

**CASE REPORT**

**TREATMENT OF PALATOPLASTY REPAIR WITH VON LANGENBECK  
 TECHNIQUE AND HEMOSTATIC ABSORBABLE GELATIN : CASE REPORT AND  
 LITERATURE REVIEWS**

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**ABSTRACT**

**Introduction:** Cleft is a common congenital abnormality in the lip and palate. Cleft palate or palatoschizis is a congenital abnormality occurred during pregnancy, resulting in connection of the palate that does not coalesce into the nasal cavity area, so there is a relationship between the nasal cavity and mouth. Various surgical techniques for cleft palate correction can be used and each method has advantages and disadvantages.

**Patient and Method:** Here, we report a case of palatoschizis reconstruction using Von Langenbeck technique and hemostatic absorbable gelatin that was carried out at Aliyah 3 Hospital, Kendari, Indonesia.

**Result :** After initial diagnosis, the patient underwent surgery about two weeks later. Von Langenback palatoplasty was performed to close the palate defect.

**Summary:** Optimal surgical planning, good patient orientation and surgical techniques that are carefully considered are essential for optimal results. Herein, we report a case of palatoschizis and reconstructive surgery using von Langenback technique performed to restore the cleft of palate.

**Keywords:** *Cleft Palate; Von Langenbeck Technique; Hemostatic Absorbable Gelatin*

**Latar Belakang:** Sumbing adalah kelainan bawaan yang umum di bibir dan langit-langit mulut. Celah langit-langit mulut atau palatoschizis adalah kelainan bawaan yang terjadi selama kehamilan, mengakibatkan celah langit-langit mulut yang tidak menyatu ke dalam area rongga hidung, sehingga ada hubungan antara rongga hidung dan mulut. Berbagai teknik bedah untuk koreksi langit-langit sumbing dapat digunakan dan setiap metode memiliki kelebihan dan kekurangan.

**Pasien dan Metode:** Kami melaporkan kasus rekonstruksi palatoschizis menggunakan teknik Von Langenbeck dan gelatin yang dapat diserap secara hemostatik yang dilakukan di Rumah Sakit Aliyah 3, Kendari, Indonesia.

**Hasil:** Setelah diagnosis awal, pasien menjalani operasi sekitar dua minggu kemudian. Palatoplasti Von Langenback dilakukan untuk menutup defek palatum.

**Ringkasan:** Perencanaan pembedahan yang optimal, orientasi pasien yang baik dan teknik pembedahan yang dipertimbangkan dengan cermat sangat penting untuk hasil yang optimal. Di sini, kami melaporkan kasus palatoschizis dan bedah rekonstruksi menggunakan teknik von Langenback yang dilakukan untuk mengembalikan celah langit-langit mulut

**Kata Kunci:** *Sumbing Langit-Langit; Teknik Von Langenbeck; Hemostatic Absorbable Gelatin*

**Conflicts of Interest Statement:**

The author(s) listed in this manuscript declare the absence to any conflict of interest on the subject matter or materials discussed.

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## INTRODUCTION

Cleft palate or palatoschizis is a congenital abnormality on the roof of the mouth that the palate does not develop normally during pregnancy, resulting in gap of the palate that does not coalesce into the nasal cavity area. There is a relationship between the nasal cavity and mouth. The clinical situation varies from incomplete to complete cleft palate, also involving the maxillary alveolar process, the palate with nasal bones visible between the gaps.<sup>1</sup> The incidence of oral cleft in the United States is estimated to be 1 in 700 births. This disorder is associated with racial predilection, which occurs less frequently in blacks and occurs more in Asians and Native Americans. Men suffer more orofacial cleft than women with a ratio of 3: 2. When the malformation affects also the lip, it may be referred to as cleft lip and/or cleft lip and palate. The cleft lip and/or palate can be either unilateral or bilateral.<sup>4-6</sup>

Berkowitz explained that there is no single method that is better than the other methods for cleft palate corrections. Each method has advantages and disadvantages that can be considered in the selection of surgical techniques in the correction of the cleft lip and palate.<sup>7</sup> There are several methods that can be used to correct lip and cleft palate. Specifically for cleft palate, several surgical methods are Von Langenback, Pushback, Two or Four Flap, and Furlow.<sup>8</sup>

## PATIENT AND METHOD

Nine year old girl, presented with a cleft on her palate (**Figure 1**). She was born to 38 year old mother in the public health center without any problem. On examination the girl has a cleft incomplete cleft palate without cleft lip. She has three sisters and two brothers without the same condition. She is the youngest child in their family. Family history does not reveal any hereditary disorders .

Preoperative preparation such laboratory blood examination, chest X-ray, and consultation to the pediatrician and anesthesiologist were performed. Laboratory blood tests showed Hb of 12.7 g / dl, WBC 8.2 x10 / uL, PLT 201, Bleeding time 2.1 minutes; Clotting time 6.48 minutes. Chest X-ray examination showed the lungs and heart appeared normal. Consultation with a pediatrician shows that the patient does not suffer from a systemic disease that will interfere with the course of the operation. Consultation with anesthetists resulted in ASA I physical status, no contraindications to surgery. The patient was diagnosed as incomplete palatoschizis.

After initial diagnosis, the patient underwent surgery about two weeks later. Von Langenback palatoplasty was performed to close the palate defect. The defect then closed primarily with 4/0 optime and 6/0 corolene (**Figure 2**). The cavities in lateral palate after surgery have been given hemostatic absorbable gelatin (Spongostan) to prevent bleeding and provide good wound healing.



Figures 1. Clinical pictures of the patient

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Figures 2. Intraoperative images



Figures 3. Three-months postoperative

## RESULTS

After performing postoperative serial control for 3 months the wound was completely healed (**Figure 3**).

## DISCUSSION

Cleft lip is a congenital abnormality that occurs in the primary palate located anterior to the incisive foramen. some cases can be unilateral, bilateral, complete or incomplete. Cleft palate is a congenital abnormality that occurs in the secondary ceiling (soft and hard palate). the case may be unilateral, bilateral, complete or incomplete.<sup>9,10</sup>

As each cleft palate is morphologically unique, the surgical technique that one selects should cater to the alveolar, hard palatal, and soft

As each cleft palate is morphologically unique, the surgical technique that one selects should cater to the alveolar, hard palatal, and soft palatal deficits that are identified. It is not uncommon to integrate components of several types of palatoplasty in order to achieve the goals of oronasal separation, restoring a functional velopharyngeal mechanism, with attention directed to minimizing the impact on maxillary growth.<sup>11</sup>

Basically there are three groups of palatoplasty techniques. One is for hard palate repair, the second for soft palate repair, and the third based on the surgical schedule. Hard palate repair techniques are Veau-Wardill-Kilner V-Y, von Langenback, two-flap, alveolar extension palatoplasty, vomer flap, raw area free palatoplasty, and so on. The soft palate techniques are intravelar veloplasty, double opposing Z-plasty, radical muscle dissection, primary pharyngeal flap, and so on. And the

Broadly used, the von Langenbeck's technique consists of two relaxing incisions on palate mucosa that begin anteriorly on the hard palate, follow the alveolar margin, and end up posterior to the large alveolar tuberosity very close to the hamulus (Bernhard 1972).<sup>13</sup>

In our case, we found incomplete palatoschisis and have used the von Langenbeck technique to repair cleft of the palate. Incisions are made following the borders of the palate cleft, following the boundaries between the nasal and palatal mucosa.

Bone retractors are used to lift and detach the mucoperiosteal flaps in the nasal and oral planes under the palate lamina. The main neurovascular pedicle (which contains the great palatal vessels) is conserved, thereby creating a flap with two pedicles. Dissection continues in the soft palate with identification and dissection of palate muscles, repositioning them posteriorly to the nasal and palatal mucosa. The nasal mucosa is then closed and the extended intravelar veloplasty is performed. Lastly, the palatal mucosa is sutured without tension to avoid complications such as fistulas. This is the objective of the relaxing incisions cited above—they allow the wound to heal by secondary intention.<sup>13</sup>

In evaluating and comparing results after surgical treatment of cleft palate, many variables play a part. In particular, speech results should be related to the age at which palatoplasty has been performed, and strict definitions of the technique applied should be reported. Also, surgeon-independent observers, using standardized examination protocols, should clarify the real extent of successes and failures.<sup>14</sup> Hemostatic absorbable gelatin has many applications to the routine practice of surgery about the mouth, whether it be to control postoperative bleeding or to fill cavities created by the removal of bone or cystic tissue. In most cases, Gelfoam need not be combined with thrombin to affect hemostasis. The material alone or wetted with saline for easier handling will suffice to control bleeding, or act as a space filler. The sponge should, however, be soaked in thrombin when used on patients with bleeding difficulties or severe hemorrhage. The use of an absorbable dressing material has been another advance in oral surgery. Postoperative complications and the necessity for prolonged treatment are often avoided by its use.<sup>15</sup>

## SUMMARY

Optimal surgical planning, good patient orientation and surgical techniques that are carefully considered are essential for optimal results. Herein, we report a case of palatoschisis and reconstructive surgery using von Langenbeck technique performed to restore the cleft of palate.

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