was troublesome. The introduction of forceps again brought on symptoms as described above, so severe that the patient dreaded any further attempts at removal, but he was able to tolerate galvano-cautery puncture.

Repeated and frequent applications of the cautery brought about alleviation of the dysphagic symptoms for the next twelve months. Swallowing then became painful as well as difficult, and the patient died from exhaustion some three months later (September, 1910).

As stated above, a tuberculoma is generally covered with smooth intact mucous membrane of a pale grey to a dark red colour. The surface was irregular and scarred in this case when we saw it, but this may have been due to some attempts at removal that had already been made. The disease is usually found between the ages of 20 and 45, and, as in this case, is of slow growth. As is the case with other forms of laryngeal tubercle it is more frequent in males, and is generally associated with a primary focus in the lungs. The results of treatment in a few cases of true tuberculous intralaryngeal tumour in the absence of any demonstrable lung changes have been excellent; this was no doubt due to the fact that operative interference and topical applications could be followed by more or less complete rest of the parts. The latter factor is of the greatest value in tuberculous lesions of the larynx, and as an example of this the following case may be cited:

A young lady, aged 23, was seen twelve months ago for hoarseness; the right ventricular band was found to be swollen and infiltrated and to cover the right cord, the left ventricular band to a less extent, but two months later the left cord was also hidden from view, and the epiglottis was slightly affected. Clinically the appearances were tuberculous. Von Pirquet's test was negative, lung changes were absent, and there was no cough or expectoration. Tubercle bacilli were discovered some months later. Besides using an antiseptic spray and attending to her general bodily health the patient carried out the somewhat depressing treatment of absolute voice rest for ten months. The right cord was the first to appear, and was slightly ulcerated, but gradually the larynx assumed its normal state, a certain amount of paresis of the adductors remaining.

Complete rest was the main object of this long silence, and, as in ordinary tuberculous laryngeal lesions, so in other forms, rest is essential. This is obviously what could not be obtained in the case of tuberculoma I have described, as the situation of the growth on the posterior aspect of the arytenoid and cricoid cartilages rendered the prognosis as regards cure unfavourable on account of the irritation produced by the passage of food and saliva.

AN ACCOUNT OF A TERATOMA OF UNUSUAL SIZE AFFECTING THE TESTICLE OF A HORSE.

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THE following case appears to me to throw some light upon the nature of certain tumours of the testicle which occur in man, and to be worth recording on that account.

On September 22nd, 1910, there was removed *post-mortem* from the abdomen of a bay cart-colt 2½ years old a tumour of the left testicle, which was imperfectly descended; the tumour had caused no symptoms during life. The right testicle, normally descended, had been removed when the colt was a yearling, and the animal died during an operation performed with the object of removing the gland on the left side.

Description.

The specimen removed consisted of the testicle, epididymis, and part of the spermatic cord (Fig. 1).

The pampiniform plexus was very large and the epididymis widely separated from the tumour, which appeared at first sight to have originated in the body of the testicle; but careful inspection showed, at the point where the epididymis joined the tumour, a flattened structure of a reddish colour, and about 1 in. thick at its middle, spread out over an area of 6 in. by 4 in. Microscopic examination proved this to be the testicle; its deep surface was separated from the tumour by a well-marked capsule of fibrous tissue, but its superficial aspect was invested by a grey shining membrane absolutely continuous with that covering the surface of the tumour in its neighbourhood. I think it probable, therefore, that the tumour arose in the

mediastinum testis, that is, within the tunica albuginea, but not in connexion with the seminiferous portion of the testicle.

The dimensions of the tumour were: Length, 16½ in.; breadth, 10½ in.; thickness, 8½ in. It weighed, in the fresh

Fig. 1.—External appearance of tumour. A, Vas deferens; B, coiled portion of vas; C, epididymis; D, position of flattened testis proper; E, pampiniform plexus.

state, exactly 30 lb. The surface showed a division by a shallow groove into two approximately equal lobes, each of which was nodular, grey or pink in colour, with large veins running over it.

On section there was a much more obvious division into two lobes, separated from one another by a fibrous septum (Fig. 2). Each half consisted, for the most part, of a collection of cysts varying from a microscopic size to that of an orange. Most of the cysts were filled with a yellow mucinoid fluid, but some contained brown jelly; each cyst had a firm, shining lining membrane, and the walls of some of them contained tissue resembling cartilage; there were numerous intracystic growths which were themselves cystic.

Two of the smaller cysts, however, contained sebaceous material and numerous stiff, curly hairs (Fig. 2, A and B). In

Fig. 2. Photograph of a section through the tumour. A and B, Cysts containing sebaceous material and hair; C, masses of solid vascular growth.

the cyst marked A the hairs were white; in that labelled B they were black. This point is of interest in view of the statement which is usually made, that the hair contained in a dermoid cyst is of the same colour as the hair of the individual bearing the cyst.

The stroma consisted largely of fat, with, in addition, fibrous tissue, numerous deposits of calcareous material, and a few small masses of cartilage. Scattered in this stroma were several circumscribed masses of soft, solid, vascular growth (Fig. 2, C).

The microscopic examination of the tumour revealed a structure even more complex than the naked-eye appearance had suggested.

The cysts were not all of the same nature. Those which contained sebaceous material and hair were lined by stratified squamous epithelium, and contained in their walls numerous sebaceous glands and hair follicles (Fig. 3); but others in addition were lined by stratified epithelium, with neither hair follicles nor sebaceous glands. The cysts which contained mucinoid fluid showed a lining of tall columnar cells, with very numerous goblet cells; these cysts were of very variable size, and all stages in the formation of the larger cysts from the smaller ones could easily be traced. Even in the large cysts the columnar epithelial lining was usually well marked (Fig. 4). A third variety of cyst, also numerous, contained granular

material, and possessed a lining of cubical cells, in some cases more than one layer in thickness; whatever their origin may have been, they cannot have resulted from cysts originally lined by columnar epithelium which became flattened as a result of the pressure of the cyst contents, for even very small cysts of this variety showed the same structure.

The stroma consisted, in addition to the masses of fat above mentioned, of connective tissue, in some parts densely fibrous

doubt: the first section through the tumour showed a typical specimen of "cystic disease"; a further slice revealed the presence of the two hair-containing cysts, and microscopic examination showed clear evidence of tissues derived from all three embryonic layers, the ectoderm being represented by stratified squamous epithelium, hairs, and sebaceous glands; the endoderm by the cysts

Fig. 3.—Section through the wall of one of the dermoid cysts labelled A and B in Fig. 2. Sebaceous glands are well seen lying beneath stratified squamous epithelium which forms the lining of the cyst. $\times 130$.

with but few cells, in other cases myxomatous, and here and there densely infiltrated with small round cells. Nodules of well-developed cartilage were seen, the matrix of which showed evidence of calcification (Fig. 5). Calcification was also proceeding here and there in the fibrous stroma of the tumour. The masses of soft vascular growth shown at C in Fig. 2 consisted of a loose fibrous tissue basis, densely infiltrated with a columnar-celled growth, in some places forming regular

Fig. 5.—Section through part of the connective-tissue stroma of the tumour. The section shows a nodule of cartilage, the matrix of which has stained much more deeply in the central part of the nodule, owing to calcification having occurred. The dense round-celled infiltration of some parts of the stroma is also well seen. $\times 80$.

lined with columnar epithelium, and the masses of columnar celled carcinoma; and the mesoderm by the stroma of the tumour and the masses of cartilage.

Dermoid cysts are not uncommon affections of the imperfectly descended equine testicle. In man such tumours are excessively rare. Microscopic examination of cases of

Fig. 4.—Section showing stages in the formation of the mucous-containing cysts. The cysts, both large and small, are lined by tall columnar epithelial cells, with many goblet cells. Calcification is proceeding in three spots in the stroma between the cysts. $\times 130$.

acini which were grouped together into lobules, in other spots quite irregular and definitely carcinomatous (Fig. 6).

It is becoming generally recognized that the affection of the human testicle often known as "cystic disease" is in reality a teratoma, though the exact place and mode of origin of the growth is still a matter of dispute. In this case the teratomatous nature of the tumour is beyond

Fig. 6.—Section of some of the soft solid growth seen at C in Fig. 2. It shows the structure of columnar-celled carcinoma. $\times 130$.

cystic disease of the human testis frequently reveals their teratomatous nature, but it is uncommon for the epiblastic part of the tumour to be represented by cysts, containing hair and sebaceous material, large enough to be evident to the naked eye.

The great size of the tumour is worthy of note. I am informed that even in the horse a testicle of such dimensions is very uncommonly met with.