CASE NOTES

ANOMALOUS DEVELOPMENT OF RETINAL VESSELS*

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MICHAELSON (1954), writing on the retinal blood vessels in man, stated that "an artery crossing an artery, or a vein crossing a vein, has not once been reported, or been personally observed". This is in keeping with the present hypothesis that the development of retinal vessels in vertebrates is stimulated by a local intraretinal factor. In man, each quadrant of the fundus accumulates, during development, sufficient of this factor to attract to itself a vessel complex. Thereafter, it affects maximally the nearest budding vessel, thus explaining the rarity of an artery crossing an artery, or a vein crossing a vein.

The two following cases show respectively a retinal vein crossing a retinal vein and a retinal artery crossing a retinal artery.

Case Reports

Case 1.—In the course of routine eye testing of a female patient, aged 39 years, it was noted that the inferior nasal retinal vein in the right eye crossed the inferior temporal retinal vein at the optic disc (Fig. 1). No other vascular anomaly or abnormality was noted in either fundus.

FIG. 1.—Case 1, right fundus, showing inferior nasal retinal vein crossing inferior temporal retinal vein at optic disc.

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Case 2.—A female patient, aged 66 years, complained of dimness of vision in the left eye for 3 weeks. Bilateral retinal arteriosclerosis was found and the clinical picture of thrombosis of the left inferior nasal retinal vein was present. In addition, the inferior nasal retinal artery was seen to cross the inferior temporal retinal artery near the optic disc. Fig. 2, which shows the relevant portion of the left fundus, was painted 6 months after the occurrence of the branch venous thrombosis.

FIG. 2.—Case 2, left fundus, showing inferior nasal retinal artery crossing inferior temporal retinal artery at optic disc.

Comment

In one case the crossing occurs at the disc, and in the other near the disc. In both cases the nasal vessel crosses over the temporal vessel. This finding would support Michaelson's contention that in an embryo there is probably a stage of development in which the temporal retinal vessels have commenced to bud from the hyaloid artery before the nasal ones. Such crossings are probably freak occurrences, and occur near the disc because developing vessels lie close to one another in this area. An overlap in the response of the growing vessels to the retinal factor can be postulated as the cause of their development.

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REFERENCE

MICHAELSON, I. C. (1954). "Retinal Circulation in Man and Animals", p. 102 and p. 100. Thomas, Springfield, Ill.