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Case Report

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ENLARGED PARIETAL FORAMINA: A REPORT OF TWO CASES AND REVIEW OF LITERATURE.

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ABSTRACT

The parietal foramina are paired foramina located in the high parietal bone and transmit the parietal emissary veins. Enlarged parietal foramina are a rare congenital skull defect which may be detected clinically or incidentally during radiological investigations and sometimes found in association with other anomalies. In this report we describe two patients; a mother and her son, who were found to have enlarged parietal foramina that were asymptomatic and unrelated to the present clinical status; thus establishing the relative benignity as well as the genetic predisposition of the condition.

KEYWORDS: Parietal foramen; Calvarial defect; Autosomal dominant; Computed Tomography.

THE CASE REPORT

A 35 year old lady and her 17 year old son were involved in a road traffic accident and were subjected to plain CT evaluation of head to exclude head injury. The CT images were negative with regard to any trauma related pathology in either case but an interesting incidental finding was detected.

Curiously the nature of the abnormality that was noted in the CT images of the lady were identical to those present in that of the son.

The CT images of the lady (Figures 1 and 2) showed paired paramedian defects in the parietal bone. The underlying brain parenchyma was unremarkable.

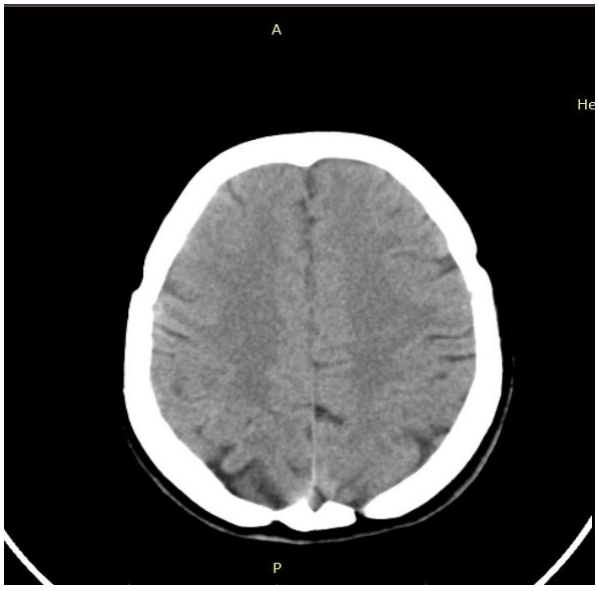

Figure 1: Axial CT image of head (Brain window settings) showing bilateral parietal bone defects. Underlying brain appears normal.

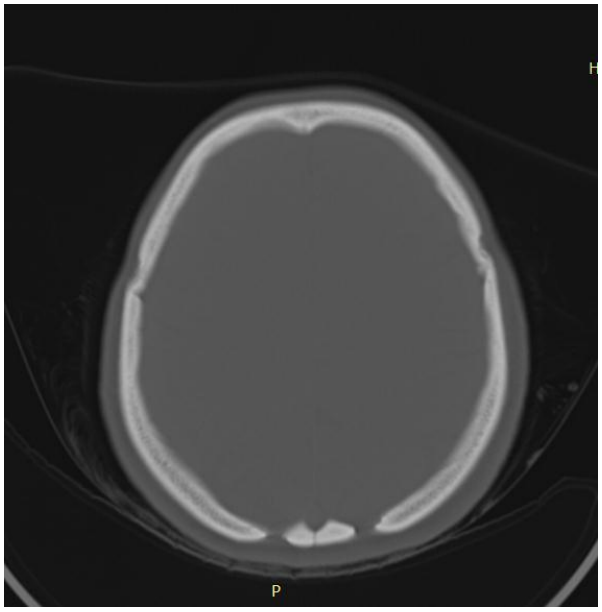

Figure 2: Axial CT image of head (Bone window settings) showing bilateral symmetric rounded parietal bone defects involving both the inner and outer tables with sclerotic margins measuring approximately 6mm in diameter.

The CT images of the son (Figures 3, 4 and 5) also showed similar but larger paired paramedian defects in the parietal bone. The underlying brain parenchyma as in the case of the mother was unremarkable.

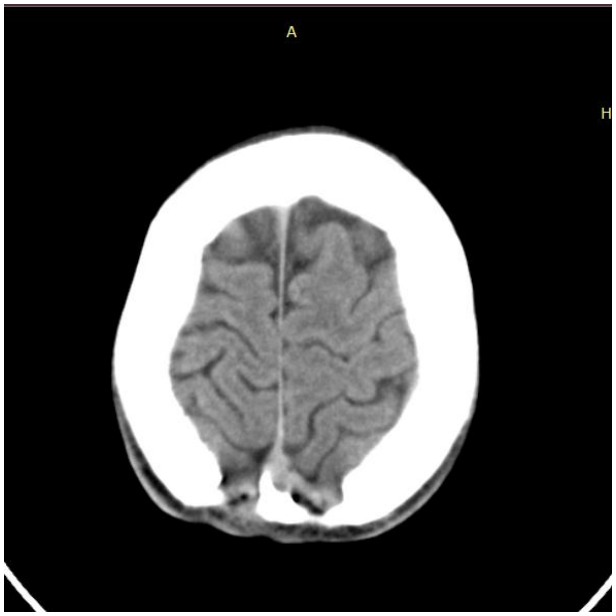

Figure 3: Axial CT image of head (Brain window settings) showing bilateral parietal bone defects. Underlying brain appears normal.

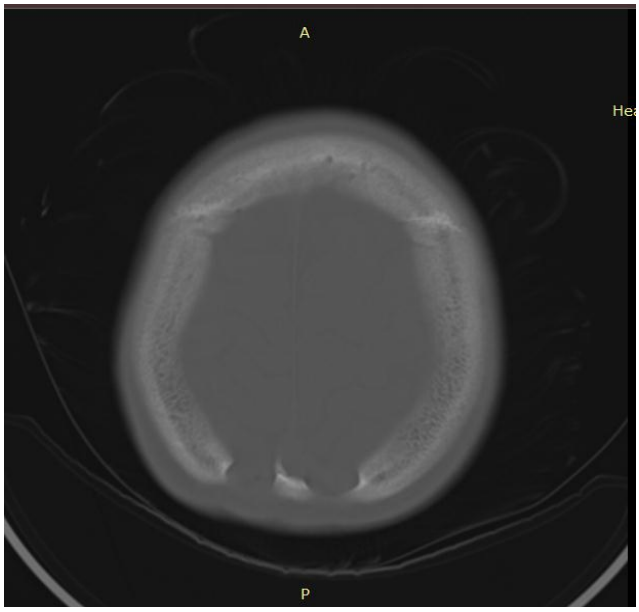

Figure 4: Axial CT image of head (Bone window settings) showing bilateral symmetric round to oval parietal bone defects involving both the inner and outer tables with scalloped sclerotic margins measuring approximately 11mm in diameter.

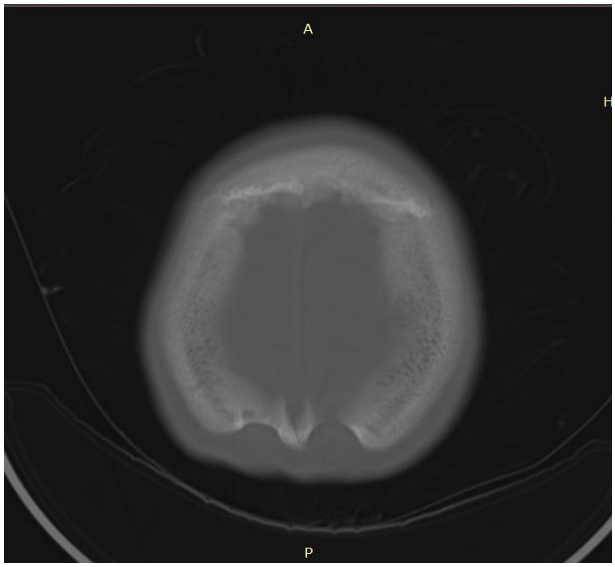

Figure 5: Axial CT image of head (Bone window settings) showing bilateral symmetric round to oval parietal bone defects involving both the inner and outer tables with scalloped sclerotic margins measuring approximately 11mm in diameter.

Based on the CT findings a diagnosis of enlarged parietal foramina was made.

DISCUSSION

The parietal foramina are small foramina located on each parietal eminence and serve as a passage for emissary veins.[1] Small parietal foramina measuring 1 to 2mm in diameter are commonly found in up to 60 to 70% of normal individual.[1] Those foramina that are 5mm or larger are termed enlarged parietal foramina or giant

parietal foramina; and are a very rare congenital abnormality with the reported prevalence between 1:15,000 and 1:50,000.

Bilateral enlarged parietal foramina is an autosomal dominant condition and mutations in the genes ALX4 and MSX2 have been identified to be associated with.[3, 4, 5]

Enlarged parietal foramina are usually asymptomatic and are sometimes detected incidentally during clinical examination by palpating the calvarial defect or during radiological evaluation of some unrelated clinical situation as was in our case. Some patients though, do present with headache and seizures; and associated abnormalities involving the meninges, the cerebral venous drainage and the brain parenchyma are found in a minority.[5,6] The abnormalities reported include meningocele, atretic cephalocele, encephalomalacia, occipital polymicrogyria, Duanes syndrome, cortical venous anomalies like persistent falcine sinus and malformations of straight sinus.[7, 8]

On CT images the enlarged parietal foramen are seen as well-defined round to oval paired defects in the paramedian high parietal bone.

MRI is advocated to detect the associated anomalies if there are clinical indications or when enlarged parietal foramina are detected in a child.[8]

CONCLUSION

Symmetric benign appearing calvarial defects involving bilateral high parietal bones suggest the diagnosis of enlarged parietal foramina. The causes of calvarial defects are many and varied; and the awareness of this rare anomaly with a genetic predisposition, which may be confirmed with clinical examination allows the diagnosis of enlarged parietal foramina be made with a good degree of confidence.

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