



ORIGINAL ARTICLE

Current Indications for the Osteoplastic Flap[☆]



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KEYWORDS

Osteoplastic flap;
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Abstract

Introduction and objectives: Endoscopic sinus surgery is the technique of choice in most of the frontal sinus diseases, both inflammatory and tumour-related. This is why the external approach using osteoplastic flap (OF) would be limited to cases with a difficult endoscopic approach. Our aim was to review the current indications of the osteoplastic flap in the treatment of frontal sinus pathology, through a retrospective study of patients undergoing this technique.

Methods: We performed a retrospective study of 14 patients who were treated with the osteoplastic flap procedure. All the surgical indication criteria, type of sinus disease, presence or absence of prior endoscopic surgery, surgical findings, complications and recurrence were reviewed.

Results: The pathologies found were 1 osteoma (7.1%), 3 inverted papilloma (21.4%) and 10 mucocoeles (71.4%). Nine patients had a prior endoscopic surgery and 10 patients had an orbital dehiscence (9 mucocoele, 1 papilloma). Frontal osteoma was Grade IV and the papilloma cases were Krouse Stage III. Surgical revision was required for 21.4%.

Conclusions: The main indications for an OF in patients with inflammatory disease are lateral extension and frontal recess neo-osteogenesis. In osteoma cases, it depends on the size of the tumour. In inverted papilloma cases, the indication is multifocal implantation with origin in the anterior and lateral wall. In all cases, performing the osteoplastic flap must be individualised.

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PALABRAS CLAVE

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Indicaciones actuales de la osteoplastia frontal**Resumen**

Introducción y objetivos: La cirugía endoscópica nasosinusal es la técnica de elección en la mayoría de los procesos patológicos del seno frontal, tanto inflamatorios como tumorales, quedando relegadas las indicaciones del abordaje externo mediante osteoplastia frontal para casos con dificultades por vía endoscópica. El objetivo de este trabajo es revisar las indicaciones actuales de la osteoplastia frontal en la patología del seno frontal mediante un estudio retrospectivo de pacientes intervenidos de esta técnica.

Métodos: Se realiza un estudio retrospectivo de 14 pacientes intervenidos de osteoplastia frontal en el que se revisaron los criterios de las indicaciones quirúrgicas, tipo de patología del seno frontal, existencia de cirugía endoscópica previa, hallazgos quirúrgicos, complicaciones y recidiva.

Resultados: La patología del seno frontal fue de un osteoma (7,1%), 3 papilomas invertidos (21,4%) y 10 mucocoeles (71,4%). Nueve pacientes habían sido intervenidos previamente de cirugía endoscópica. Diez pacientes presentaron una dehiscencia orbitaria (9 casos de mucocoele y un caso de papiloma). El osteoma frontal era de grado IV y los 3 casos de papilomas correspondían a un grado III de Krouse. El 21,4% requirieron una revisión quirúrgica.

Conclusiones: Las principales indicaciones son la extensión lateral y la neo-osteogénesis del receso frontal en el caso de la enfermedad inflamatoria del seno frontal, el tamaño del tumor en el caso de los osteomas, y la implantación multifocal con origen en la pared anterior y lateral en el caso de los papilomas invertidos. En todos los casos la indicación de osteoplastia frontal debe hacerse de forma individualizada.

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Introduction

The osteoplastic flap (OPF) was described by Hoffman in 1904¹ and was then made popular by Goodale and Montgomery in 1956² with the obliteration of the frontal sinus with fat, which was then considered the gold standard surgical technique for frontal sinus diseases. Later on, in the middle of the 1980s, endoscopic sinus surgery (ESS) became the first choice for the majority of patients with chronic frontal sinusitis and tumours, using the approaches described by Draf.³ Extended endoscopic procedures, such as the one modified by Lothrop,⁴ have increased treatment options. All these advances have meant that OPF has been displaced by endoscopic techniques in the surgical indications for frontal sinus diseases.

The objective of this article is to review the current OPF indications for various types of frontal sinus diseases using a retrospective study on patients operated on with this technique.

Methods

This was a retrospective study on 14 patients who were treated with the OPF procedure from 2006 to 2013. To perform the study, the following data were reviewed: sex, age, follow-up, criteria that led to the performance of external approach using OPF, type of frontal sinus disease, existence or absence of prior endoscopic surgery, surgical findings and occurrence of complications and/or recurrence.

The main criteria that established the indication of OPF instead of the endoscopic approach were:

- In the case of mucocoeles, lateral extension (Fig. 1) or the existence of a frontal recess neo-osteogenesis.
- In the case of osteoma, tumour size.
- In the case of inverted papilloma, the multifocal implantation, basically in the anterior and lateral walls.

The surgical technique was carried out through bicoronal approaches using of mould of the frontal sinus obtained by Caldwell occipitofrontal radiographic projection.

All the cases had prior radiographic study using computed tomography (CT) scans. If the CT scan revealed a unilateral tumour, magnetic resonance (MR) imaging was performed to differentiate making the sinus opaque through soft tissue from secretion accumulation, as some authors recommend.⁵

Results

The data corresponding to the 14 patients are presented in Table 1. There were 11 male patients (78.5%) and 3 female patients (21.4%). The age ranged from 30 to 70 years, with a mean age of 48 years. Follow-up varied from 12 to 82 months.

The frontal sinus disease in these cases was: 1 osteoma (7.1%), 3 inverted papilloma (21.4%) and 10 mucocoeles (71.4%) (Fig. 2). A prior ESS had been performed on 64.2% of the patients; these corresponded to 7 mucocoele cases and 2 inverted papilloma cases. With respect to the mucocoeles,

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