Journal of Surgical Radiology

Site: https://journalsurgrad.com/

ISSN Print 2156-213X| ISSN Online: 2156-4566 Volume: 05Issue: 06 Open Access

Research Article

Rhinogenic Contact Point Headache Secondary to Bilateral Concha Bullosa and Deviated Nasal Septum: A Case Report

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Article History
Received: 20.05.2026
Revised: 30.05.2026
Accepted: 01.06.2026
Published: 05.06.2026

Citations:
Kumar, A., Sinha, G., Khwairakpam, T. D., Kumar, Y., & Sharma, S. (Year). Rhinogenic contact point headache secondary to bilateral concha bullosa and deviated nasal septum: A case report. J Surg Radiol, V5(6) 116-120

Abstract: ***Introduction:*** Rhinogenic contact point headache (RCPH) is a distinct clinical entity in which facial pain or headache arises from mucosal apposition between opposing nasal structures, in the absence of active sinonasalinflammation . Anatomical variations such as concha bullosa and deviated nasal septum (DNS) are frequently implicated in the generation of such contact points . We present a 32-year-old male with chronic frontal and periorbital headache refractory to analgesic and antimigraine therapy. Nasal endoscopy and computed tomography (CT) of the paranasal sinuses identified bilateral concha bullosa and an S-shaped DNS producing significant mucosal contact. Following endoscopic septoplasty combined with bilateral middle turbinate reduction, the patient achieved complete resolution of symptoms at six-month follow-up. This case underlines the importance of incorporating intranasal anatomical assessment into the evaluation of chronic headache and supports surgical correction in carefully selected patients .

Keywords: Rhinogenic headache; Contact point headache; Concha Bullosa; Deviated nasal septum; Septoplasty; Endoscopic sinus surgery

INTRODUCTION

Headache represents one of the most prevalent symptoms encountered across clinical specialties and constitutes a major source of morbidity worldwide [2]. The majority of headaches are classified as primary disorders—migraine, tension-type, and cluster headache—yet a clinically relevant subset arises secondary to identifiable structural, infectious, or vascular pathology [2,9]. Rhinogenic contact point headache is among the less commonly recognized secondary causes, attributed to mechanical stimulation of intranasal mucosal surfaces in the absence of acute or chronic rhinosinusitis[1,10].

The concept of contact point headache was first systematically described following observations that correction of intranasal anatomical variants led to resolution of otherwise intractable facial pain [1,7]. The International Classification of Headache Disorders acknowledges headache attributable to disorders of the nose and paranasal sinuses; however, the independent role of contact points as a headache generator remains an area of active investigation [2]. Growing clinical evidence, nonetheless, supports the existence of a patient subgroup in whom mucosal apposition contributes meaningfully to headache pathogenesis [3,8,14].

Anatomical variants implicated in contact point formation include septal deviation, septal spurs, paradoxical middle turbinate, hypertrophied turbinates, enlarged ethmoidal bulla, and concha bullosa[6,13].

Concha bullosa, defined as pneumatization of the middle turbinate, represents one of the most frequently observed sinonasal variants on CT imaging, with reported

population prevalence ranging from approximately 14% to 53% [6,18]. Although commonly asymptomatic, large conchae bullosae may reduce nasal airway patency and generate direct contact with the nasal septum or lateral nasal wall. The coexistence of DNS further compounds airspace narrowing and substantially elevates the probability of contact point formation [5,18].

The pathophysiological basis of RCPH is believed to involve stimulation of sensory branches of the trigeminal nerve supplying the nasal mucosa [10,14]. Persistent or intermittent mucosal contact may trigger local release of neuropeptides—including substance P, calcitonin gene-related peptide (CGRP), and neurokinin A—precipitating neurogenic inflammation and referred pain [10]. This mechanism accounts for the characteristic distribution of symptoms in the frontal, periorbital, temporal, and facial regions, typically without localizing nasal discomfort [8,14].

Establishing the diagnosis of RCPH is challenging because its symptom profile substantially overlaps with primary headache disorders [2,9]. Affected patients frequently undergo extensive neurological, ophthalmological, and dental evaluations before an intranasal etiology is considered [8,11]. Nasal endoscopy and CT of the paranasal sinuses are essential for identifying contact points and excluding inflammatory disease [17]. In selected cases, topical anesthesia applied to the contact area may transiently alleviate symptoms, providing additional diagnostic support [8,10].

Management encompasses medical and surgical strategies. Topical corticosteroids, decongestants, and analgesics may offer temporary palliation; however, definitive relief typically requires surgical elimination of the contact point [3,15]. Endoscopic procedures such as septoplasty, conchoplasty, and partial middle turbinectomy have demonstrated favorable outcomes in appropriately selected patients [7,11,15].

Case Presentation

A 32-year-old male presented to the otorhinolaryngology outpatient clinic with a two-year history of recurrent frontal and periorbital headache. The pain was intermittent, moderate to severe in intensity, and occasionally accompanied by a sense of nasal blockage. There was no history of fever, purulent rhinorrhea, facial trauma, visual disturbance, nausea, or neurological deficits.

The patient had previously consulted multiple physicians and received analgesics and antimigraine agents with minimal benefit . Neurological examination was unremarkable, and ophthalmological assessment yielded no abnormality.

Anterior rhinoscopy demonstrated leftward septal deviation. Diagnostic nasal endoscopy revealed bilateral middle turbinate enlargement consistent with concha bullosa, producing direct mucosal contact with the nasal septum[FIGURE 1A,1B,2A,2B]. No nasal polyps, purulent discharge, or sinonasal inflammation were identified.

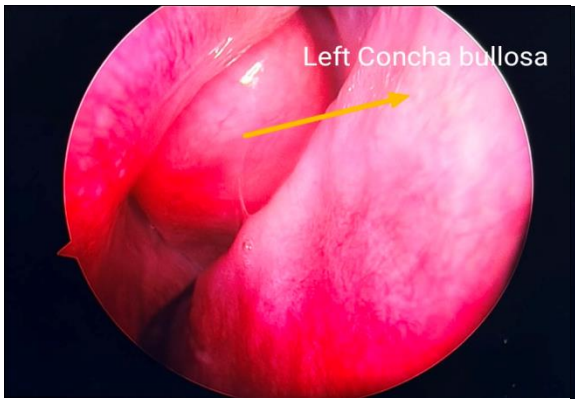

FIGURE 1A

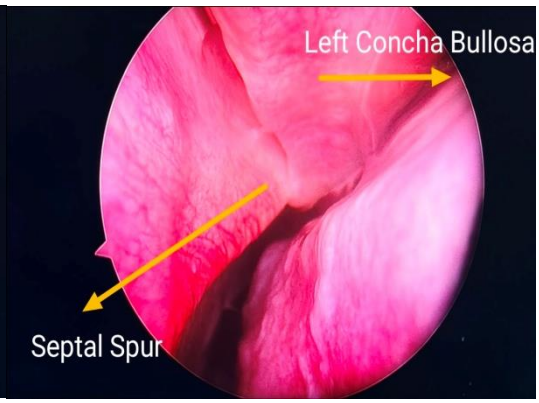

FIGURE 1B

FIGURE 1 A – DIAGNOSTIC NASAL ENDOSCOPY(DNE) SHOWING LEFT SIDE MIDDLE TURBINATE HYPERTROPHY

FIGURE 1B – DNE SHOWING SEPTAL SPUR IMPINGING ON LEFT MIDDLE TURBINATE

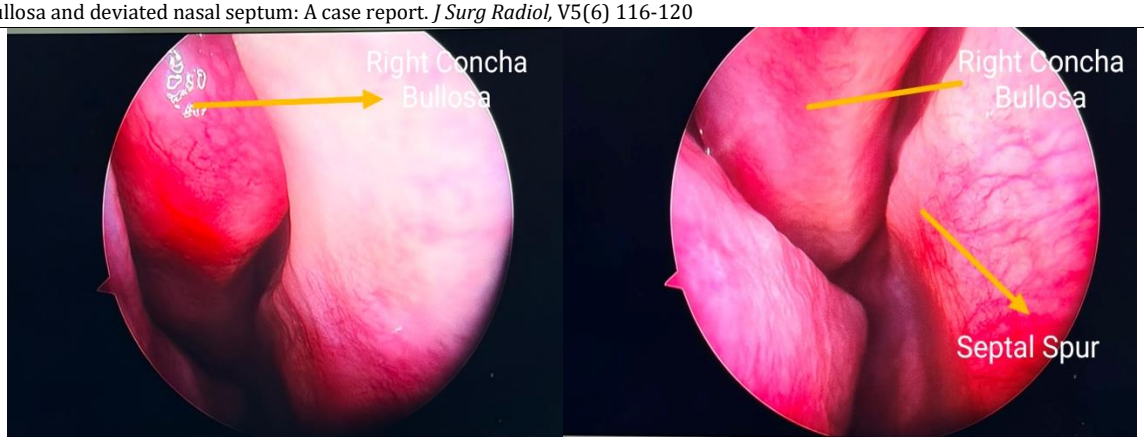

FIGURE 2A **FIGURE 2B**

FIGURE 2A – DNE SHOWING RIGHT MIDDLE TURBINATE HYPERTROPHY
FIGURE 2B – DNE SHOWING SEPTAL SPUR IMPINGING ON RIGHT MIDDLE TURBINATE

NCCT of the paranasal sinuses confirmed bilateral concha bullosa of the middle turbinates and an S-shaped deviated nasal septum with a left-sided bony spur [FIGURE 3]. The remaining paranasal sinuses were fully aerated without evidence of chronic rhinosinusitis. Concordance between clinical symptoms, endoscopic findings, and radiological evidence established the diagnosis of RCPH secondary to bilateral concha bullosa and DNS .

FIGURE 3 – NCCT PNS SHOWING "S" SHAPED DNS WITH BILATERAL CONCHA BULLOSA

The patient subsequently underwent endoscopic septoplasty combined with bilateral partial resection of the lateral lamella of the concha bullosa[FIGURE 4,5]. The postoperative course was uneventful. At follow-up visits at one, three, and six months, the patient reported complete resolution of headache and marked improvement in nasal airflow. No recurrence was documented during the observation period.

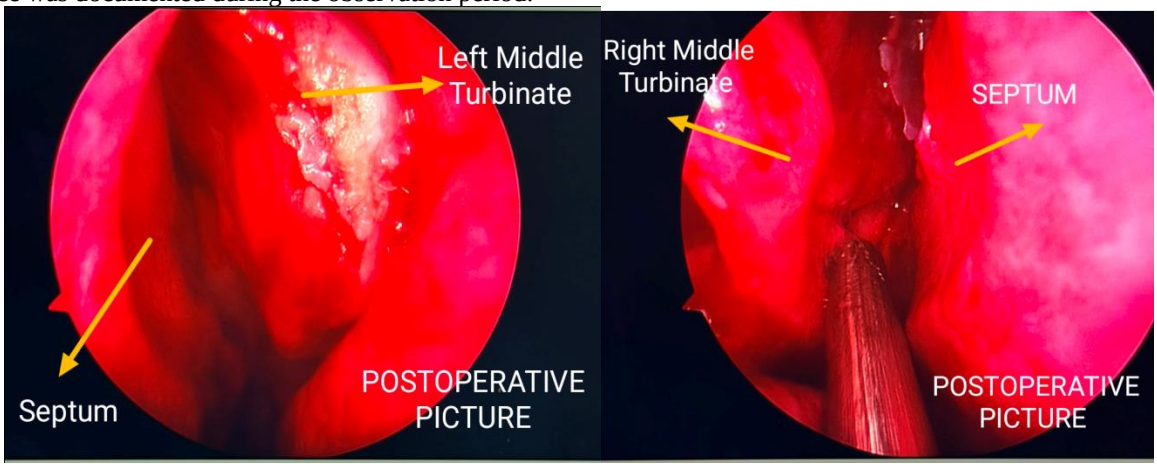

FIGURE 4 **FIGURE 5**

FIGURE 4,5 – POST OPERATIVE PICTURE AFTER ENDOSCOPIC SEPTOPLASTY AND PARTIAL REDUCTION OF MIDDLE TURBINATE

DISCUSSION

Rhinogenic contact point headache is a clinically significant yet underrecognized cause of chronic facial pain [1,14]. Despite decades of literature, its diagnosis remains controversial because mucosal contact points may also be present in asymptomatic individuals [13]. Establishing causality therefore requires meticulous clinical correlation, exclusion of alternative diagnoses, and documented symptomatic improvement after elimination of the contact point [8,15].

The nasal cavity receives rich sensory innervation from the ophthalmic and maxillary divisions of the trigeminal nerve [10]. Mechanical contact between opposing mucosal surfaces can persistently stimulate these nociceptors, activating pain pathways and provoking the release of neuropeptides that sustain neurogenic inflammation [10,14]. This central sensitization mechanism explains why patients typically report pain in sites distal to the actual contact point [14].

Concha bullosa is one of the most prevalent sinonasal anatomical variants, with reported CT-based prevalence ranging from 14% to 53% across different populations [6,18]. Although frequently asymptomatic, large conchae bullosae can reduce intranasal airway caliber and impinge on adjacent structures. When bilateral concha bullosa coexists with septal deviation, as in the present patient, the risk of contact point formation is substantially amplified [5,18].

A systematic diagnostic approach is mandatory before attributing headache to intranasal contact points [2,9]. Migraine, tension-type headache, cluster headache, trigeminal neuralgia, dental pathology, temporomandibular disorders, and intracranial lesions must be excluded [2]. In the present case, failure of standard neurological evaluation and antimigraine therapy prompted otorhinolaryngological assessment, which revealed the causative anatomical abnormalities [8].

Nasal endoscopy allows direct visualization of contact points and remains indispensable in diagnostic evaluation [17,21,22]. CT of the paranasal sinuses complements endoscopic findings by delineating precise anatomical relationships and confirming the absence of inflammatory sinus disease [6,13,22]. In this case, the convergence of symptoms, endoscopy, and CT findings provided strong diagnostic support [8,17,23]. The utility of topical anesthetic testing as an adjunct—applied directly to the contact area to achieve transient pain relief—has been described by several authors, and may be particularly valuable when diagnostic uncertainty persists [8,10].

Surgical treatment is aimed at eradicating mucosal contact and restoring normal nasal anatomy [3,15]. Endoscopic approaches have largely supplanted traditional open techniques because of superior visualization, precision, and reduced operative morbidity [7,11]. Depending on the underlying variant, procedures may include septoplasty, conchoplasty, turbinoplasty, or partial middle turbinectomy[16,19,20]. Multiple studies report significant postoperative reductions in headache severity and frequency, along with improvements in quality-of-life measures [3,7,11,15].

In the present patient, endoscopic septoplasty combined with bilateral concha bullosa reduction yielded complete and sustained symptom resolution, corroborating the contact points as the primary headache generator. This outcome reinforces the value of rigorous patient selection and thorough preoperative evaluation [15,20]. It should nevertheless be acknowledged that not all individuals with contact points are symptomatic, and not all surgically corrected patients experience headache resolution; thus, operative intervention should be reserved for those with persistent symptoms, concordant endoscopic and radiological evidence, and exclusion of competing diagnoses [13,15].

CONCLUSION

Rhinogenic contact point headache should be included in the differential diagnosis of chronic headache that remains unexplained after standard neurological evaluation. Bilateral concha bullosa and DNS can together produce intranasal contact points capable of generating significant symptoms. Nasal endoscopy and CT imaging are indispensable diagnostic tools. In appropriately selected patients, surgical correction of the underlying anatomical abnormality may result in complete symptom resolution and meaningful improvement in quality of life .

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