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# How reliable is the vomer flap in early hard palate repair? ☆



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## KEYWORDS

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**Summary** Hard palate closure with a vomer flap at the time of lip repair has been widely adopted. A recent study by Deshpande et al. showed a high rate of failure of the vomer flap and led the authors to abandon the technique. We conducted a retrospective study of vomer flap healing in a consecutive series of cases performed by the senior author (D.O.). The case records of 71 patients who underwent repair of unilateral cleft lip and palate with a vomer flap at the time of lip repair were studied. Vomer flap healing was assessed and documented by the senior author at the time of definitive palate closure, and this was recorded. Adequate records were available for 66 cases. Twelve patients (18%) had associated syndromes and were included in the analysis. The median age at the time of lip and vomer flap repair was 3.5 months, and that at the time of palate repair was 8 months. At definitive palatoplasty, the vomer flap was intact in 62 patients (94%). Four patients (6%) had partial or complete failure of the vomer flap. All failures occurred in cases where the vomer flap was sutured directly to the nasal mucosa, a technique since abandoned in favour of double-breasting the flap to the raw surface of the oral mucosa. Five patients had incomplete healing of the palate following definitive palatoplasty, two of whom had a previous vomer flap failure. Contrary to Deshpande et al., we found the vomer flap to be highly reliable in closing the hard palate at the time of primary lip repair.

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## Introduction

Pichler, in 1934, described a method of closure of the hard palate using a single-layer cranial-based flap of vomerine mucoperiosteum and nasal septal mucoperichondrium, which was tucked under the elevated margin of the oral mucoperiosteum on the opposite side of the cleft, leaving the raw surfaces of the exposed nasal septum and the flap to heal by epithelialisation<sup>1</sup> (Figure 1). This technique, performed at the time of primary lip repair, was introduced by the Oslo cleft unit in 1948 and has been a consistent part of their protocol since then.<sup>2</sup> The favourable long-term growth results reported by the Oslo centre,<sup>3</sup> particularly in inter-centre comparisons, have served to popularise the technique,<sup>4–7</sup> and many cleft units have adopted it. Advocates of primary vomer flap repair suggest that because the hard palate has been closed at the time of lip repair with almost no dissection of palatal mucoperiosteum, the remainder of the palate can be repaired during a subsequent operation with minimal elevation of palatal mucoperiosteum, minimal or no releasing incisions in the hard palate, and consequently more favourable dento-facial outcomes, including a higher success rate of later alveolar bone grafting.<sup>8</sup> However, some authors have criticised the use of the vomer flap on the grounds that it causes scarring at the vomero-premaxillary suture and may thus hinder the forward growth of the midface.<sup>9</sup> Friede and Johanson showed poor facial growth results in a cohort of bilateral and unilateral complete cases treated with primary vomer flaps between 1964 and 1970, although these patients had also had definitive palate repair using a “push back” technique, rather than the more limited surgeries recommended by the Oslo group.<sup>10</sup> The Scandcleft trial is a series



**Figure 1** Appearance of a healed vomer flap at the time of definitive palatoplasty.

of three parallel randomised controlled trials of different surgical protocols and includes the Oslo protocol as one of its arms.<sup>11</sup> The results of this trial, which are due to be published in the near future, should answer the remaining questions about the effect of the vomerine flap on facial growth, at least up to age 5.

More recently, Deshpande et al. at the Operation Smile Comprehensive Cleft Care Center in Guwahati, India, have challenged the reliability of vomer flap repair of the hard palate at the time of lip repair.<sup>12</sup> They conducted a retrospective study of 101 non-syndromic cases of complete unilateral cleft lip and palate, which had vomer flaps performed simultaneously with lip repair at ages ranging from 6 months to 28 years. They judged the success or failure of the vomerine flap by analysing photographs taken routinely of the palate at the time of definitive palate repair and found that complete or near-complete flap survival occurred in just over half the cases and that in a quarter of the cases, <50% of the flap had survived. Failure of the vomerine flap was associated with a higher risk of fistula or dehiscence following palate repair and, even when the vomer flap was successful, they were unable to close any palates without releasing incisions. In addition, von Langenbeck repairs following vomer flap repair were associated with more complications than two flap Bardach repairs, and the authors reported their impression that even a successful vomer flap made subsequent palate repair more difficult rather than easier. As a result, the group has abandoned the use of the vomer flap. This is a very significant statement against the use of the vomerine flap from a centre that treats large numbers of clefts and has an important role in providing training for cleft surgeons in the developing world.

Like Deshpande et al., we were unable to find other studies documenting the success rate of vomer flaps performed at the time of lip repair. However, we were surprised by their negative experience of the procedure, which was at odds with our own impression over an 18-year period. We therefore conducted a similar retrospective audit of healing of the vomer flap in an unselected consecutive series of 71 patients with complete unilateral cleft lip and palate.

## Methods and patients

Patients with complete unilateral cleft lip and palate operated at Our Lady's Children's Hospital from August 1999 to April 2015 were identified from the Dublin Cleft Centre database. All cases had been operated on by the senior author (D.O.), and all had undergone vomer flap closure of the hard palate at the time of lip repair (median age 3.5 months, range 2–11 months). The degree of vomer flap healing had been routinely recorded in the operative note of the definitive palate repair (median age 8 months, range 5–13 months), and this recording was used to judge the degree of healing of the vomer flap. Healing of the flap was determined by visual inspection of the hard palate posterior to the alveolar cleft; no attempt was made to probe the alveolar cleft with a surgical instrument because, although the vomer flap was carried forward in continuity with the repair of the nasal floor superior to the alveolar margins, the alveolar margins themselves were left

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