	from reflecting surfaces are recorded graphically.	positions as a result of intracranial lesions May show ventricular dilation	
Real-time ultrasonography (RTUS)	Similar to CT but uses ultrasound instead of ionizing radiation.	Allows high-resolution anatomic visualization in variety of imaging planes	Produces images similar to CT scan. Especially useful in neonatal CNS problems.
Radiography	Skull films are taken from different views—lateral, posterolateral, axial (submento-vertical), half-axial.	Shows fractures, dislocations, spreading suture lines, craniosynostosis Shows degenerative changes, bone erosion, calcifications	Simple, noninvasive procedure.
Computed tomography (CT) scan	Pinpoint x-ray beam is directed on horizontal or vertical plane to provide series of images that are fed into computer and assembled in image displayed on video screen. CT uses ionizing radiation.	Visualizes horizontal and vertical cross section of brain in three planes (axial, coronal, sagittal) Distinguishes density of various intracranial tissues and structures—congenital abnormalities, hemorrhage, tumors, demyelinating and inflammatory processes, calcification	Requires IV access if contrast agent is used. Patient may require sedation.
Magnetic resonance imaging (MRI)	MRI produces radiofrequency emissions from elements (e.g., hydrogen, phosphorus), which are converted to visual images by computer.	Permits visualization of morphologic feature of target structures Permits tissue discrimination unavailable with many techniques	MRI is noninvasive procedure except when IV contrast agent is used. No exposure to radiation occurs. Patient may require sedation. Parent or attendant can remain in room with child. MRI does not visualize bone detail or calcifications. No metal can be present in scanner.
Positron emission tomography (PET)	PET involves IV injection of positron-emitting radionucleotide; local concentrations are detected and	Detects and measures blood volume and flow in brain, metabolic activity, and biochemical	Requires lengthy period of immobility. Minimum exposure to radiation occurs.