

## Hydrocephalus secondary to diverticulum in the quadrigeminal lamina, a case report



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### ABSTRACT

Diverticula of the ventricular system are a difficult and rare pathology, but their proper identification provides a better therapeutic plan and effective resolution. Easily mistaken for cysts, and most located in the ventricular atrium. Diverticula respond well to treatment with ventriculoperitoneal shunts (PVD) and endoscopic terceivoventriculostomy (ETT).

**Keywords:** Quadrigeminal diverticulum, Hydrocephalus.

## 1 INTRODUCTION

Diverticula of the ventricular system are a difficult and rare pathology, but their proper identification provides a better therapeutic plan and effective resolution. Easily mistaken for cysts, and most commonly located in the ventricular atrium. Diverticula respond well to treatment with ventriculoperitoneal shunts (PVD) and endoscopic terceivoventriculostomy (ETT).

## 2 OBJECTIVE

To report a case of diverticulum in the quadrigeminal lamina.



### 3 METHODOLOGY

Case report of HSVP-Jundiaí –SP. The following descriptors were searched: diverticulum; hydrocephalus; quadrigeminal and cyst in the pubmed databases.

### 4 CASE REPORT

T.D.S.M, 20 years old, diagnosed with Kartagener syndrome in follow-up with APAE (Associations of Parents and Friends of the Exceptional), due to delay in NPMD (neuropsychomotor development). The patient started vomiting and bilateral papilledema, and cranial resonance imaging (see Fig. 1, 2, 3) was requested, with and without contrast, showing obstructive hydrocephalus secondary to cyst in the quadrigeminal cistern and aqueductal stenosis, in addition to agenesis of the cerebellar vermis and corpus callosum.

As previously mentioned, despite the cognitive delay, she did not present any other alteration on neurological physical examination.

It was decided to perform an endoscopic third ventriculostomy with aqueductoplasty, showing during the procedure that it was a diverticulum and not a cyst as previously suspected.

The patient progressed with improvement in the clinical picture and in the control on non-contrast-enhanced cranial tomography (see Fig. 4). Currently, the patient is under outpatient follow-up with no new changes.

Figure 1 - Non-contrast T1-weighted MRI. Showing dilatation of the supratentorial ventricles and the diverticulum (arrow).





Figure 2- Sagittal T2-weighted MRI - Diverticulum (arrow) can be visualized



Figure 3 - T2-weighted MRI - Coronal Cut - Diverticulum (arrow) may be evidenced



Figure 4 - Postoperative CT scan showing reduction of the diverticulum and presence of grooves in the convexity.



## 5 DISCUSSION

Ventricular diverticula are a subpial collection of cerebrospinal fluid resulting from rupture of the ependymal surface in the ventricular system.

They arise as a result of severe and chronic obstructive hydrocephalus<sup>1</sup>. It is believed that it may occur in about 25% of patients with severe long-term hydrocephalus<sup>1</sup>.



Due to their rarity, these diverticula can often be confused with arachnoid cysts, as described in the literature<sup>2,3</sup>.

The ventricular atrium would be the most common site of diverticula, which is justified by the fragility of its wall in this region, which is more influenced by the chronic increase in intracranial pressure<sup>4</sup>

The main symptoms are those related to chronic hydrocephalus, such as headache and delay in neuropsychomotor development and even field deficit and visual acuity related to the anterior visual system as described by Kapila, A, et al.<sup>5</sup>.

Among the treatments found in the literature for this disease, PVD, endoscopic fenestration of the diverticulum, and more recently TVE are suggested as the only and resolute treatment, being considered as the gold standard for the treatment of obstructive hydrocephalus, reducing intraventricular pressure and reversing the pathophysiology of diverticulum formation.

In this case, after the performance of TVE, the patient progressed with significant improvement, with no new complaints to date and maintaining outpatient follow-up.

## 6 CONCLUSION

In the presence of a lesion with intraventricular cystic characteristics, especially in the ventricular atrium, and consequent obstructive hydrocephalus, the possibility of a diverticulum should be considered, with SVT being a good diagnostic and therapeutic option, with low surgical morbidity



## REFERENCES

Pathogenesis and diagnostic pitfalls of ventricular diverticula: case report and review of the literature.

Suprapineal ventricular diverticula secondary to hydrocephalus shunt malfunction

Abe M, Uchino A, Tsuji T, Tabuchi K (2003) Ventricular diverticula in obstructive hydrocephalus secondary to tumor growth. *Neurosurgery* 52:65–70

Ventricular diverticulum, *Journal of Neurology, neurosurgery, and Psychiatry* 1984;47;514-517.

*J. Clin. Neuro-Ophthalmol.* 1: 135-140, 1981. Quadrigeminal plate compression by a pulsion diverticulum.