neurologic assessment and diagnostic tests.

Increased Intracranial Pressure

The brain, tightly enclosed in the solid bony cranium, is well protected but highly vulnerable to pressure that may accumulate within the enclosure (Fig. 27-1). Its total volume—brain (80%), cerebrospinal fluid (CSF) (10%), and blood (10%)—must remain approximately the same at all times. A change in the proportional volume of one of these components (e.g., increase or decrease in intracranial blood) must be accompanied by a compensatory change in another. In this way, the volume and pressure normally remain constant. Examples of compensatory changes are reduction in blood volume, decrease in CSF production, increase in CSF absorption, or shrinkage of brain mass by displacement of intracellular and extracellular fluid.

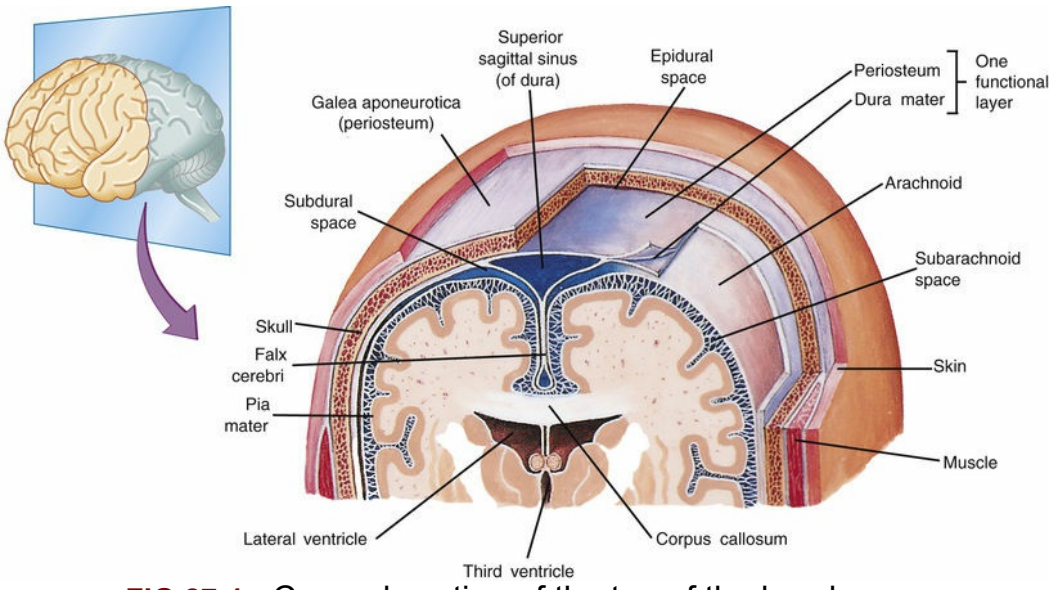

FIG 27-1 Coronal section of the top of the head showing meningeal layers. (From Patton KT, Thibodeau GA: *Anatomy and physiology*, ed 8, St. Louis, 2013, Mosby.)

Children with open fontanels compensate for increased volume by skull expansion and widened sutures. However, at any age, the capacity for spatial compensation is limited. An increase in ICP may be caused by tumors or other space-occupying lesions, accumulation of fluid within the ventricular system, bleeding, or