

# Open Excision of a Mid Forehead Sinus Pericranii In a Pediatric Patient

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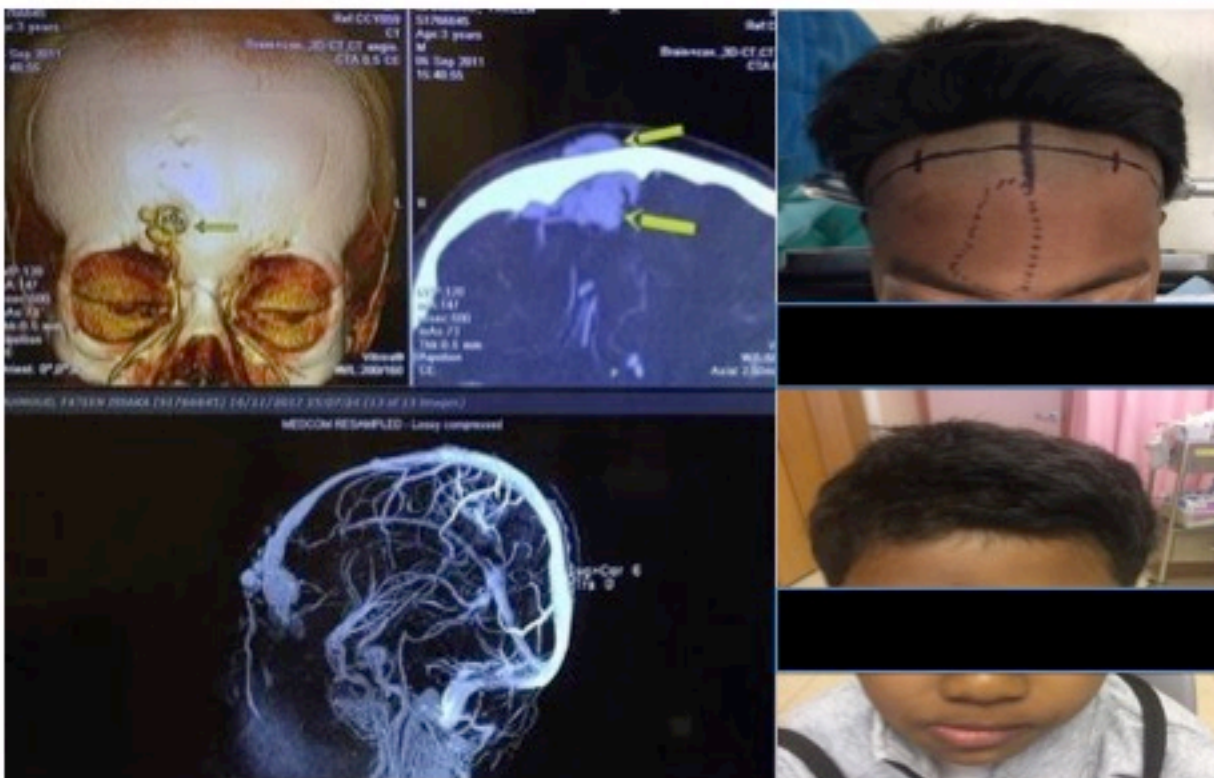
## Introduction:

Sinus Pericranii (SP) is an exceedingly rare venous anomaly abnormally connecting the intracranial dural sinuses with the epicranial veins. The largest case series in literature only had 21 patients. Due to its rarity, much of its natural course and treatment options remain ill-defined. Through this case review, we hope to further elucidate this clinicoradiological entity, define the pivotal role of angiography in its preoperative assessment, and propose a diagnostic-therapeutic flow chart for management purposes.

## Method:

Our patient presented incidentally following minor head injury. Physical examination showed a soft extracranial frontal mass at mid forehead. Upon regular surveillance, the mass did not regress. Moreover, he started to experience tensing discomfort over the mass, worsening intermittent headache and also had psychosocial concerns. Thus, we decided to go ahead with surgical correction at 10 years of age. Preoperative workup for him included: CT angiogram, MRI brain with venogram and Digital Subtraction Angiography (DSA).

## Radiological Findings:



- A dumb-bell shaped enhancing extra-axial lesion is seen in the right frontal region, just lateral to the superior sagittal sinus, comprising intracranial and extracranial components.
- Communication of the 2 components through transcranial vessels over a small defect at the right frontal bone.
- Features correlate with accessory type of SP
- Post operatively – resolution of frontal mass

## Operative Findings & Outcome:

Bifrontal excision was used, with circumferential dissection of the venous varix near the right paramedian region and above the supraorbital bar. Multiple tiny bony channels connecting to the varix were coagulated and cut. Total excision of the extracranial mass was achieved. Post operative course was smooth. Upon follow up, he reported total resolution of neurological symptoms. Moreover, he was able to fully participate in school activities such as sports activities which he was previously advised not to. We opted for open surgical ligation over endovascular approach due to the following reasons: small caliber of vessels, contrast load and sclerosing effect of contrast agent on the skin.

## Discussion & Conclusion:

A soft mass that enlarges during crying with reddish or bluish skin discoloration



Radiological Workup: SP characterized



Dominant SP  
- Not amenable to surgical treatment

Accessory SP

Open surgical ligation

Endovascular Approach

- Accessory SPs require treatment if they are symptomatic (common symptoms: tensing discomfort, headache & dizziness); if they enlarge or do not regress upon “watching and waiting” and if they cause psychosocial concerns.
- DSA is the gold standard in diagnosing SPs. Not only does it differentiate dominant and accessory SPs; it also detects the location, size, flow dynamics and course of SPs.
- Open surgical ligation is proven to be a safe treatment option associated with favorable outcomes.
- Current research shows that endovascular treatment is safe, similarly effective and associated with shorter hospital stay for children.
- DSA can be both diagnostic and therapeutic, hence reducing anesthetic risks and contrast exposure for affected children, highlighting its pivotal role.