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# Magnetic resonance imaging of the brainstem in children, part 1: imaging techniques, embryology, anatomy and review of congenital conditions

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## Abstract

Part 1 of this series of two articles describes conventional and advanced MRI techniques that are useful for evaluating brainstem pathologies. In addition, it provides a review of the embryology, normal progression of myelination, and clinically and radiologically salient imaging anatomy of the normal brainstem. Finally, it discusses congenital diseases of the brainstem with a focus on distinctive imaging features that allow for differentiating pathologies. Part 2 of this series of two articles includes discussion of neoplasms; infections; and vascular, demyelinating, toxic and metabolic, and miscellaneous disease processes affecting the brainstem. The ultimate goal of this pair of articles is to empower the radiologist to add clinical value in the care of pediatric patients with brainstem pathologies.

**Keywords:** Brain; Brainstem; Children; Congenital; Hindbrain; Magnetic resonance imaging; Malformation; Midbrain; Posterior fossa.