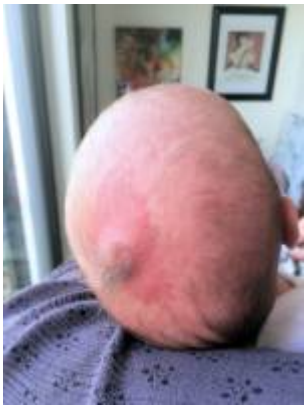
Sinus pericranii



Stromeyer coined the term sinus pericranii in 1850 [1].

Sinus pericranii is a venous anomaly where a communication between the intracranial dural sinuses and dilated epicranial venous structures exists. That venous anomaly is a collection of nonmuscular venous blood vessels adhering tightly to the outer surface of the skull and directly communicating with intracranial venous sinuses through diploic veins. The venous collections receive blood from and drain into the intracranial venous sinuses. The varicosities are intimately associated with the periostium, are distensible, and vary in size when changes in intracranial pressure occur.

It is considered a type of low flow vascular malformation. It occurs in close communication with the cranial vault and most frequently involves the superior sagittal sinus.

Epidemiology

Most SP are asymptomatic and are found in the pediatric age group

SP is very rare and unfamiliar to clinicians, thus, it can be easily misdiagnosed.

Classification

Using the venous drainage pattern, SP can be classified into a dominant type or an accessory type [2]. The dominant type of SP is defined when a majority of the venous outflow occurs through the SP. Meanwhile, when only a small portion of the venous drainage flows through the SP, it is called as the accessory type.

Most of SP is a congenital type, which formed at late embryogenesis. After birth, the lesion which has been for several years can have a typical feature of pathologic findings. The existence of thick accumulated stroma suggested a possibility of congenital type SP. On the other hand, acquired type SP usually depicts fibrous microstructure encapsulating the blood. This is because trauma disrupts emissary veins and calvarium, making a fibrous lining or capsule around the extravasated blood.

Etiology

The nature of this malformation remains unclear.

Congenital, spontaneous, and acquired origins are accepted.

The hypothesis of a spontaneous origin is supported by no evidence of associated anomalies, such as cerebral aneurysmal venous malformations, systemic angiomas, venous angioma dural malformation, internal cerebral vein aneurysm, and cavernous hemangiomas.

Clinical features

Most SP are asymptomatic and are found in the pediatric age group

When suspected on radiological basis, a simple clinical test can be performed. Unless thrombosed, the sinus pericranii will appear more prominent on supine position than when sitting, because of variable venous pressure with gravity. The lesions are not classically associated with discoloration of the overlying skin.

Pulsating lid: a rare presentation of sinus pericranii [3].

Diagnosis

Sinus pericranii diagnosis.

Differential diagnosis

Consider:

Cranial meningocele

Cystic hygroma

Treatment

Sinus pericranii treatment.

Case series

Sinus pericranii case series.

Case reports

Sinus pericranii case reports.

Unclassified

Sinus pericranii unclassified

1)
Mitsukawa N, Satoh K, Hayashi T, Furukawa Y, Suse T, Uemura T, Hosaka Y. Sinus pericranii associated with craniosynostosis. J Craniofac Surg. 2007 Jan;18(1):78-84. PubMed PMID: 17251841.
2)
Gandolfo C, Krings T, Alvarez H, Ozanne A, Schaaf M, Baccin CE, Zhao WY, Lasjaunias P. Sinus pericranii: diagnostic and therapeutic considerations in 15 patients. Neuroradiology. 2007 Jun;49(6):505-14. Epub 2007 Feb 7. PubMed PMID: 17285338.
3)
Kang S, Hamed-Azzam S, Robertson F, Davagnanam I, Verity DH. Pulsating lid: a rare presentation of sinus pericranii. Can J Ophthalmol. 2019 Dec 31. pii: S0008-4182(19)30504-6. doi: 10.1016/j.jcjo.2019.09.007. [Epub ahead of print] PubMed PMID: 31901308.