

by a fluid continuous with the cerebral ventricles through the foramen of Magendie. A ponderous musculature supports and acts on the spinal column. The extrinsic structures have an abundant vascular supply from vessels within and external to the vertebral hollow.

*Defences of the Spine.*—Although the spine is composed of so many different structures, lying apparently so near the surface, no region of the human body can resist violence with so much impunity; the sudden sinking of the head on the shoulders so safeguards the cervical segment that a serious injury, except by indirect force, is seldom encountered. In the dorsal areas we note the frequent injuries of the shoulders, their appendages and the ribs; or even serious damage to the thoracic contents, but the rachidian structures have escaped.

Nearly every description of abdominal injury have I seen from violent blows and crushes, but never an associate injury of the dorsal or lumbar vertebræ, except in mortal cases. Nothing less than great and direct force can sunder the sacrum or its caudal appendage, the coccyx.

*The Spinal Cord.*—The vertebral hollow contains the greater part of an organ of the very first importance to life, which is not only a conductor of impulses, but also regulates all the processes of nutrition and governs all vital actions, as from ganglia directly connected with it springs nearly the entire nerve supply, general and special. Delicately organized as the cord is, it is endowed with a remarkable tolerance to injury; besides it undoubtedly possesses active regenerative properties. The spinal cord, in the vertebral canal and at the base of the skull, is vastly better protected from violence than the brain proper. The entire cord weighs a little more than two ounces, is pierced by a central canal and is suspended in the subarachnoid fluid, steadied and supported by its roots. Hall has pointed out that all the cranial nerves, except the optic, olfactory and patheticus, have their origin in the bulb; hence, should the brain be removed, even in a warm-blooded animal, life would yet remain, as respiration and the circulation would continue. The cord has a head, a body, limbs, and a tail; all but the first are in the vertebral canal.

*Extrinsic Lesions of the Spine.*—At first thought, it might seem impracticable or inexpedient from an anatomical or physiological standpoint to discuss separately the traumatism of the cord and those of the parts overlying it, the *extrinsic*; but as a matter of fact, while central lesions from traumatism, involving paralysis, are uncommon, those of the external structures are comparatively infrequent. My purpose on this occasion will be to touch very briefly on the extradural lesions, chiefly on those which do not manifest themselves by paralysis. These in their order of frequency are: First, contusions; second, sprain; third, hemorrhage;