ANTERIOR LENTIGLOBUS

An Atypical Case *

BY

K. SEN

CALCUTTA

ANTERIOR lenticonus is a very rare condition. It consists of a small conical projection of the lens at its anterior pole.

Anterior lentiglobus is also very rare. It consists of a small globular projection of the lens at its anterior pole. The projection is a part of a sphere and in lenticonus it is part of a cone.

In both cases the projection consists of clear cortex only. The nucleus remains intact and undistorted (Feigenbaum, 1929; Kienecker, 1929). The projection takes place after birth otherwise the nucleus of the lens would have been affected; however, Seefelder and Wolfrum (1907) noted it in a foetus of 4 months. The projection is in the pupillary area. It usually occurs as an anomaly without any other changes in the eye.

The lens itself is transparent. On examination with the ophthalmoscope a dark disc is seen in the centre of the pupillary area

FIG. 1.

Anterior lenticonus (Duke-Elder).

"resembling in appearance the effect produced by an oil globule in water: this is due to the fact that none of the rays from the fundus reaches the observer's eye owing to prismatic reflection in the axial region" (Duke-Elder, 1938), Figs. 1 and 2. As the projection has

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FIG. 2.

Anterior lenticonus as seen by the plane mirror of the ophthalmoscope (Duke-Elder).

an increased curvature the area is highly myopic (-20.0 D., Kienecker, 1929). The projection has always a tendency to increase. Feigenbaum (1932) followed up a case for six years and recorded that the projection increased in curvature making the area more myopic, the increase being from -5.50 D. to -10.0 D. As long as the capsule remains intact the projection of the lens remains transparent. Eventually an anterior polar cataract develops (Jaworski, 1910; Tsukahara, 1930; Feigenbaum, 1932), most probably due to the rupture of the lens' capsule from overstretching.

The cause of this condition is not definitely known. A delayed separation of the lens' vesicle (Krusius, 1910), an inflammatory adhesion to the cornea (Mohr, 1910), have been suggested. Collins (1910) suggested that the normal suspensory ligament in its development exerted chief traction on the anterior capsule and the absence of such traction might account for anterior lenticonus. Mann (1937) noted that in some lower animals the lens appeared to bulge through the pupil as though the iris was pressing it back at the periphery, and suggested that it was possible that some such deforming stress might have occurred in foetal life owing to a too rigid pupil so that the lens had been permanently moulded.

The following case shows some very unusual features.

A. S., a Sikh boy, aged 14 years, was seen on October 1, 1946. He complained that on waking up on the morning of September 28, 1946, he discovered that he did not see well with his right eye. He was a tall, well developed boy. His physical examination revealed no abnormality. His father was seen and he showed no abnormality.

On enquiry from his father it was noted that there was no abnormality in the bodies and eyes of the boy's mother, brother and two sisters. There was no history of trauma to the eye of the boy.

On examination of the right eye the conjunctiva, cornea, and anterior chamber were normal. Pupil was reacting well to light and accommodation. There was a very small opacity on the anterior surface of lens at its upper and inner quadrant and the opacity was mostly covered by the edge of the pupil. The central part of the pupillary area seemed to be quite transparent. The tension was normal. The vision in the right eye was 5/60 and

FIG. 3.

FIG. 4.

there was no improvement with glasses, but on contracting the pupil with eserine the vision improved to 6/24 (+1) with -2.0 D. The vision in the left eye was 6/6 with -2.75 D.

On dilating the pupil the size of the opacity was found to be approximately 3 mm. by 2 mm. (Fig. 3). On examination with lens and loupe the small opacity on the lens was found to be really a tiny little projection of the anterior surface of the lens; the centre seemed to be transparent and the margins were grey. It was egg-like in shape, its longest axis being in the 1 o'clock—7 o'clock meridian, the broad part being towards 1 o'clock and the narrow end towards the centre of the pupil. With transmitted light (Fig. 4) the centre was found to be transparent and the edges were opaque. With slit-lamp (Figs. 5 and 6) it was found that the projecting part consisted of a herniation of the anterior cortex of the lens through an egg-shaped rupture of the capsule the edges of which could be seen surrounding the herniation and were curling forward. The capsule over the projecting part was thought to be deficient. The surface of the projection was irregular and was pitted at the lower and outer part. There were several lines of tension on the capsule of the lens from the narrow end of the ruptured capsule spreading

over the pupillary area. This probably explained why the vision could not be improved beyond 6/24 (+1). The curvature of the projection was spherical and not conical. The other parts of the lens including the nucleus were normal. There were no myopic

FIG. 5.

FIG. 6.

changes in the fundus. There were no other abnormalities in the eye either congenital or acquired, inflammatory or abiotrophic.

A short description of the case and the paintings of the lens condition were sent to Prof. Ida Mann, and she has very kindly sent the following remarks, "Embryologically I cannot explain it at all, though I do feel that one cannot be certain of the complete absence of the capsule over the bulge. If this had been the case I should have expected the lens fibres to have become opaque and partially dissolved. I think therefore that there must be a very thin layer of the deep lamella of the hyaline capsule and it is the zonular

lamella which is absent over the bulge and everted around the base. What could have produced this I have no idea, though probably trauma at or soon after birth might account for it."

The case was again seen in January, 1947, *i.e.*, three months later and the condition was found to be exactly the same. No opacity of the lens cortex had developed and there was no increase in the size of the projection. The vision was still the same.

Discussion

Embryologically the lens capsule is composed of two layers. The deep layer is secreted by the cells of the lens vesicle and the superficial or zonular layer is added later on the outside of this in the

FIG. 7.

The lens capsule (Tooke)

peripheral part and is formed by the coalescence on the lens of the fibres of the suspensory ligament (Mann, 1937). Histologically two layers can be demonstrated either by staining with aniline blue (Beauvieux, 1922) or by use of a silver impregnation method (Busacca, 1929). Tooke (1933) demonstrated that each of the two parts of the capsule was divided into separate layers (Fig. 7). Vogt (1925-32) and Elschnig (1929) believed that the zonular lamella extended completely over the anterior surface, while Busacca (1929) claimed that there were three different structures, a zonular lamella confined to the lateral portions of the lens, a fine pericapsular membrane surrounding the entire lens and a capsule proper composed of several layers.

In this particular case, the lens capsule, except a very thin lamella of the deep layer, was ruptured and the edges were curling forward. Although under the slit-lamp no capsule could be demonstrated over the herniated area (Fig. 6), a thin layer must be present otherwise, as Prof. Mann pointed out, there would have been opacification and partial absorption of the lens fibres.

The curvature of the projection was regular and spherical. The surface of the projection presented a most interesting appearance (Fig. 5). The surface was pitted. This was specially apparent at the lower and outer part of the projection. This appearance has not been seen or described in cases of exfoliation of the zonular layer of the lens capsule. This appearance is very difficult to explain.

Too much reliance cannot be placed on the history of sudden onset of dim vision as many cases even of amblyopia ex anopsia state that the dimness of vision in the particular eye is of a few days' or weeks' duration.

In the absence of any other abnormality either congenital, acquired or abiotrophic, one would like to suggest that the condition was due to a congenital weakness of the lens capsule and most of the layers gave way either spontaneously or during a very trivial trauma allowing a herniation of the anterior cortex. It does not seem possible to postulate when the rupture took place.

Summary

A case is described in which there was a tiny herniation of the anterior cortex of the lens through an egg shaped rupture of the superficial layers of the anterior lens capsule.

The cases of anterior lenticonus and anterior lentiglobus described in the literature showed the projection of the anterior cortex to be either conical or globular in shape. They were round and situated at the anterior pole of the lens occupying the pupillary area. The capsule over the projection was intact especially at the early stages. In this case, most of the layers of the anterior capsule of the lens were already ruptured and the edges were curled forward. The herniation of the anterior cortex was egg-like in shape, was eccentric in position and the surface was pitted.

It seems that a case like this has not previously been reported. It was intended to report this case after keeping the patient under observation for at least one year. When he was sent for in March, 1947, it was found that he, with his family, had left for his home in the Punjab. In July, 1947, he or his family had not returned and their whereabouts were not known. (Note.—Severe communal riots broke out in the Punjab in March, 1947).

All French and German references have been taken from Duke-Elder's Text-Book of Ophthalmology.

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ON GENESIS AND OPERATION OF SENILE ENTROPION

BY

Prof. A. KETTESY

DEBRECEŇ

CONTRARY to cicatricial entropion with anatomical changes of the intermarginal surface and of the tarsus, senile (or, as it is sometimes called, spastic) entropion is a simple turning in of the unchanged tarsus of the lower lid.

Under normal conditions the lower lid (correctly its skeleton: the tarsus) is kept in right position by two forces: (1) by the elasticity of the tarso-orbital fascia with the embedded inferior tarsal muscle; (2) by the tone of the orbicularis muscle exerting equally distributed pressure upon the lid. The orbicularis muscle plays the more important rôle. Its normal distribution is maintained by connective tissue branching off between the bundles. Other forces such as capillary adhesion and elasticity of the skin are of less importance.

In senility there is sometimes a slackening of the whole palpebral connective tissue, creating a situation ready to result in entropion: drawing up and accumulation of the bundles of the orbicularis in the lid-margin. The lid is in this phase still in its normal position but unbalanced. Every small pressure at the lid-margin in simple