Congenital Aphakia

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Summary

The histological description of a case of bilateral microphthalmia in a premature child weighing 2100 g with other congenital anomalies, who died soon after birth. The anterior wall of the bulbus was covered with typical corneal epithelium, but Bowman's membrane, Descemet's membrane, and endothelium were absent. The anterior chamber, iris, lens, and zonule were also absent. A coloboma was present in the anterior inferior part of the eye.

(Published in extenso elsewhere)

Discussion

Wacurdenburg congratulates Manschot on his interesting case and his knowledge of the literature. It is true that congenital aphakia is frequently assumed without justification. This case is instructive because it gives us information about the order of induction in the embryonic development of the eye. We see that a cornea, even if it is abnormal, can be produced, although no lens or other internal ocular structures are formed.

Hagedoorn: I was particularly interested to note that the ganglion cells and nerve fibres were absent. The other retinal elements were, however, fairly well developed.

In the cuttle-fish, the optic ganglion lies behind an eye with a retina of similar construction ("convergence") without ganglion cells. In Vertebrates, the optic placode is included in the neural tube, where naturally the nervous "ganglion opticum Anlage" must also be situated.

Your preparation suggests that this theoretical separation of the two elements in Vertebrates is also present in man. Following Waardenburg's train of thought one may assume that the mother cells of these ganglion cells pass through the stem of the optic cup to the rudimentary sense organ

the eye

and that this has not occurred in this case. A point in favour of this theory is that the stem of the optic cup is remarkably full of cells in a normally developing eye.