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Surgery[www.bjoms.com](http://www.bjoms.com)**Technical note****Nasal wall lateralization: a novel technique to improve nasal airway obstruction**A. Triaca<sup>a</sup>, D. Brusco<sup>a</sup>, R. Guijarro-Martínez<sup>b,\*</sup><sup>a</sup> Center for Maxillofacial Surgery, Klinik Pyramide am See, Bellerivestrasse 34, CH-8034 Zürich, Switzerland<sup>b</sup> Department of Oral and Maxillofacial Surgery, Hospital Clínico Universitario of Valencia, Blasco Ibáñez Avenue 17, 46010 Valencia, Spain

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The nasal valve is the narrowest region of the nasal passage, and the main, flow-limiting segment of the nasal cavity.<sup>1,2</sup> Variations in the size and shape of the nasal cavity affect the rate and pattern of airflow and influence nasal function. It therefore seems likely that improved nasal patency may alleviate snoring and sleep-disordered breathing.<sup>3,4</sup>

Traditional surgical management of nasal obstruction has focused on the correction of dynamic collapse, or dysfunction of the static nasal valve, or both. Procedures are aimed either to correct the laxity of the lateral nasal wall (through implants of cartilage or inferior displacement of the alar cartilage) or to expand the cross-sectional area of the nasal valve (by septoplasty, inferior turbinectomy, spreader grafts, suspension of the nasal wall, and splay and butterfly grafts). However, to our knowledge, no particular technique has been specifically directed to the pyriform aperture. This is surprising as it is functionally a part of the nasal valve, and changes in its dimensions can produce problems with nasal patency after aesthetic rhinoplasty.<sup>5</sup> The aim of this paper was to present a new technique for the expansion of the nasal valve based on lateralisation of the nasal walls.

**Operative technique**

Under local anesthesia, a 1.5 cm full-thickness incision is made in the upper buccal sulcus from lateral incisor to first premolar. If both sides of the pyriform aperture are to be

corrected, the incision is made bilaterally. A sharp periosteal elevator should be used for subperiosteal dissection until the lower third of the pyriform aperture is thoroughly exposed. The nasal mucosa is not detached from the walls or floor of the nose at any time to avoid scarring and subsequent retraction of the soft tissues.

A half-moon-shaped osteotomy is made with a thin bur (E0540, Maillefer®, Ballaigues, Switzerland) parallel to the border of the nasal wall on the cortex of the anterior sinus 0.5 cm from the border of the bone. A piezoelectric saw may be used instead. The height of the osteotomy should be such that it hypothetically reaches the inferior turbinate, but stays below the ductus lacrimalis, and it should be about 0.3–0.5 cm wide (Fig. 1). After the half-moon-shaped corticotomy has been eliminated, the superior and inferior edges of the osteotomy are deepened lateromedially without damage to the nasal mucosa. Pressure is gently exerted with a periosteal elevator from the nostrils laterally on the mucosa of the nasal wall, to induce a greenstick fracture of the nasal wall posteriorly (Fig. 2). The pyriform aperture is thereby substantially lateralised and broadened. The expanded nasal wall is fixed with a small plate and two screws 1.2 mm in diameter (Figs. 3 and 4). The wound is closed in one layer with a non-resorbable 4/0 polyamide suture (Supramid®, Braun, Melsungen, Germany).

Between 2009 and 2011, we used this technique (either unilaterally or bilaterally) for 15 patients with symptoms of nasal obstruction. There were no complications. Though we have no long-term nasometric results, patients reported substantial subjective improvement. The main advantages of the technique include it is performed under local anaesthesia, is technically undemanding for the surgeon, is well-accepted

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Fig. 1. Half-moon-shaped osteotomy on the cortex of the anterior sinus.

by the patients because it does not entail complex methods or esthetical changes, and persistent enlargement of the cross-sectional area of the valve is achieved, which improves nasal function significantly.

Although this technique may improve disease-specific symptoms and quality of life in patients with sleep-disordered breathing and symptoms of nasal obstruction, the extent to which the nasal obstruction alone is responsible for sleep-disordered breathing is not completely understood. In the particular case of obstructive sleep apnoea, it seems rational to presume that the nasal airway of patients with moderate to severe forms has multilevel obstructions, including at the soft palate and the base of the tongue, which probably contribute more to sleep apnoea than nasal obstruction itself. In these patients nasal surgery may provide a reasonable adjunct to major pharyngeal surgery or be a means to facilitate the use of continuous positive airway pressure. Conversely, in patients with mild obstructive sleep apnoea, the obstruction in the nasal airway may be of greater importance. These hypotheses remain to be confirmed by future studies.



Fig. 2. A periosteal elevator is used to exert pressure laterally on the mucosa of the nasal wall.



Fig. 3. The osteotomy is fixed with a titanium plate and screws and the pyriform aperture is considerably expanded.



Fig. 4. Clinically, note that the osteotomy of the nasal wall is feasible through a small space and may be done under local anaesthesia.

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