СЛУЧАЙ ИЗ ПРАКТИКИ

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SINUS PERICRANII. RARE CASE REPORT

Sinus pericranii is a rare lesion found most commonly in a pediatric population but can be presented at any age. There are many theories explaining pathomorpogenesis, but any of them are proven correct. There are some distinguishing features of this rare pathology. This case report describes them and also describes the treatment course of the patient.

Keywords: *sinus pericranii, surgical removal, rare pathology.*

Introduction

Sinus pericranii (SP) is a rare anomaly, characterized by a blood-filled nodule of the scalp that is in communication with an intracranial dural sinus (usually through the superior sagittal sinus) [1]. Up to 1994, approximately 100 cases had been reported in the medical literature [2] and up to 2014, there were 170 cases [3]. Because of its rarity, it is difficult to establish correct pathomorpogenesis.

Case Presentation

In this case report, we would like to present a rare case report of sinus pericranii. 10-year-old boy, with the main complaint of bulging mass on top of the head, only when supine. Symptoms were from birth, increased in size, and became irritating patients. According to medical records, the lesion enlarges during crying, the Valsalva maneuver, and when the individual is supine. The lesion was punctured 2 months ago and 30 ml of blood was revealed. Additionally, there was a volume increase after manual jugular vein compression. He was gone through magnetic resonance imaging (Fig. 1) where the mass was presented on the top of the head.

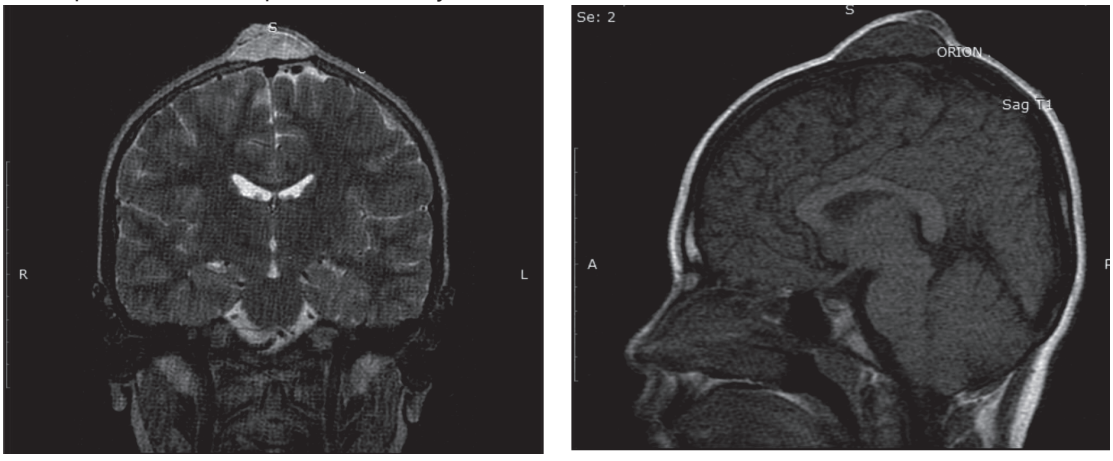

Figure 1 – Sagittal T1WI demonstrates isointense bulging lesion over top of the head and coronal T2WI view demonstrates close proximity to superior sagittal sinus

Additionally, he was gone through a computer tomogram of the head, where 3D reconstructions (Fig. 2) showed that mass is not calcified, and also there were distinguishing features- little holes for communication between the intracranial venous system and non-muscular venous blood vessels of periosteum via diploid veins.

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Figure 2 – 3D reconstruction, top view demonstrating bulging mass and several bone defects

The patient was hospitalized at National Center for Neurosurgery where the decision was made to perform cerebral angiography (Fig. 3) to see if there is any abnormal venous communication and to exclude other possible diagnoses. Also during selective cerebral angiography, it is possible to embolize any feeding vessels.

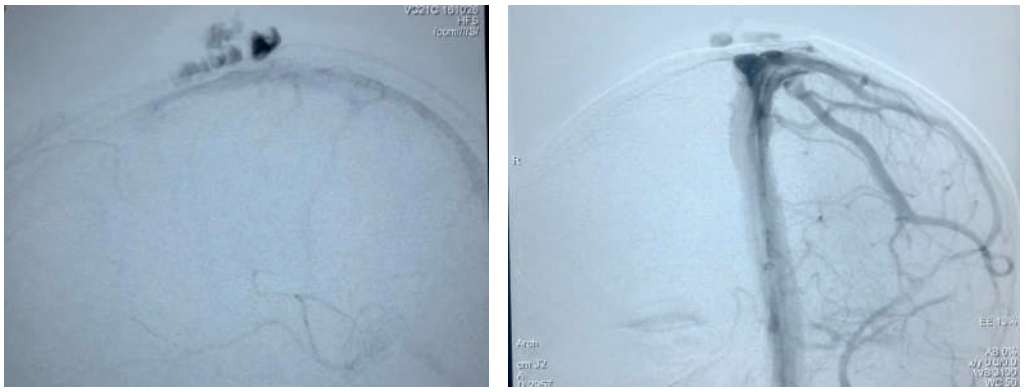

Figure 3 – Selective cerebral angiogram sagittal and coronal views demonstrate the presence of enlarged diploe veins and communication with the superior sagittal sinus

The decision was made to operate under general anesthesia. The patient's position was supine, the incision was planned in an interhemispheric fashion (Fig. 4), and the periosteum of the calvaria was removed. The underlying bone with holes where waxed totally.

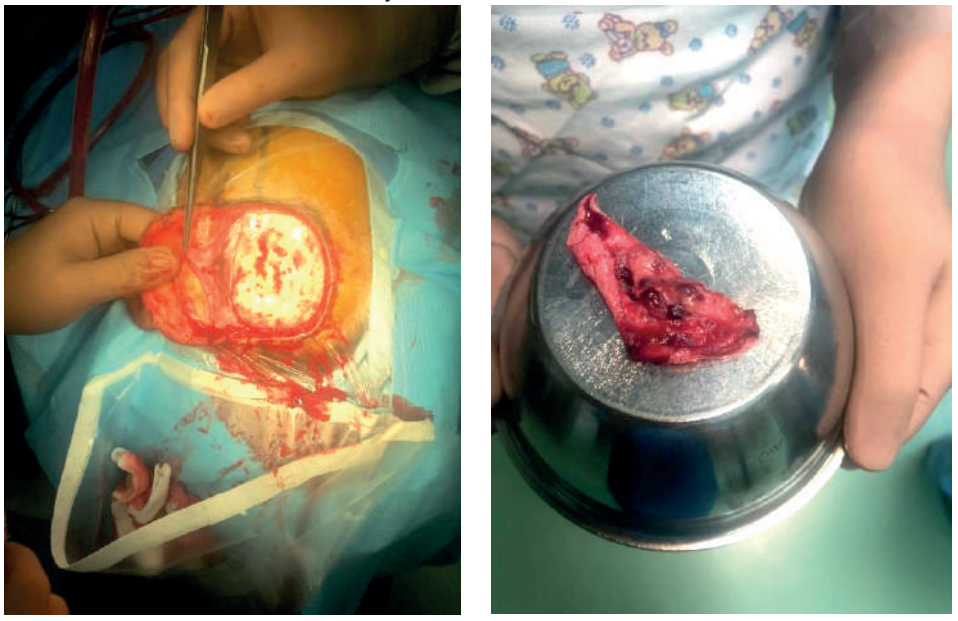

Figure 4 – An incision above the lesion was made. The removed tissue was sent for histopathological examination

The histopathological examination showed vascular cavities lined with endothelium are visible in the fibrous tissue (Fig. 5).

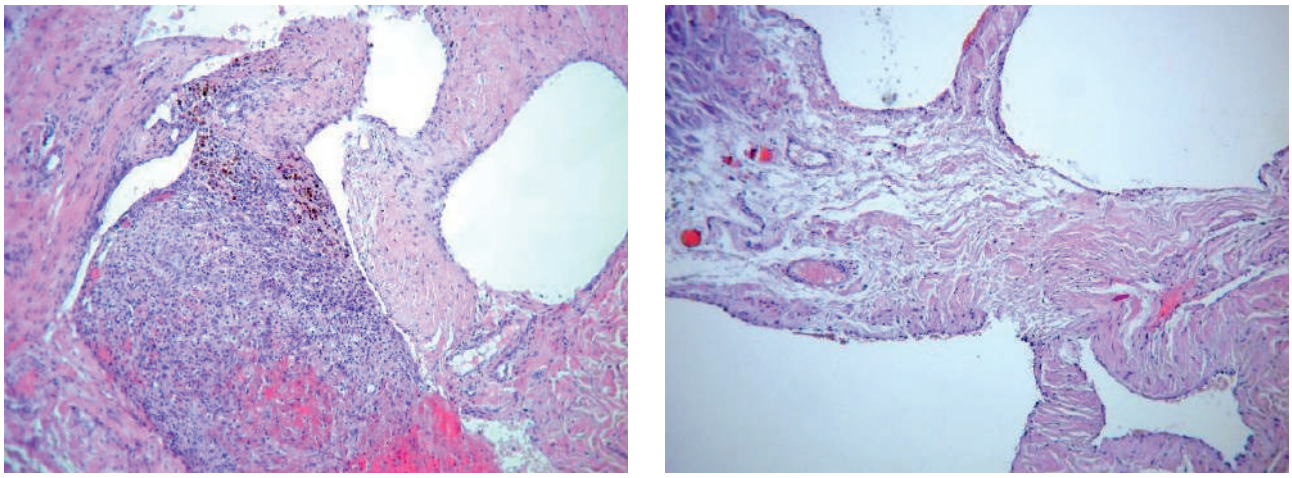

Figure 5 – H&E examination shows another distinguishing feature of sinus pericranii

The patient was discharged home on a postoperative day 6 without any complications.

After the discharge, patient was observed for one year and had no complains.

He had gone through computer tomography of the brain (Fig. 6) to control an outcome. Because the child has no complaints, selective cerebral angiography was not done yet.

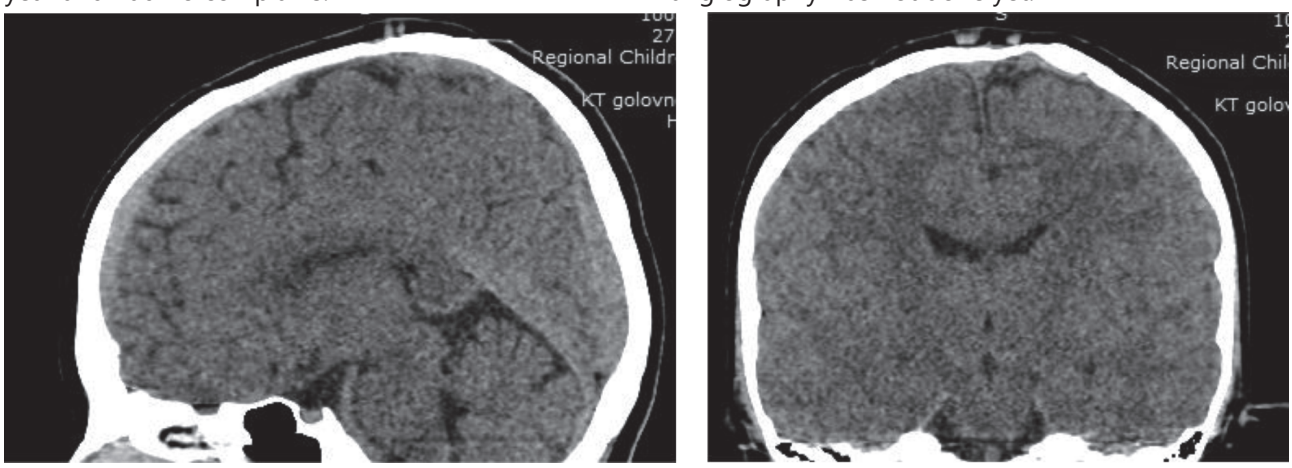

Figure 6 – 1 year post-op control. Computer tomography of the brain with no signs of complications

Discussion

SP was first described by Hecker in 1845 and its name was coined by Stromeyer in 1850 [4]. Sinus pericranii (SP) is a rare vascular malformation characterized by abnormal communication between the extracranial and intracranial venous systems, usually involving the superior sagittal sinus (SSS) through diploic veins [5]. SP presents as a round, soft, tumor-like lesion that is fluctuant, non-pulsatile, easily compressible, and collapsible and is located in the midline along the SSS, mainly in the frontal region. The soft, fluctuant mass disappears if the patient sits up. Compressing the jugular veins bilaterally and/or performing the Valsalva maneuver cause the lesion to reappear. The lesion is readily apparent when the patient is lying down [6]. Pathological examinations must reveal the presence of vascular endothelium to verify spontaneous SP [7].

There is not much available evidence regarding relevant guidelines and suggestions for managing this illness. According to a recent retrospective study by Pavanello et al., which examined the diagnosis and treatment of 21 pediatric patients, only accessory SP is treatable, whereas dominant sinus pericranii must be preserved because of its potential for life-threatening complications like hemorrhage and venous congestion [8].

In accessory SP cases, the endovascular therapy approach has been shown to be both secure and efficient. The assessment of cerebral venous dynamics and their link to the SP, as well as the exclusion of further vascular abnormalities, have both been demonstrated to be useful outcomes of

digital subtraction angiography [9]. Endovascular embolization appears to have good results when patients are recognized for potential problems, despite the fact that this has only seldom been reported in the literature currently available [10]. Although less intrusive than surgery, this approach to controlling SP still has the danger of leading to skin necrosis and embolic events [11]. Sclerotherapy with bleomycin via a butterfly needle after ultrasonography-guided needling as a successful treatment method was also described by some authors, but there were only two patients [12]. In cases of combination of SP with craniosynostosis, management should be selected in each case individually [3]. In terms of follow-up, conservative management has rarely been discussed in the literature. It is necessary to provide additional studies regarding the safety of follow-up in cases of SP [13].

Conclusion

Sinus pericranium is a rare lesion. There are several distinguishing features such as enlargement during crying, the Valsalva maneuver, and when the individual is supine. Evaluation of volume changes after manual jugular vein compression is a useful confirmatory test. It is necessary to perform selective cerebral angiography before surgical removal.

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ПЕРИКРАНИАЛЬДЫ СИНУС: ТӘЖІРИБЕДЕН АЛЫНҒАН ЖАҒДАЙ

Перикраниальды синус – сирек кездесетін ақау, көбінесе педиатриялық популяцияда кездеседі, бірақ кез-келген жаста пайда болуы мүмкін. Патоморфогенезді түсіндіретін көптеген теориялар бар, бірақ олардың ешқайсысы өзінің дұрыстығын дәлелдеген жоқ. Бұл сирек кездесетін патологияның кейбір ерекшеліктері бар. Бұл клиникалық жағдай оларды сипаттайды, сонымен қатар науқасты емдеу курсын сипаттайды.

Негізгі сөздер: перикраниальды синус, хирургиялық алып тастау, сирек патология.

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ПЕРИКРАНИАЛЬНЫЙ СИНУС: РЕДКИЙ СЛУЧАЙ ИЗ ПРАКТИКИ

Перикраниальный синус – редкое поражение, чаще всего встречающееся в педиатрической популяции, но может проявляться в любом возрасте. Существует множество теорий, объясняющих патоморфогенез, но ни одна из них не доказала свою правильность. Есть некоторые отличительные особенности этой редкой патологии. Этот клинический случай описывает их, а также описывает курс лечения пациента.

Ключевые слова: перикраниальный синус, хирургическое удаление, редкая патология.