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## Technical note

# Nasal wall lateralization: a novel technique to improve nasal airway obstruction

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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 ostectomy 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.



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.



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

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