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MR Imaging and the Chiari II Malformation

To The Editor: In Letters to the Editor, both Dr.
Charney and Dr. Faria speculated that the poor prog-
nosis in some patients with the Chiari II malformation
is due to intrinsic brain-stem anomalies such as agenesis
or dysgenesis of the cranial nerve nuclei and the brain-
stem pathways (Charney EB: Symptomatic Arnold-
Chiari malformations. Letter; Faria MA: Response. J
Neurosurg 68:316–317, February, 1988). The authors
also commented about the potential use of magnetic
resonance (MR) imaging for predicting whether brain-
stem compression is present in children with the mal-
formation. Dr. Faria further suggested that if brain-
stem compression is demonstrated by metrizamide cis-
ternography or MR imaging, surgical intervention may
be of benefit.

We have explored the value of high-detail MR im-
aging in 24 patients with the Chiari II malformation.
Three patients had an obliterated subarachnoid space
at the foramen magnum, but in none were cranial nerve
abnormalities present.2 In a more recent imaging analy-
sis of a total of 38 patients with the malformation, we
correlated the amount and type of hindbrain herniation
with the clinical status of these patients.* We found no
relationship between the degree of herniation and the
presence of laryngeal stridor, swallowing difficulties, or
apnea. Furthermore, in none of the 38 patients did we
find evidence of brain-stem hemorrhage or infarction.
We have therefore reluctantly concluded that, while
MR imaging is extremely useful in the diagnosis of
Chiari II malformation, it cannot select that cohort of
patients who may benefit from brain-stem decompress-
on.

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