Discussion

The case described is one of partial ectasia of both optic discs with complete peri-papillary ectasia. It differs from the other similar cases I have been able to find in the literature, in that the discs are not completely excavated. Q. Di Marzio in his atlas shows temporal excavation of the disc in one eye. The others describe a completely excavated, deeply cupped disc in which the vessels are arranged normally. The condition is not glaucomatous and it is not the ectasia of myopia. It is regarded as a congenital anomaly of the disc. The picture is remarkably similar to the late results of traumatic avulsion of the optic nerve with preservation of the continuity of the vessels, except that glial proliferation at the nerve head is, usually quite pronounced in proven avulsion. It may indeed be so exuberant as to obscure the details of the nerve head. But histology of traumatic avulsion reveals a deep cup (Salzmann). The gross pigmentary disturbance and wide ectatic scleral ring are late features of avulsion of the nerve. The case herein described and those quoted from the literature because of their similar characteristics may be evidences of a rarer form of birth injury resulting in partial avulsion of the optic nerve, rather than a developmental failure at the disc.

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THE DIONINE EFFECT IN THE CONJUNCTIVA*

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It has been frequently observed (Augstein, Vogt, Koeppe, Loehlein and others) that some days after the occurrence of a subconjunctival haemorrhage, when the blood is undergoing absorption, vessels crossing the blood-stained area are seen to be accompanied on either side by a clear colourless zone of uniform width (Fig. 1). (Loehlein, 1928) assumes, with others, that the clear sheaths represent lymph channels and that they perform the function of removing the extravasated blood.

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FIG. 1.

Subconjunctival haemorrhage. Nine year old boy, seventh day, blunt injury. The white sheathings are restricted to haemorrhagic area.

We have examined many subconjunctival haemorrhages with the binocular microscope and slit-lamp and have followed the process of reabsorption of the blood. The cases were of various types; but whether the patients were young or old, and the haemorrhages spontaneous or traumatic, the same phenomena were observed.

The lymph channels were seen best from the fourth day after their appearance, and remained visible until the last trace of haemorrhage had disappeared. The width of the sheath on each side of the vessel is approximately equal to that of the blood column, and it is quite sharply defined. It is found only in vessels of medium size, situated in the middle layers of the subconjunctival tissues, and is strictly limited to the area of the haemorrhage. Sometimes, beyond the margin of the haemorrhage, the vessel was accompanied by a faint haze, which might belong to the wall of the vessel; but had no resemblance to the sharply defined lymph channel. Perhaps improvement in the optical conditions might succeed in revealing the presence of the sheath beyond the haemorrhagic area.

It is of special interest that the lymph sheath disappears after the instillation of 2 to 5 per cent. dionine solution into the conjunctival sac. This occurs in from 40 to 80 seconds after the application, and is not quite simultaneous throughout the length of the vessel. Similarly, when the oedema passes away, which it does in from 30

to 60 minutes, small yellowish-white spots form at different points on the vessel wall; these coalesce and in about 5 minutes the complete lymph sheath is entirely reformed.

These phenomena have been observed in a number of patients. The timing of the events varies, but the sequence is always the same. In explanation of the occurrence we assume that the whitish-yellow sheaths surrounding the vessels within the haemorrhagic area are lymph paths. It is not easy to understand why the lymph vessel is visible only within the area of the haemorrhage.

Fig. 2 shows that the lymph channel can only be visible when the haemorrhage is *confined to the plane* of the conjunctival vessels. If the haemorrhage were superficial it would conceal both the blood

FIG. 2.

Schematic explanation of the clinical appearance.

column and the lymph sheath: if it were deeper it would form a dark background to the vessels and obscure the white sclera which is essential to render the transparent lymph space visible.

Dionine dilates the conjunctival blood vessels, and this may account for the disappearance of the lymph channels, which refill as the oedema passes off. In addition the oedema which gradually rises, moves the blood layer out of position and renders it diffuse. As a result the conditions of visibility of the lymph spaces are no longer present. Using the narrow beam of the slit-lamp, and with the higher magnifications of the corneal microscope, it can be seen that for ten to fifteen minutes the oedematous fluid is clear. It then becomes hazy and finally milky, and this persists until the oedema disappears. Presumably the cloudiness of the fluid is due to the migration of leucocytes from the blood stream.

We have occasionally observed, within the haemorrhagic area, isolated lymph vessels, not visibly connected with the blood vessels, and once a clear pearly vacuole was seen. It may be of some

significance that neither of these appearances was influenced in any way by the dionine application.

The application of adrenalin has not been observed to cause any change in the perivascular lymph spaces.

Variations in the intensity of the dionine reactions are interesting. We found it particularly strong in children, weaker in older people, and in arterio-sclerotic subjects. An arterio-sclerotic man with glaucoma simplex was especially refractory. Alajmo found the conjunctival oedema especially pronounced in scrophulous children. It may be that a scale of vascular function might be established on the intensity of the dionine effect.

The rabbit's conjunctiva is not responsive. Even a 5 per cent. solution of dionine does not produce chemosis, but this does not prove that dionine has no effect on the rabbit's eye. Loewenstein and Kubik (1915) found that the application of dionine powder to the rabbit's conjunctiva caused a rise (slight, but beyond the limits of error) in the refractive index of the aqueous humour.

Summary

1. Perivascular lymph vessels are commonly observed in cases of subconjunctival haemorrhage four or five days after its occurrence. They can be seen to accompany conjunctival vessels which cross the haemorrhagic area. An optical explanation is offered.

2. They disappear in from 40 to 60 seconds after instillation of dionine solution, concurrently with the onset of conjunctival oedema, and reappear in from 30 to 60 minutes as the oedema passes off.

3. The oedematous fluid in the conjunctiva, at first clear, becomes milky after 15 to 30 minutes.

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BURIED SILK, CATGUT AND STRABISMUS SUTURES*

BY

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LEEDS

IN view of the terminal remarks in the annotation in May, 1944, p. 249, I thought that the following clinical and experimental findings might be of interest.

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