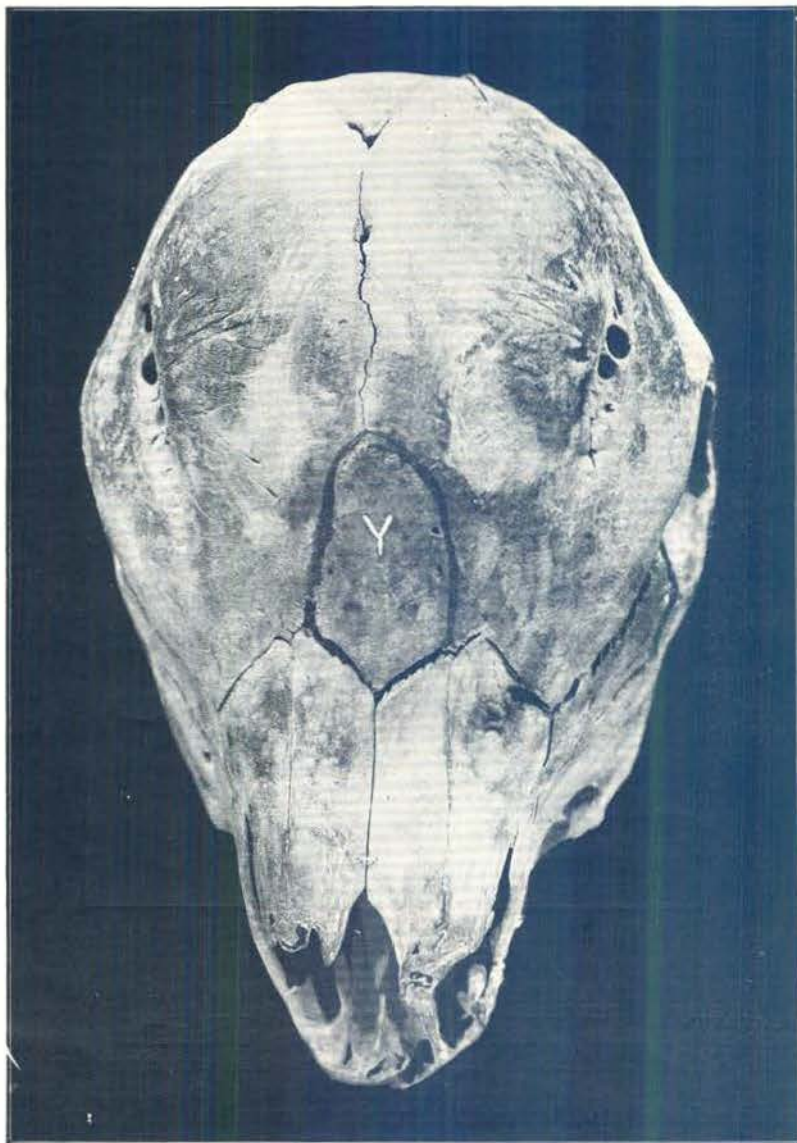


Figure 4.

ill-developed additional but miniature *mandibula*, each *pars molaris* of which shows a pair of cheek teeth. At the anterior end of the right half of the additional *mandibula* is portion of a *corpus mandibulae* containing two incisor teeth. It would appear that this was originally attached to the *corpus* of the right half of the "normal" *mandibula*, which it will be noticed is provided with four incisors. The right half has been purposely detached for photographing. Owing to the hot and dry atmosphere the teeth have in many cases become fractured.

At the point X the abnormal lower jaw was attached by a strong process to the right palatine bone of the upper jaw, which now calls for comment. As Fig. 4 indicates, there is an additional pair of nasal bones, including two nasal septa, and an additional unnamed bone situated between the frontal and nasal bones (see Y). As the specimen was received cleaned of soft tissue, the precise nature of the anomaly is not known, but it would appear that it represents a slight form of *diprosopus*. The palatine process of the maxilla is also wanting.

In this case not only was there some maldevelopment of the mandibular portion of the 1st Branchial Arch, but also of the maxillary part. Kitt states with regard to the causation of *dignathia inferior* (labial extremity) that it is "unzweifelhaft", the result of amniotic pressure (amniotische stränge).

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