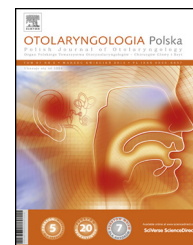


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The role of balloon sinuplasty in the treatment of sinus headache



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ABSTRACT

Introduction: Headache attributed to rhinosinusitis, commonly called sinus headache (SH), is probably one of the most prevalent secondary headaches. The purpose of our study was to examine further sinus headache comparing the effect of conventional functional endoscopic sinus surgery and the balloon sinuplasty. **Material and methods:** Eighty-three consecutive patients were enrolled from 2009 to 2012, who were diagnosed sinus headache according the diagnostic criteria of AAO-HNS and of HIS. 40 patients were randomized to Conventional Endoscopy Sinus Surgery for frontal sinus (ESS Group), 35 to balloon sinuplasty of frontal sinus (BS Group). **Results:** The mean operative time was 65 ± 15 min for ESS group patients and 32 ± 7 min for 23 patients (BS1 Group) and 55 ± 18 min for 12 treated with hybrid technique (BS2 Group). The preoperative mean of SNOT-22 scores improved from 28.6 ± 1.2 in ESS group and 27.3 ± 0.8 in BS group to a 1-month postoperative scores of 14.5 ± 0.6 in ESS group and 10.3 ± 0.5 in BS group and to a 6-month postoperative scores of 7.8 ± 0.6 and 5.3 ± 0.3 , respectively ($p < 0.0001$). The headache scores base on analog visual scale improved from a preoperative mean of 6.5 ± 0.3 in ESS group and 7.1 ± 0.4 in Bs group to a 1-month postoperative scores of 5.4 ± 0.4 in ESS group and 5.5 ± 0.4 in BS group and to a 6-month postoperative scores of 2.7 ± 0.5 and 1.2 ± 0.1 , respectively, representing a statistically significant reduction in headache score in both group. **Conclusion:** Our data prove that improvement in headache can be expected in patients treated with balloon catheter.

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Introduction

Headache attributed to rhinosinusitis, commonly called sinus headache (SH), is probably one of the most prevalent secondary headaches. Therefore due to their similar locations, primary headaches such as migraine, cluster and

tension-type headache are often confused with SH and it is mandatory before treat patients for SH to differentiate true sinus headache from migraine and cluster headache.

A major challenge to studying and to treat headache attributed to sinus disease is the lack of uniform diagnostic criteria. Both the International Headache Society (IHS) and the American Academy of Otolaryngology-head and Neck

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Table I – Diagnostic criteria for chronic rhinosinusitis and headache attributed to rhinosinusitis

AAO-HNS: Two major factors or one major and two minor factors for at least 12 weeks	
Major Factors	Minor Factors
Facial pain/pressure	Headache
Nasal obstruction/blockage	Fever (all non-acute)
Nasal discharge/purulence	Halitosis
Hyposmia/anosmia	Dental pain
Purulence in nasal cavity on examination	Fatigue
Fever (acute rhinosinusitis)	Cough
	Ear pain/pressure/fullness
One of these signs of inflammation must be present and identified in association with ongoing symptoms consistent with chronic rhinosinusitis:	
A	Discolored nasal drainage from the nasal passage, nasal polyps or polypoid swelling as identified on physical examination with anterior rhinoscopy after decongestion or nasal endoscopy
B	Oedema or erythema of the middle meatus or ethmoid bulla on nasal endoscopy
C	Generalized or localized erythema, oedema or granulation tissue (if the middle meatus or ethmoid bulla is not involved, radiological imaging is required to confirm a diagnosis)
D	Imaging modalities confirming the diagnosis
HIS: Headache attributed to rhinosinusitis	
A	frontal headache accompanied by pain in one or more regions of the face, ears or teeth and fulfilling criteria C and D
B	Clinical, nasal endoscopic, CT and/or MRI imaging and/or Laboratory evidence of acute or acute on chronic rhinosinusitis
C	Headache and facial pain develop simultaneously with onset or acute exacerbation of rhinosinusitis
D	Headache and facial pain resolve within 7 days after remission or successful treatment of acute or acute on chronic rhinosinusitis

Notes: (1) Clinical evidence may include purulence in the nasal cavity, nasal obstruction, hyposmia/anosmia and/or fever. (2) Chronic sinusitis is not validated as a cause of headache or facial pain unless relapsing into an acute stage.

Surgery (AAO-HNS) suggest diagnostic criteria for Rhinosinusitis related to headache (Table I) [1]. The IHS requires the existence of specific pathophysiological condition that explain the headache and still consider that chronic rhinosinusitis is “not validated cause of headache or facial pain unless relapsing into acute stage”, whereas the AAO-HNS criteria include a series of major and minor clinical symptoms and signs. A diagnosis of rhinosinusitis requires at least 2 major factors or at least 1 major and 2 minor factors [2].

According to task force on rhinosinusitis facial symptoms in the criteria include facial congestion, facial pain-pressure-fullness, and headache. Facial pain or pressure is regarded as a major symptom, whereas headache is considered a minor symptom but remains the most common symptoms complaint among patients diagnosed with rhinosinusitis. Chronic rhinosinusitis is not always associated with headache, but in selected populations headache is experienced in three out of four patients with this syndrome

[3]. In a recent study by Bhattacharyya, 83% of 322 patients diagnosed with CRS reported headache as a symptom [4].

Already Stammberger and Wolf in 1988 postulated that variations in anatomy of nasal cavity result in mucus stasis, infection and facial pain. The effectiveness of endoscopic sinus surgery (ESS) in the treatment of facial pain due to rhinosinusitis has been described by several authors in the last 10 years [5, 6].

The purpose of our study was to examine further sinus headache comparing the effect of conventional functional endoscopic sinus surgery and the balloon sinuplasty recently introduced as a minimally invasive tool for dilation of the frontal sinus drainage pathways [7, 8].

Material and methods

The present study is an unfounded, with no monetary support from any source, study and was approved by the

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