



## Correspondence

## Risk Factors for Pathologic Macrocephaly in Children



We read the recently published article by Sampson and colleagues<sup>1</sup> with great interest. The authors retrospectively studied the various risk factors for pathologic large head and concluded that developmental delay and abnormal neurological examination were the risk factors that support abnormal neuroimaging. However, we want to add a few points.

The primary objective of the study was to identify various risk factors for pathologic macrocephaly, and the authors identified 267 children with macrocephaly. However, they excluded 98 patients because the primary indication of neuroimaging in these children was seizures, genetic conditions, or trauma. Inclusion of this group of patients in the study would have helped in identifying the underlying causes of abnormal neuroimaging and improve the clinical yield. Numerous disorders have been associated with macrocephaly in children, including hydrocephalus, metabolic and anatomic megalencephaly, subdural fluid collection, autistic disorders, genetic and neurocutaneous syndromes, and familial macrocephaly. These excluded individuals probably had a greater likelihood of imaging abnormalities.

Thirty eight children had a family history of macrocephaly, and none of them had abnormal imaging. The authors concluded that cranial imaging is unnecessary in the children with a positive family history. However, there are certain disorders like mucopolysaccharidosis, mucopolidosis, glutaric aciduria type 1, GM2 gangliosidosis, Alexander disease, Canavan disease, and megalencephalic leukoencephalopathy with subcortical cysts that are important causes of macrocephaly in children,<sup>2,3</sup> and these disorders are transmitted by an autosomal dominant or recessive pattern. Neuroimaging in these children is usually abnormal, and many of them have a positive family history.

The prevalence of vitamin D deficiency is very high<sup>4</sup> all over the world, and it is an important cause of large head. Macrocephaly in rickets is usually due to parietal and frontal bossing, and neuroimaging classically shows benign enlargement of subarachnoid space. Large head in the presence of vitamin D deficiency is also a predictor of normal cranial imaging, and estimation of vitamin D levels should be done in children with benign macrocephaly.

## References

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