

## **External Endoscopic multiportal frontal sinus obliteration for laterally pneumatized frontal sinus: A Feasibility study.**

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### **Abstract:**

Osteoplastic flap is standard method used for frontal sinus obliteration. Endoscopic external frontal sinus obliteration is a minimally invasive new technique confined to small and medium sized pneumatized frontal sinuses. Objective: The aim of this study is assess the feasibility and surgical application of this technique for far lateral pneumatized frontal sinuses. Methods: Ten sides of adult dry skull were assessed for frontal sinus pneumatization and supraorbital cells by computerized tomography. Three sides were selected with frontal sinus pneumatization extending beyond mid orbital line. Feasibility of obliteration of frontal sinus was tested. Endoscopic external multiportal frontal sinus approach was done using angled endoscopy and standard instrumentation. Classic frontal sinus trephine port was performed initially to safely locate the frontal sinus. In situ undisplaced superiorly based mini osteoplastic flap reaching to midorbital plane was performed providing another port. Additional lateral trephine port beyond midorbital plane was performed. Angled endoscopy and standard instrumentation were used reciprocally through different ports to reach different areas of frontal sinus. Outcome parameters were ability to reach corners of frontal sinus, remove sinus septae and nasofrontal duct and maintaining integrity of anterior wall of frontal sinus. Surgical application was done in two cases of frontal sinus mucocele and meningoencephalocele. Results: In three laterally pneumatized frontal sinuses of dry skulls: corners, septae and nasofrontal ducts could be handled using external multiportal endoscopic approach without disruption of anterior frontal wall. Three ports allowed two hand surgical technique. Surgical application in two cases with follow up over six month revealed no significant complication. Subcutaneous collection developed in one case after two weeks and resolved with medical treatment. Conclusion: External endoscopic multiportal obliteration is feasible for frontal sinuses with lateral pneumatization beyond mid orbital

line. This technique is minimally invasive with less morbidity. Long term follow up in a larger series is needed.