Hindbrain Herniation: A Review of Embryological Theories

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INTRODUCTION

In the early 1890’s, Dr. Hans Chiari, professor of pathological anatomy at the German University in Prague, used autopsy specimens to describe congenital anomalies of the hindbrain later termed the Chiari malformations (Oakes and Tubbs, 2004). The Chiari malformations appeared to be separate anatomical entities, all of which involved the hindbrain; three of the four major classes consist of a type of hindbrain herniation, while the fourth (type IV) consists of cerebellar hypoplasy with no hindbrain herniation (Oakes and Tubbs, 2004; Tubbs and Oakes, 2004; Tubbs et al., 2003a). Type I Chiari malformation is specifically defined as greater than 5 mm of herniation of the cerebellar tonsils through the foramen magnum,