

## Caudal septoplasty: efficacy of a surgical technique-preliminary report

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### Abstract

Although not being the most frequent nasal septal deviations, those of the caudal septum account for many complaints. The correction of such defects has always been the subject of much controversy, and several different operative techniques have been described.

**Aim:** To assess the efficacy of a surgical technique for correcting caudal septal deviations.

**Materials and Methods:** Prospective study with preliminary reports of 10 patients who answered a standardized, specific questionnaire (the Nasal Obstruction Symptom Evaluation, or NOSE), underwent acoustic rhinometry and had their noses photographed. Caudal deviations were then corrected through a surgical technique whereby the entire deviated portion is removed and a straight cartilage segment is placed between the medial crura of the alar cartilages, through a retrograde approach, to support the nasal tip. Sixty days after all patients were reassessed.

**Results:** As for the NOSE questionnaire, mean pre-operative and post-operative scores were 82.39 and 7.39 respectively ( $p < 0.001$ ). Pre-operative acoustic rhinometry showed mean minimum cross-sectional area (MCA) values of 0.352 and 0.431 cm<sup>2</sup>, whereas mean post-operative values were 0.657 and 0.711 cm<sup>2</sup> ( $p < 0.0001$ ).

**Conclusions:** The study results prove, both subjectively (patient satisfaction as measured with a standardized questionnaire) and objectively (acoustic rhinometry findings), that the proposed technique for correction of caudal septal deviation is safe and effective.

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## INTRODUCTION

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Caudal or anterior nasal septum deviations, despite not being the most common type, cause much complaint, both obstructive as well as cosmetic to the nasal tip. Guyuron et al. showed in a series of patients that only 5% of these patients had caudal deviations, Sedwick et al. found deviations in this area in 8% of 2,043 cases assessed<sup>1,2</sup>.

Even small anterior deviations cause important nasal obstruction because they are located exactly in the narrowest portion of the nasal cavity, the nasal valve. Studies carried out by Grymer et al. used pre and post-operative acoustic rhinometry measures to prove that the nasal obstruction impact caused by minimum anterior nasal septum deviations is much greater than the one caused by large posterior deviations<sup>3</sup>. Patients with this type of deviation were the ones who benefited the most from the surgical correction according to Dinis et al.,<sup>4</sup> in their analysis of long term patient satisfaction after septoplasty.

Besides the important functional problems, anterior septum deviations also cause clear cosmetic defects. These change the relation between the columella and the nostrils, causing significant defects on nasal tip position and symmetry<sup>2</sup>.

Thus, numerous techniques have been used to correct nasal septum caudal deviations. Since Metzembaum presented his caudal septoplasty technique in 1929, known as "swinging door"<sup>5</sup>, many other authors have developed different ways to correct these deviations. Nonetheless, having so many different techniques which have been tested and proved, reflect the great difficulty in correcting these anterior deviations. Should this be a simple correction, there would be only one single universal technique accepted.

The techniques which have been traditionally described to correct caudal nasal septum deviations only remove more posterior portions of the cartilage, sparing the anterior deviated portion, doing more conservative procedures such as mobilizations, sutures or weakening this portion. Thus, although not causing cosmetic harm to the nasal tip, the septum deviation correction is only partial, and this may result in bad outcomes in terms of nasal obstruction correction, besides symptom recurrence in the post-op<sup>2,5-12</sup>.

Those techniques which require removing the anterior portion of the cartilage with the deformity, despite having excellent results as far as nasal obstruction and nasal tip deformities go, are based on more radical and complex procedures, usually after open rhinoplasty or exo-rhinoplasties<sup>13-21</sup>.

Prospective clinical trials with strict scientific methodologies are rare insofar as nasal septum deviation correction surgeries are concerned. In a systematic metanalysis literature review, Singh et al., found 942 papers. Of these,

only 13 were prospective studies of the nasal septum surgery benefits, with objective assessment methods. Acoustic rhinometry was used for the objective analysis of the results in only 2 of these studies<sup>22</sup>.

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## OBJECTIVE

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To use preliminary results to assess the efficacy of a surgical technique used to correct caudal deviations of the nasal septum.

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## MATERIALS AND METHODS

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This is an uncontrolled and non-randomized clinical-prospective trial, which started in June of 2007 in two university hospitals. The study was approved by the Ethics in Research Committee of the institution, under protocol # 0292/07, in of March of 2007.

Initially, we included 10 patients older than 16 years, of both genders. All of them complained of nasal obstruction without improvement with clinical treatment, associated or not with allergies and nasal cosmetic complaints, besides deviations of the septal cartilage in the areas I and II of Cottle (anterior or caudal deviations), associated or not to inferior nasal conchae hypertrophy.

We excluded from the study those patients with other rhinosinusal diseases and with a past of nasal surgeries.

The patients were submitted to otolaryngological exam, including nasal fibroscopy.

They answered a standardized questionnaire before the surgical treatment and 60 days after it. The questionnaire used was the Nasal Obstruction Septoplasty Effectiveness (NOSE) - validated by the American Academy of Otolaryngology and Head and Neck Surgery, which is specific for nasal septum deviations, with good levels of deployment, response and reading, and one which can be used as follow up in groups of patients before and after different types of clinical or surgical treatments. This is a scale with five questions about nasal symptoms to which patients assign scores varying between 0 and 4, according to symptom intensity. At the end, the total score given by the patient is multiplied by 5, and one has scores which vary between 0 - patients without symptoms, and 100 - patients with the most intense possible symptoms<sup>23-27</sup> (Table 1).

The patients underwent CT scan of the nasal septum in order to document the deviation and to rule out other nasal cavity and paranasal sinuses changes.

Routine preoperative and pre-anesthesia exams were carried out.

Standardized photographic documentation in six different positions was carried out before and after 60 days of the surgery in order to show a cosmetic deformity before the procedure and its improvement after the surgery.

Acoustic rhinometry was used as an objective as-

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