

fifth and sixth—in spite of all possible haste and provisions to effect hemostasis, our patient was nearly mortally blanched; and yet, paradoxical as it may seem, in no other organ of importance do we discover so inadequate a vascular supply as in the *medulla-spinalis* itself. In this respect, as in so many others, does this structure differ from the brain, a continuation of which it practically is.

From the foregoing it is, therefore, manifest that in the infliction of great violence to the spinal pyramid, some type of hematorrhachis, rather than hematomyelia, must be, by all odds, the most frequent; or in other words, it is rather extrinsic than intrinsic bleeding. This holds good of the lower lumbar and sacral terminus, peculiarly where the cord has broken into large trunks, and hematorrhachis or hematomeningia only, can occur. In this connection the high vascularity of the coccyx and Luschka's gland is noteworthy. Of hematorrhachis we have three types: First, into the intermuscular planes—extrarachidian; second, into the spinal canal—intrarachidian; third, intra and extrarachidian combined. The first is the most frequent and insignificant in its effect; the second, epidural, when sudden and of large volume, is always a much more serious event; the third is seldom witnessed, except in association with fracture, severe contusion or sprain.

The pathological effects of hemorrhage are, first, the drain on the circulation; second, by acting as a foreign body, inducing pressure, thereby inhibiting function, or by its presence provoking inflammatory or degenerative changes; the latter effects only are in operation after extrinsic, spinal traumatism. The composition and functions of the spinal hollow are not such as to favor large hemorrhage. This is a hermetically sealed passage, containing a fixed motionless organ. Hemorrhage into this tube is usually venous, and hence passive. There is no torrent. The blood coagulates slowly here, and often imperfectly, being of a tarry consistence, rather a firm clot. Bichat estimated the capacity of this canal, with the cord *in situ*, at a hundred and seventy cubic centimeters.

What part sanguineous pressure exercises here, *per se*, as a compression agent in impeding nerve conduction, is not definitely determined, because in many instances there have been other associate etiological factors in operation, of which the blood-leak is in a large measure but a consequence. There is but a very little analogy between this type of hemorrhage and intracranial, because of the wide contrast in the anatomical arrangement and structure of the vessels.

The most usual site of severe traumatic hemorrhage is extradural. In fractures of the spine and other forcibly induced injuries of the rachidian structures, on anesthetized animals—dogs