The **ligamentum denticulatum** (*dentate ligament*) (Fig. 767) is a narrow fibrous band situated on either side of the medulla spinalis throughout its entire length, and separating the anterior from the posterior nerve roots. Its medial border is continuous with the pia mater at the side of the medulla spinalis. Its lateral border presents a series of triangular tooth-like processes, the points of which are fixed at intervals to the dura mater. These processes are twenty-one in number, on either side, the first being attached to the dura mater, opposite the margin of the foramen magnum, between the vertebral artery and the hypoglossal nerve; and the last near the lower end of the medulla spinalis.

THE CEREBROSPINAL FLUID.[1]

The cerebrospinal fluid, for the most part elaborated by the choroid plexuses, is poured into the cerebral ventricles which are lined by smooth ependyma. That portion of the fluid formed in the lateral ventricles escapes by the foramen of Monro into the third ventricle and thence by the aqueduct into the fourth ventricle. Likewise an ascending current of fluid apparently occurs in the central canal of the spinal cord; this, representing a possible product of the ependyma, may be added to the intraventricular supply. From the fourth ventricle the fluid is poured into the subarachnoid spaces through the medial foramen of Majendie and the two lateral foramina of Luschka. There is no evidence that functional communications between the cerebral ventricles and the subarachnoid spaces exist in any region except from the fourth ventricle.

In addition to the elaboration of the cerebrospinal fluid by the choroid plexuses, there seems fairly well established a second source of the fluid from the nervous system itself. The bloodvessels that enter and leave the brain are surrounded by perivascular channels. It seems most likely that the outer wall of these channels is lined by a continuation inward of the pial mesothelium while the inner wall is probably derived from the mesothelial covering of the vessels, which are thus protected throughout the subarachnoid spaces. These mesothelial cells continue inward only a short distance, neuroglia cells probably replacing on the outer surface the mesothelial elements. Through these perivascular channels there is probably a small amount of fluid flowing from nerve-cell to subarachnoid space. The chemical differences between the subarachnoid fluid (product of choroid plexuses and perivascular system) and the ventricular fluid (product of choroid plexuses alone) indicate that the products of nerve-metabolism are poured into the subarachnoid space.

The absorption of the cerebrospinal fluid is a dual process, being chiefly a rapid drainage through the arachnoid villi into the great dural sinuses, and, in small part, a slow escape into the true lymphatic vessels, by way of an abundant but indirect perineural course.

In general the arachnoid channels are equipped as fluid retainers with unquestionable powers of diffusion or absorption in regard to certain elements in the normal cerebrospinal fluid, deriving in this way a cellular nutrition.

The subdural space (between arachnoid and dura) is usually considered to be a part of the cerebrospinal channels. It is a very small space, the two limiting surfaces being separated by merely a capillary layer of fluid. Whether this fluid is exactly similar to the cerebrospinal fluid is very difficult to ascertain. Likewise our knowledge of the connections between the subdural and subarachnoid spaces is hardly definite. In some ways the subdural space may be likened to a serous cavity. The inner surface of the dura is covered by flattened polygonal mesothelial cells but the outer surface of the arachnoid is covered by somewhat cuboidal mesothelium. The fluid of the subdural space has probably a local origin from the cells lining it.

[1] Weed, L. H., Anat. Record, 1917, 12.