Cystic and dermoid tumours of the eye / by S. Osborn.

CYSTIC AND DERMOID TUMOURS OF THE EYE.

By S. OSBORN,
SURGICAL REGISTRAR.
St Thomas's Hospital

It appears somewhat like a work of supererogation to attempt to say anything more upon cysts of the iris, since the subject has been already so thoroughly treated by Mr. Hulke in a monograph published in the 'Royal London Ophthalmic Hospital Reports' of 1869. But it has occurred to me that the origin of this disease may, in certain cases, bear a different explanation from what has hitherto been given. My object in this paper is to inquire whether cysts may not occasionally be due to a dilatation of some portion of the obliterated remains of the ocular cleft. Dermoid tumours in like manner, I believe, take origin from the same. I have endeavoured to substantiate in the following details my reasons for these opinions.

Firstly, as regards the situation of the ocular cleft, and its imperfect closure, called coloboma; then as to the structure, situation, time of appearance, and cause of these tumours.

In the development of the eye it will be remembered that an invagination of the cuticle takes place, firstly, into the primary optic vesicle, and becoming shut off forms the lens; and again, subsequently, another invagination of the cuticle takes place from below upwards to form the secondary optic vesicle, the root or neck of the invaginated portion gradually becoming shut off from above downwards by the gradual occlusion of this

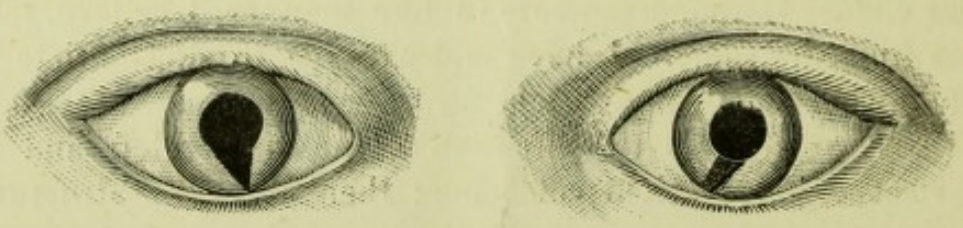
canal, to which the term of ocular cleft is given. Should any portion of this ocular cleft remain open after birth, the term coloboma, meaning a curtailment, is applied to it, and varieties are found according to the amount of tissue affected. Thus, we have coloboma of the choroid and coloboma of the iris, the former of which may exist in conjunction with the latter, or either may occur separately.

It is more especially to the latter, having reference to the present subject, that I would draw attention.

Coloboma iridis, or congenital deficiency of a portion of the iris, due to the imperfect closure of the ocular cleft, consists of a gap in the lower, or lower and inner part of the iris, more or less triangular in shape, with the base of the triangle situated at the pupillary margin, and the apex at the sclero-corneal junction. It usually affects both eyes, and in a case lately under Mr. Wagstaffe, a true cleft was visible in the right eye, and in the left the coloboma was closed by an imperfectly pigmented membrane, or what looked like a deficiency of pigment over a triangular area corresponding to the coloboma in the opposite eye. The choroid was in no way affected, nor was there any congenital malformation of any other part of the body.

The rarity of these cases and the absence of any representation of such a malformation, as far as I am aware of, renders a sketch of this case worthy of insertion.

Cysts of the iris appear like small white currants, semi-



Coloboma iridis, from the case of J. M—, æt. 4; there being a complete fissure in the right iris, and in the left an imperfection of pigmentation over a corresponding area.

transparent and pearly, reflecting the colour of the iris on or in which they arise; gradually protruding themselves more and

more anteriorly, because there is less resistance than posteriorly; and projecting into the anterior chamber overlap the pupillary margin, and sooner or later produce an attack of iritis. Some difficulty may be experienced in diagnosing them from hydatids, but the presence of a definite base of attachment is diagnostic. Comparison of the two may be made by reference to Plate V of Mr. Wharton Jones's work on 'Ophthalmic Medicine and Surgery,' where a diagram is given of both diseases.

In structure, Mr. Hulke describes one of these cysts as consisting "of a delicate homogeneous cell-wall, varying from $\frac{1}{4300}''$ to $\frac{1}{8600}''$ in thickness. Its outer surface was overlaid by a network of fusiform cells, identical with those of the contractile tissue of the iris; and its inner surface was lined by a pavement epithelium, the cells of which differed much in size in different parts of the cyst;" and as regards position of origin, the same author classifies them as—(1) those originating in the iris, and which lie between the uveal and the muscular stratum of the iris; and (2) those originating in connection with the ciliary processes, and which lie behind the iris, and bear the uveal as well as the muscular strata in their front. Usually they possesss serous contents, but as the epithelial lining is liable to further development, so may the cyst consist of almost solid contents, as in the case quoted by Mr. White Cooper, in the 'London Journal of Medicine' of 1852, p. 789, where the cyst appeared to be made up of epithelial cells closely agglutinated together; or the cyst may consist of true skin, fat, hairs, and sebaceous follicles, due to the perverted growth of the epithelium of the cyst-wall. A rapid increase or preponderance of fat in these cysts has caused some authors to place them under the head of lipomata.

In the 'Dublin Quarterly Journal,' of May, 1871, p. 295, Mr. Swanzy mentions a very interesting dermoid tumour, of which a diagram is given, which occurred under Professor Von Graefe. This tumour appeared to consist of a pouching of the skin outwards, and was made up of an external cutis-like layer, in which was found, as on the external surface of the body, hair follicles, with a few fine pigmentless hairs and sudoriferous glands, which extended into the layer of fatty tissue lying beneath, differing in no way from the usual subcutaneous fat, and of which the greater part of the tumour consisted. This

tumour did not take origin from the ocular cleft, but from the first invagination of the cuticle which was described as taking place to form the lens, which was absent in this instance. Here, instead of an invagination taking place to form the lens, the portion of skin, instead of being folded inwards, had been folded outwards and formed the tumour above described. Now, it is allowed that none of the elementary tissues constituting cysts of this character are normally present in the iris or on the eye-ball, therefore they must be regarded either as new formations, or, as is more probable, dilatations or outgrowths from the epithelial sheath invaginated into the eye in the process of development.

Concerning the situation of the cysts in the recorded cases, it is difficult to make any accurate observations, the exact point of attachment not being in all cases mentioned; but in those that are, the preference is given to an inner or lower portion of the iris.

With dermoid tumours, however, the situation is more defined, that being at the sclero-corneal junction along its lower margin. A very interesting case is quoted in the 'Ophthalmic Hospital Reports,' vol. vii, p. 245, where, in addition to a dermoid tumour, developed, I believe, in the ocular cleft, was another dermoid tumour on the same level in front of the ear, a little above the tragus, due to the formation of a cyst, apparently in the same manner. This was in the first branchial cleft between the superior maxillary process of the first visceral arch and the anterior cerebral vesicle.

As to the date of appearance of cystic and dermoid tumours no specific time can be mentioned; either of them may be congenital, the dermoid perhaps more frequently so, or either may be developed later in life, and gradually augment considerably in size.

The probable commencement of a cystic and congenital tumour is, I think, seen in a case quoted by Mr. White Cooper, at p. 792 of the 'London Journal of Medicine,' 1852, where in a congenital gap of the bright hazel fibres of the iris, was a small tumour, which he describes as being a hernia of the uvea. The occasional presence, therefore, of a fissure of the iris after the cure of such cysts, as in the case quoted as belonging to the late Mr. Dalrymple, is in favour of there having been primarily a fissure or congenital malformation of the eye, as in

the preceding case, and the cyst being a dilatation or outgrowth of some portion of it.

One other case I would bring forward, viz. one published in the 'Lancet' of 1852, p. 569, where inflammation set in as the result of puncturing the cyst, and as a consequence "the matter of the cyst worked its way outwards at the junction of the cornea and sclerotica by a narrow passage." Now, if such a cyst was growing from some dilated or unobliterated portion of the ocular cleft, no more likely channel for the exit of its contents could be found than the expansion of that prolongation of which the cyst is presumably a dilatation, and which would be also affected by a like inflammatory process.

As to the cause, the majority of cystic tumours of the eye are doubtless attributable to some punctured wound, although some period may have elapsed between the receipt of the injury and the first appearance of the tumour; but, on the other hand, some arise to which injury cannot be assigned as a cause; and some have such a cause attributed to them unjustly, patients being only too ready to attribute to any tumour a history of a former injury.

But dermoid tumours are almost always congenital, although they may be developed at a later period of life and increase gradually in size. To dermoid cysts, injury is seldom assigned as a cause; but why is it more commonly assigned in cystic tumours? the internal lining of pavement epithelium is equally foreign to the normal constituents of the eye.

Mr. Bowman attributes these cysts to a morbid formation of transparent fluid between the iris and its posterior epithelium, commonly called the uvea, the cyst appearing first as a bulging of a portion of the iris towards the cornea, the fibres of the iris slowly yielding. This has, however, been proved not to be always the case, as the uvea is sometimes found to form part of the anterior wall of the cyst, and the presence of congenital tumours where no injury is assignable makes it probable that the cause is a dilatation or outgrowth of some portion of the ocular cleft.

Finally, the identity in the situation of these tumours with the position of the ocular cleft, and the fact of the structure of the cysts differing from the normal constituents of the eye, are further arguments in favour of the view here advanced.