

THE VAGUS NERVE (N. VAGUS; TENTH NERVE; PNEUMOGASTRIC NERVE) (Figs. 791, 792, 793).

The **vagus nerve** is composed of both motor and sensory fibers, and has a more extensive course and distribution than any of the other cranial nerves, since it passes through the neck and thorax to the abdomen.

The vagus is attached by eight or ten filaments to the medulla oblongata in the groove between the olive and the inferior peduncle, below the glossopharyngeal. The **sensory fibers** arise from the cells of the jugular ganglion and ganglion nodosum of the nerve, and, when traced into the medulla oblongata mostly end by arborizing around the cells of the inferior part of a nucleus which lies beneath the ala cinerea in the lower part of the rhomboid fossa. These are the sympathetic afferent fibers. Some of the sensory fibers of the glossopharyngeal nerve have been seen to end in the upper part of this nucleus. A few of the sensory fibers of the vagus, probably **taste fibers**, descend in the fasciculus solitarius and end around its cells. The **somatic sensory fibers**, few in number, from the posterior part of the external auditory meatus and the back of the ear, probably join the spinal tract of the trigeminal as it descends in the medulla. The **somatic motor fibers** arise from the cells of the nucleus ambiguus, already referred to in connection with the motor root of the glossopharyngeal nerve.

The **sympathetic efferent fibers**, distributed probably as preganglionic fibers to the thoracic and abdominal viscera, *i. e.*, as motor fibers to the bronchial tree, inhibitory fibers to the heart, motor fibers to the esophagus, stomach, small intestine and gall passages, and as secretory fibers to the stomach and pancreas, arise from the dorsal nucleus of the vagus.

The filaments of the nerve unite, and form a flat cord, which passes beneath the flocculus to the jugular foramen, through which it leaves the cranium. In emerging through this opening, the vagus is accompanied by and contained in the same sheath of dura mater with the accessory nerve, a septum separating them from the glossopharyngeal which lies in front (Fig. 792). In this situation the vagus presents a well-marked ganglionic enlargement, which is called the **jugular ganglion** (*ganglion of the root*); to it the accessory nerve is connected by one or two filaments. After its exit from the jugular foramen the vagus is joined by the cranial portion of the accessory nerve, and enlarges into a second gangliform swelling, called the **ganglion nodosum** (*ganglion of the trunk*); through this the fibers of the cranial portion of the accessory pass without interruption, being principally distributed to the pharyngeal and superior laryngeal branches of the vagus, but some of its fibers descend in the trunk of the vagus, to be distributed with the recurrent nerve and probably also with the cardiac nerves.

The vagus nerve passes vertically down the neck within the carotid sheath, lying between the internal jugular vein and internal carotid artery as far as the upper border of the thyroid cartilage, and then between the same vein and the common carotid artery to the root of the neck. The further course of the nerve differs on the two sides of the body.

On the *right side*, the nerve passes across the subclavian artery between it and the right innominate vein, and descends by the side of the trachea to the back of the root of the lung, where it spreads out in the **posterior pulmonary plexus**. From the lower part of this plexus two cords descend on the esophagus, and divide to form, with branches from the opposite nerve, the **esophageal plexus**. Below, these branches are collected into a single cord, which runs along the back of the esophagus enters the abdomen, and is distributed to the postero-inferior surface of the stomach, joining the left side of the celiac plexus, and sending filaments to the lienal plexus.

On the *left side*, the vagus enters the thorax between the left carotid and subclavian arteries, behind the left innominate vein. It crosses the left side of the