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The efficacy of vomer flap for closure of hard palate during primary lip repair



Gaurav Deshpande ^{a,*}, Lisa Wendby ^a, Rasika Jagtap ^a,
Björn Schönmeyr ^{a,b}

^a Operation Smile Guwahati Comprehensive Cleft Care Center, Guwahati, Assam, India

^b Department of Plastic and Reconstructive Surgery, Skane University Hospital, Jan Waldenströms Gata 18, 20502, Malmö, Sweden

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KEYWORDS

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Summary *Background and aim:* This study presents the institutional experience of the use of vomer flap for early closure of hard palate during unilateral complete cleft-lip repair. The purpose of this study was to determine the survival rate of the vomer flap and to investigate its effect on the subsequent palatoplasty.

Patients and methods: This retrospective analysis includes 101 non-syndromic patients with complete unilateral cleft lip who received a vomer flap for the closure of the hard palate during cleft-lip repair. Patients were aged 6 months to 28 years (median 1 year). Success rates of the vomer flaps were assessed clinically and through pre-operative photographs taken at the time of subsequent palate repair. Ninety-two patients returned for second-stage palate repair, and 74 patients with adequate post-operative follow-up information were statistically analysed.

Results: Of the 101 patients who were operated with primary lip repair and simultaneous vomer flap, only 54 (52.4%) vomer flaps healed completely. Out of 92 patients who returned for subsequent palatoplasty, 71 (77.2%) were operated with the two-flap technique, and 19 (20.7%) received von Langenbeck repairs. Seven (9.1%) patients had a surgical complication. The failure of previous vomer repair and von Langenbeck surgical technique were identified as factors associated with post-operative complications.

Conclusions: We conclude that failed vomer flaps increased the risks of complications in the subsequent palate repair. Furthermore, efforts to use von Langenbeck technique rather than the two-flap technique also resulted in increased surgical complications. As a result, we have abandoned the use of the vomer flap with primary lip repair.

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* Corresponding author. Operation Smile Comprehensive Cleft Care Center, Guwahati 01, Assam, India. Tel.: +91 7399905518, +91 9702679784; fax: +91 22 67060001.

E-mail address: drgurav82@gmail.com (G. Deshpande).

Introduction

The use of a single-layer vomer flap for the closure of the hard palate was popularized by Pichler in 1934.¹ Much debate exists over the use of vomer flaps for the early closure of the hard palate. To clarify our terminology, the early closure of the hard palate means the closure of the hard palate at the time of lip repair and not necessarily at an early age. At our centre, the lip is repaired before the complete repair of cleft palate. It is therefore referred to as 'early'. A few investigators are in favour of using this flap,^{2,3} whereas a few are against it.^{4–7} The advantages of the use of vomer flap that have been pointed out in the past are better maxillary development, early separation of the nasal and oral cavities, low rate of symptomatic fistulae and acceptable arch form.⁸ The Eurocleft and Americleft studies have reported a favourable growth with the use of this flap.^{9,10} The basis for which is the reduction in periosteal undermining and the reduction of the palatal area, which was left exposed after palatal repair. A vomeroplasty illustrates the effort to overcome the adverse consequences of scarring by minimizing the area of denuded palate. This, however, assumes that the survival rate of this flap is 100%. We are unaware of any study in the literature that has reported the survival rate of vomer flaps in the early closure of the hard palate. The favourable growth that has been reported in the past is based on the proviso that no lateral relaxing incision was used during the second stage of cleft-palate repair.¹¹ This means that if the surgeon has used lateral relaxing incisions or if the flap has not survived in all the cases, the aforementioned advantages of the flap are not valid. Specifically, these issues will be discussed in this study.

At our institute (GC4), we performed simultaneous hard palate closure using vomer flap at the time of lip repair from August 2011 until December 2013. We have noticed that the vomer flap did not survive in all the cases. Furthermore, it is very challenging to then close the cleft palate, particularly at the junction of the hard and soft palates due to scarring from the previous surgery. Furthermore, increased bleeding and poor tissue quality were noted at this point. For the above-mentioned reasons, we have abandoned this protocol since January 2014, and we have reviewed the cases to note the efficacy of vomer flap.

Patients and methods

Clinical data

All the necessary approvals were received from our institutional review board. A total of 101 consecutive patients with complete unilateral cleft lip and palate who received a simultaneous vomer flap for the closure of the hard palate at the time of lip repair were retrospectively reviewed. The technique for the use of vomer flaps for the early closure of the hard palate was standardized. The flap was raised by placing the incision on the junction between the hard palate and the vomer (Figure 1). The vomer flap was reflected, based cranially. The incision was then placed on the lesser segment at the edge of the cleft in the hard palate. The oral mucosa was carefully reflected to create just enough

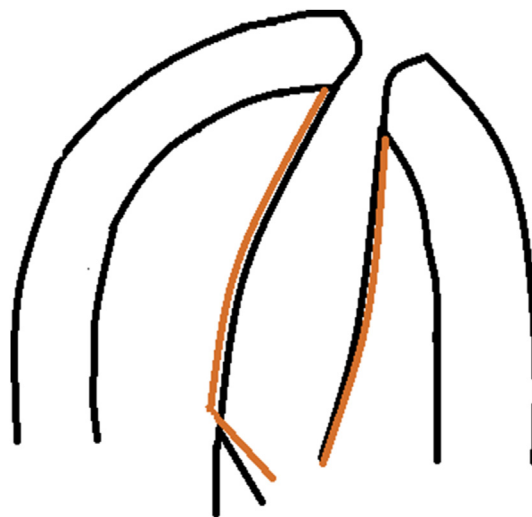


Figure 1 The incision for elevating the vomer flap.

pocket between the oral mucosa and the hard palate to accommodate the margin of the flap. The vomer flap was then sandwiched between the hard palate and the oral mucosa using mattress sutures (Figure 2).

The age of the patients at the time of vomer repair was 6 months–28 years with a median age of 1 year. There were 64 males and 37 females. All patients were non-syndromic. The success of the vomer flaps was determined clinically in a standardized manner by using the pictures taken at the time of cleft-palate repair with a Dingman mouth gag in position. The success rate was then classified into three categories: 90–100% (Figure 3), 50–89% (Figure 4) and <50% (Figure 5) by judging the distance from the alveolus to the junction of the hard and soft palates. All the surgical records and photographs were reviewed by two authors (GSD and BHS).

Ninety-two patients returned for a second-stage palate repair, and this procedure was performed after a minimum

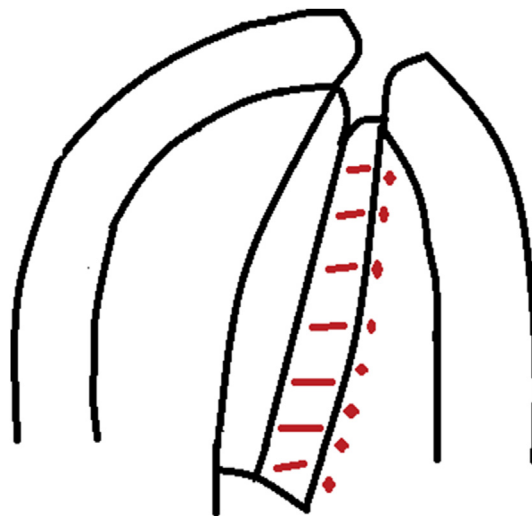


Figure 2 Sandwiching the flap between the oral mucosa and the hard palate.

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