

Case Report

The mini osteoplastic flap for eroded anterior table: case report

Manish Munjal*, Porshia Rishi, Harjinder Sidhu, Ojassvi Rishi,
Shubham Munjal, Shivam Talwar, Salony Sharma

Department of ENT and HNS, Dayanand Medical College, Ludhiana, Punjab, India

Received: 31 October 2020

Revised: 14 December 2020

Accepted: 15 December 2020

*Correspondence:

Dr. Manish Munjal,

E-mail: manishmunjaldryahoo.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Trans-nasal Endoscopic access to the frontal sinus is in vogue now a days with advancements imaging modalities and availability of angled instrumentation. The external osteoplastic flap approach to the frontal sinus is still applicable in failed endoscopic procedures, laterally placed pathologies or eroded anterior or posterior tables. We discuss an intriguing patient with chronic dull ache over the forehead being treated with a mini osteoplastic flap technique. There is no single approach that has been able to fulfil the criteria for the modality of choice in terms of excellent results, no recurrence or residual disease, minimal morbidity, short hospital stays, uneventful long-term postoperative course, and good cosmesis in cases of extensive disease involvement. The main objective of this study was to study the outcome of external frontal sinus osteoplastic flap approach in terms of intraoperative disease clearance for extensive frontal sinus lesions beyond the scope of endoscopic excision.

Keywords: Osteoplastic flap, Frontal sinusitis, Endoscope, Anterior table

INTRODUCTION

Frontal sinus proximity to the orbit and the anterior skull base make the frontal sinus intervention difficult compared to the rest of the paranasal sinuses frontal sinusitis with an inflamed mucosal lining of the frontal sinus may involve the marrow of the anterior table either by diploic vessels or by a contiguous spread. The infected marrow manifests as dull pain and tenderness over the involved bone with often, accompanying mucoid rhinorrhea. Usually it is not amenable to even third generation antibiotics,

External approach is the modality of choice in frontal/frontoethmoid osteoma, posterior table erosion, failed endoscopic approaches, laterally placed disease, and absent or distorted intranasal landmarks.^{1,2} Hairline coronal incision and the osteoplastic flap is the conventional procedure to access and radically debride the effected frontal tables.

An external approach is the ideal intervention to debride the necrotic anterior table, till the viable bony margin. Intranasal endoscopy facilitates assessment of the neo-frontal recess. A mini osteoplastic flap was utilized in a patient with persisting osteomyelitis of the anterior frontal table.

CASE REPORT

A 31-year-old healthy robust male presented with dull ache on the middle part of the forehead for last one and a half years. There was a history of bilateral functional endoscopic sinus for pan sinusitis with regression of the posterior nasal drip and heaviness over the forehead.

A computed tomography scan nose and paranasal sinuses (axial and coronal cuts). Figure 1 shows marked thinning of the frontal table and the interfrontal septum.

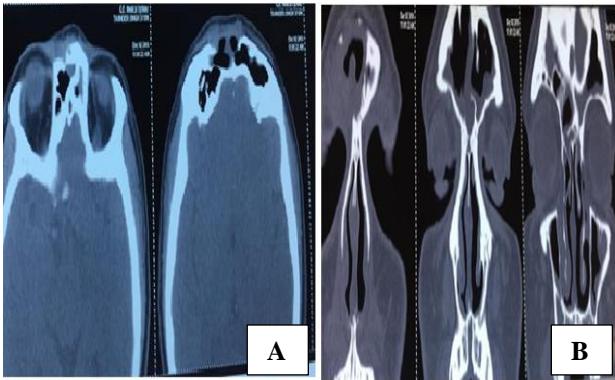


Figure 1: (A) axial (B) coronal cuts marked thinning of the frontal table and the interfrontal septum.

He was taken up for an external frontal exploration under general anaesthesia. An inverted median "U" shaped flap was created, (Figure 2) going through the skin, frontalis muscle and the periosteum. The lateral and superior limit being the hard bone of the calvarium.



Figure 2: U shaped flap elevation to expose the frontal sinus.



Figure 3: wide exposure of the frontal sinus bilateral after multiple thorough washings.

The edges of the incision were bevelled to facilitate approximation and late incisional scarring. The flap was everted and the necrotic bone of the anterior table as well as the inter-frontal septum was debrided.

The clearance was assisted by endoscopic visualisation using 0- and 45-degree telescopes. The frontal recess was widened (Figure 3) and in dwelling catheters were retained after thorough irrigation (Figure 4). The wound was sutured and the catheters removed on day 3. The post op phase was uneventful. The patient was kept on regular follow up. The forehead pain regressed markedly and a wide frontal recess was obtained.



Figure 4: Swelling catheters kept in situ for 3 days.

DISCUSSION

Frontal sinus pathologies can be treated with external, intranasal, or combined approaches depending on the extent of disease. Frontal sinus trephination, frontoethmoidectomy (Lynch-Howarth) and the osteoplastic bone flap constitute the external approaches. Endoscopic sinus surgery with frontal sinusotomy, more radical modified lothrop (frontal sinus drill out) and balloon sinuplasty are the common intranasal approaches.³⁻⁵

The extent of pathology and available exposure with either technique becomes the main deciding factor. Inflammatory pathologies like fungal sinusitis, mass lesions like Frontal sinus osteoma, inverted papilloma, mucocoeles, malignant lesions such as squamous cell carcinoma, plasmacytoma can cause erosion of the anterior table of frontal sinus and thus pose difficulty in the complete removal of the disease with endoscopic techniques.⁶

In our case combined approach was undertaken taken with wide exposure being provided with external inverted "U" incision and complete removal of the pathology was assisted by the use of 70 and 45degree endoscopes intranasally.

Various authors have reported successful osteoplastic flap technique with uneventful postoperative recovery.⁷⁻⁹ The advantage of the osteoplastic flap technique is complete microscopic removal of the diseased mucosa with wide exposure and obliteration of frontal sinus with abdominal fat if required.¹⁰

CONCLUSION

Osteoplastic flap procedure combined with intranasal endoscopic technique helps in complete removal of laterally placed frontal sinus pathology, in a narrow sinus with less anteroposterior diameter, posterior table fractures or anterior table fractures with deformities.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

REFERENCES

1. Jones NS. Management of frontal sinuses. In: Flint PW, Haughey BH, Lund VJ, Niparko JK, Richardson MA, editors. Cummings otolaryngology head and neck surgery. 5th ed. Philadelphia, PA: Elsevier. 2010;781-4.
2. Silverman JB, Gray ST, Busaba NY. Role of osteoplastic frontal sinus obliteration in the era of endoscopic sinus surgery. Int J Otolaryngol. 2012;2012:501896.
3. Rajapaksa SP, Ananda A, Cain T, Oates L, Wormald PJ. The effect of the modified endoscopic Lothrop procedure on the mucociliary clearance of the frontal sinus in an animal model. Am J Rhinol. 2004;18:183-7.
4. Wormald PJ, Ananda A, Nair S. The modified endoscopic Lothrop procedure in the treatment of complicated chronic frontal sinusitis. Clin Otolaryngol Allied Sci. 2003;28:215-20.
5. Kim E, Cutler JL. Balloon dilatation of the paranasal sinuses: a tool in sinus surgery. Otolaryngol Clin North Am. 2009;42:847-56.
6. Gur OE, Yilmaz ND, Ensari N. Isolated frontal sinus surgery pathologies. J Clin Analitic Medic. 2017;8(3):235-8.
7. Goodale RL, Montgomery WW. Experience with osteoplastic anterior wall approach to the frontal sinus. Arch Otolaryngol. 1958;68:271.
8. Hardy JM, Montgomery WW. Osteoplastic frontal sinusotomy: an analysis of 250 operations. Ann Otol Rhinol Laryngol. 1976;85(Pt 1):523-32.
9. Banks CG, Garcia JA, Grayson J, Yeon Cho D, Woodworth BA. Osteoplastic flap without obliteration: how I do it. Am J Rhinol Aller. 2018;32(5):346-9.
10. Tato JM, Bergaglio OE. Cirurgia del frontal injerto de grosa. Nueva tecnica (surgery of frontal sinus. Fat grafts: new technique. Otolaryngologica 3:1, Oct. 1949) cited according Tato, Sibbald and Bergaglio. Laryngoscope. 1954;64:504-21.

Cite this article as: Munjal M, Rishi P, Sidhu H, Rishi O, Munjal S, Talwar S, et al. The mini osteoplastic flap for eroded anterior table: case report. Int J Otorhinolaryngol Head Neck Surg 2021;7:151-3.