2-mm cubes and cultured for 1 week in 2 ml. Tyrode's solution with antibiotics in sealed 55-mm Petri dishes at 37° C. Tissues were then separated from the culture media by centrifugation at 18,000*g*. The ability of the supernatant to reduce the viscosity of collagen solutions was studied in Ubbelohde viscometers at 20° C in 0·1 M *tris* buffer at *p*H 7·4. Calcium chloride was added to maintain the collagen in solution. Under these conditions, the viscosity of 0·25 per cent collagen solutions was reduced 14–35 per cent as compared with control solutions. This activity was precipitable with 50 per cent ammonium sulphate and largely inactivated by boiling.

These experiments indicate that diseased gingival tissues produce a heat-labile collagenolytic factor when cultured *in vitro*. Inasmuch as large amounts of collagen are lost during the course of periodontal diseases, the contingency that this factor, possibly an enzyme, is concerned with the process is intriguing.

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ANATOMY

Double Central Canal in Spinal Cord of Rat

WHILE studying the morphology of thiamine pyrophosphatase (TPPase)-positive Golgi complex in the central nervous system, it was observed that two central canals (Figs. 1 and 2) were present in the mid-thoracic region of the rat spinal cord.

Frozen cryostat sections, 10μ thick, were post-fixed in 10 per cent formalin. The central canal was in the normal position (Fig. 1). The second canal was observed a short distance in front of the grey commissure in the midline in the anterior white commissure (Figs. 1 and 2). This second canal was elongated anteroposterially similarly to the central canal at the same level (Fig. 2), and the canals were of equal length (anteroposteriorly).

When we observed some of the sections of the spinal cord above this level, it appeared at first that the central canal was greatly lengthened in an anteroposterior direction. Then we observed the separation of this lengthened canal into two parts within the grey commissure itself. Observations of additional sections in the same region revealed that the anterior segment of the separated canal gradually extended farther and farther from the central canal and was finally to be seen in the anterior white commissure. Thus the second anterior central canal originally observed in the anterior white commissure was derived from the central canal and was directly continuous with it.

The caudal part of the spinal cord was discarded before this double canal was seen and, for that reason, we do not know how it terminated—whether blindly or by rejoining the central canal. There are numerous reports of the occurrence in human beings of a double spinal cord with a central canal in each division[1], usually in association with various anomalies in the vertebral column, and with signs and symptoms of nervous system involvement. But there is no report of a double spinal canal in a normal spinal cord. The animal described in this report did not have a double spinal cord and the vertebral column was normal; there were no signs and symptoms of nervous system involvement. It would be of interest to know if similar double central canals are found in other species of animals, including man, and how commonly they occur.

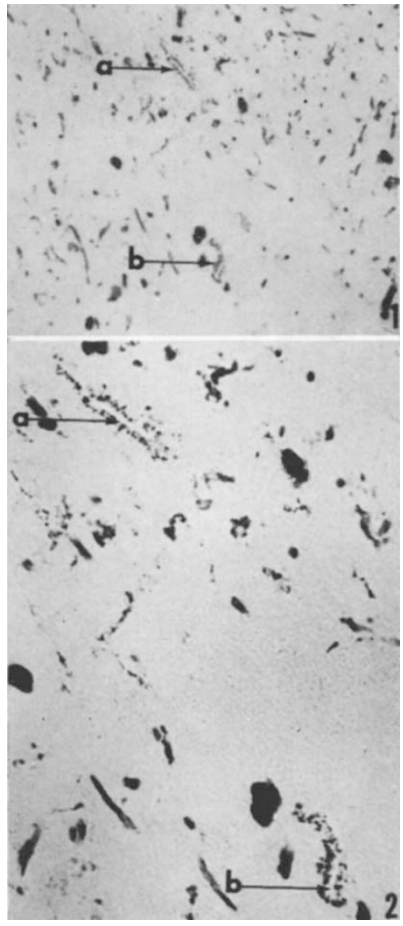

Fig. 1. Low-power photomicrograph of the spinal cord of the rat showing two central canals. One central canal (*a*) is found in the centre of the grey matter as observed in normal spinal cords. The second central canal (*b*) is found in the anterior white commissure. Note that both these canals are placed in the midline. (×*c.* 100)

Fig. 2. Higher magnification of Fig. 1 showing double central canal (*a, b*) more clearly. Both figures are thiamine pyrophosphatase (TPPase) preparations. Note the TPPase-positive Golgi material found at the apical borders of the ependymal cells surrounding the lumen (×*c.* 250)

It is interesting that the ependymal lining of both these central canals were cytologically similar. They had discrete granular, vesicular, and comma-shaped TPPase-positive Golgi complex, supranuclear in position. Further details on the TPPase-positive Golgi complex of the ependymal lining as compared with the choroid plexus and ciliary process will be published elsewhere[2–4].

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