

PARTIAL DUPLICATION OF THE NOTOCHORD IN A HUMAN EMBRYO OF 11 MM. GREATEST LENGTH

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THE anomaly here recorded occurred in a human embryo of 11 mm. crown-rump length, which otherwise showed no gross abnormality. The embryo was cut in serial sections, 10 μ thick, and stained with haematoxylin and eosin.

The notochord was normal in extent, position and appearance, due allowance being made for the fact that the fixation of the specimen left a good deal to be desired. In the region of the second cervical ganglion, 70 μ caudal to



Fig. 1. The abnormal portion of notochord lies ventral and to the right of the normal portion. (Drawn by Mr J. E. Clapton from a microphotograph.)

the point where the notochord came into direct contact with the dorsal wall of the pharynx, a portion of a second notochord appeared, lying ventral and slightly to the right of the normal notochord. This abnormal portion extended only through four consecutive sections.

Thirty-three sections more caudally the abnormality reappeared. The abnormal portion of the notochord lay just ventral and to the right of the normal notochord and extended through six sections. In this situation the abnormal portion was very little smaller than the normal notochord (fig. 1), and it had no recognisable connection or attachment to it.

The significance of this rare anomaly (I have been unable to find any record of a precisely similar case) is not easy to determine, but it is important to observe that the normal notochord retained its median position throughout the whole of its extent. It may fairly be assumed that the notochordal plate in this embryo had been broader than normal in the upper cervical region, but there is no confirmatory evidence on this point in the floor plate of the spinal cord, which shows no widening nor any recognisable evidence of abnormal development. On this assumption, it would appear that the notochordal plate had given rise to two notochords in the upper cervical region, one of which retained continuity with the notochord in other regions, was dominant from the start and therefore occupied the median plane, while the other had been almost completely absorbed and only small portions of its cranial and caudal ends persisted in the specimen.

I was inclined at first to regard the two notochords as parallel (side-by-side) derivatives of the notochordal plate and to interpret the anomaly as an abortive and very imperfect attempt at twin formation. Another interpretation, however, is possible. During the process of exhalation of the notochordal cells from the roof of the yolk sac, sufficient cells of the abnormally broad notochordal plate may have remained to constitute a second and more ventral notochord, which has been displaced from the median plane owing to the free character of its unattached extremities. Such a structure would be comparable to the hypochord, which is found as a transient structure in the embryonic stages of Selachians, Teleosts and Amphibia, but is unknown in Mammals.

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