



MEDIAN CLEFT OF UPPER LIP REPAIR USING PFEIFFER INCISION: A RARE CASE REPORT.

Dr. Akash Bhatt*

Director & Consultant Maxillofacial Surgeon Dr. Akash Dental & Facial Trauma Centre, Mogal Kuan, Near Masjid, Bihar Sharif, Nalanda, 803101 Bihar, India. *Corresponding Author

ABSTRACT

Median cleft lip has two types- incomplete and complete. It is a rare anomaly develops because of incomplete or failed fusion of the median nasal prominence. It can present with minimal deformities like involvement of the vermillion border, or complex clefting of the midline structures and brain. This case report describes a rare case of median cleft of the upper lip involving the white roll, which wasn't related to the other deformities. Management of median cleft lip comprises reconstruction of the philtrum with the cupid's bow with the maintenance of vermillion fullness, continuity, and minimizing postoperative scar formation. Various techniques are advocated for treatment of this sort of median upper lip cleft. Here we describe a method using Pfeifer incision to correct the patient's defect. Pfeifer incision consists of wavy lines and its use has been advocated for correction of varied craniofacial abnormalities.

KEYWORDS : Median cleft lip, Tessier 0 class, Pfeifer incision, Craniofacial

INTRODUCTION

Craniofacial abnormalities are uncommon, disfiguring facial anomalies that occur in roughly 1.4 to 4.9 per 100,000 live births.[1] The incidence of Tessier number 0 cleft, or median cleft of the lip, is estimated to be 0.43 percent to 0.73 percent of the craniofacial cleft population. [2,3]. Some of the most common causes of craniofacial clefts are failure of the maxillary processes to fuse, amniotic bands, external pressure, central disorder of the neural crest, and hematomas. [4] The origin of median cleft from upper lip is still unclear, but midline facial clefts developmentally originates in 3rd week of intrauterine life and during this time bilateral thickening of frontonasal prominence takes place. Tessier classified craniofacial clefts based on clinical, radiographic, and surgical findings. Tessier 0 class, or median cleft of the upper lip, can take several forms, ranging from minor lip, vermillion, and nose notching to a large cleft with alveolar defect that splits craniofacial components. [5]. Median clefts are broadly of two variants: true and false; agenesis of the medial nasal process leads to formation of false median clefts, while failure of the medial nasal process to fuse leads to true median clefts. The treatment of median clefts is determined on the clinical presentation of each case. It can range from basic surgical repositioning of the orbicularis muscle and vermillion to cupid's bow and philtrum repair for true median clefts. In the case of false median clefts, complex craniofacial operations are used. Repairing mild or moderate true median cleft lips has been described using a variety of approaches. The Pfeifer incision was used to treat partial CL in which the nasal region had little or minimum deformation. This is a fairly basic approach based on wavy lines that does not necessitate complicated incision designs. The same incision had earlier been used to treat complete CL. Wavy lines in the Pfeifer incision stretch the incised tissues as the waves realign to close in a straight line, as well as providing additional tissue for a tension-free closure. Here we report a rare case of moderate true median cleft of the upper lip managed using a Pfeifer incision.

Case Report

The main complaint of an 18-year-old male patient was a cleft of the upper lip. The family did not have a history of cleft lip and palate. A median cleft of the upper lip incorporating the white roll was identified on examination, with no bony involvements. Tessier type 0 craniofacial cleft or moderate true median cleft of upper lip was detected in the patient. The patient was meticulously investigated for any signs of syndromes, but none were discovered. The patient underwent routine blood investigations and was operated for median cleft lip by Pfeifer incision under general anaesthesia. A Pfeifer incision was used to close the cleft. On both sides of the

white roll, the highest and deepest points were noted. Then, starting from the deepest point and extending over the philtrum immediately above the cleft, a wavy incision line was formed. A diamond incision was made intra orally, slightly beyond the cleft margin, over the vermillion and labial mucosa. The mucosal tissue covering the area medial to the incision site (sterile zone) was removed through an incision. The orbicularis oris muscle was undermining, and it was approximated with 4-0 vicryl. 6-0 ethilon sutures were used to seal the skin in a straight line. The suturing done layer-wise i.e muscle, mucosa and skin. Suturing started from the deepest point of the cupid's bow by joining both the sides to make the bow perfectly then proceeded on towards the vermillion, skin and the mucosa. Cupid's bow was perfectly aligned on both sides, with the same height on both sides. The vermillion shape was good, and the orbicularis oris was kept full and continuous. Sutures were removed after seven days postoperatively and the outcome was satisfactory. The lip was re-evaluated for aesthetic results after a month.

DISCUSSION

Cleft lip deformity is a condition that can be found all over the world. Every year, approximately 32,000 children in India are born with a cleft palate. [6] Defective vascular supply in the region of the cleft, history of use of substances like various drugs (corticosteroids, phenytoin, and retinoids), alcohol, smoking, toxicants, variation in tongue size, and sometimes infection, especially viral during pregnancy, have all been linked to the aetiology of cleft lip and palate. Nutritional deficiency, primarily folic acid and Vitamin A during pregnancy, has also been linked but not proven. Increasing cleft in the progeny is likewise linked to increased maternal age and consanguineous marriage. [7]

The most common way to classify cleft lip and palate is by phenotype. Various categories have been given in the past, as well as various revisions. [8]The issues with cleft lip and palate include appearance and the inability to perform orofacial functions. Absence of perioral muscle integrity, asymmetry of the face, asymmetry of the nose, improper development of supporting osseous structures, and nasal cartilages, along with the nasal septum, are all cosmetic issues. [9] Feeding and speech difficulties are common, and ENT (Ear, Nose, and Throat) infections are common. If the child's weight and haemoglobin are within normal limits, surgical CL is performed at the age of three months. [10] In the developing countries like India, the treatment of cleft lip and palate is delayed because of lack of awareness and low socio-economic conditions of the patients. In this case patient was 18 years old but he doesn't took any treatment so far because of no awareness and low socio-economic status.

A median cleft lip is a cleft that runs vertically across the upper lip's midline. This sort of cleft is an uncommon cleft variety whose developmental origin is unknown. Malfusion of the medial nasal prominences in the midline during the third week of pregnancy is thought to be the reason. [11] It can develop on its own or as part of a syndrome like orofacial-digital syndrome. Craniofacial clefts are uncommon, with just 1.4 to 4.9 incidences per 100,000 live births. [1] Numbers 0 and 14 are assigned to midline cleft lips and noses in the Tessier classification. They are, however, uncommon and are regarded an abnormality, appearing in only 0.37 percent to 0.73 percent of all clefts. This case was Tessier number 0 cleft. Various terminology for anomalies linked with true median clefts that are not accompanied by forebrain abnormalities include median cleft face syndrome, fronto nasal dysplasia, and Tessier 0 clefts [5].

The major purpose of CL treatment is to aid in the balanced and progressive growth of the midface, as well as to correct aesthetic and functional nasolabial issues. The primary goal of a midline CL repair is to create aesthetic closure in the midline, which can be achieved with a flawless white roll match, enough cupid's bow width, proper nasal symmetry, and a small residual scar that does not transgress anatomic limits. [12] CL has been repaired using a variety of approaches, each with its own set of benefits and drawbacks. Straight line, rotation advancement, and triangle flap techniques are used in the majority of the procedures. [13] Urata and Kawamoto [14] documented utilising a V-Y flap to repair mild abnormalities that did not include the white roll, while Weimer et al. [15] employed a diamond incision to treat these anomalies. To address mild cases, Da Silva Frietas and colleagues [16] reported a mucosal Z transposition approach. Millard and Williams [17] suggested employing an inverted V excision for moderate philtrum abnormalities. We used a Pfeifer incision to restore a mild genuine midline cleft in this case report.

The abnormality was linked to an upper lip cleft but did not extend to the nasal region. This is characterised by a deformed cupid's bow, vermillion, and a lack of orbicularis oris continuity. For both complete and incomplete clefts, most surgeons employ a similar incision. The majority of incisions include intricate designs or markings, and only a few may require precise dimensions that are justified for the treatment of complete CL.

The Pfeifer incision is made up of short curved waves that go around the defect, these waves are then mimicked in a straight line, that helps to provide extra length and width of skin tissue to easily repair minor or major defects. [13] The incision design is uncomplicated and does not require any measurements. This incision has already been used to successfully treat other Tessier clefts. It's also been utilised for palate repair, and the outcomes have been encouraging. In our case, we also found the Pfeifer incision is likewise fairly simple to perform. The incision aided the cleft tissues tension-free repair. It also helped align the orbicularis oris and the white roll correctly. We were able to produce enough philtrum and cupid's bow symmetry, which is crucial in circumstances like this. The postoperative results were good, with a symmetrical cupid's bow and philtrum achieving correct proximity of the orbicularis oris muscle and the vermillion. The scar healed well, with no signs of hypertrophy. The final closure line was placed right over the philtrum, which is the single disadvantage of this approach.

The Pfeifer incision enabled tension-free tissue closure with minimum tissue manipulation. Furthermore, because of the incision design's pull on scar tissue in two planes, contraction is decreased, resulting in a better scar. An incision in the philtral pillars allows for a straight line closure. Cupids bow form: a good cupid bow form was created due to the precise

alignment of the white roll and vermillion. As a result, the benefits of this procedure include simple incision marking without any complicated markings or measurements, a decent scar, the ability to adapt the incision according to the size of the defect, suitability for any age group, and reduced time. The only disadvantage is that because the incision marking is nonspecific and no measurements are taken, it necessitates a learning curve.

CONCLUSION

Since the presentation of midline cleft deformities varies widely, each case should be individually considered and treated. Pfeifer incisions can successfully provide mucosal length, vermillion fullness, and lip symmetry in patients with moderate median cleft lip. It is easy and simple to perform. This study had a short follow-up but provided satisfactory results. The results would have been better as the tissue matures with longer follow-up as we have seen cases which have been followed for a long duration.



Figure 1 – Clinical picture of the patient depicting median cleft of upper lip.

Figure 2 – Tessier 0 median cleft of upper lip.



Figure 3 – Incision Marking

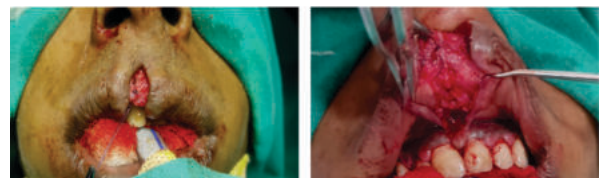


Figure 4 – Intraoperative pictures depicting exposure.



Figure 5 – Postoperative pictures showing the approximation of the deepest point of cupid's bow, white roll and intraoral area.

REFERENCES

1. Kawamoto H. Rare craniofacial clefts. In: McCarthy J, ed. Plastic Surgery. Philadelphia: WB Saunders; 1990:2922-2973.
2. Davis WB. Congenital deformities of the face: types found in a series of one thousand cases. Surg Gynecol Obstet. 1935;61:201-209.
3. Fogh-Anderson P. Rare clefts of the face. Acta Chirurgica Scand. 1965;129:275-281.
4. Rintala AE. Epidemiology of orofacial clefts in Finland: a review. Ann Plast Surg. 1986 Dec;17(6): 456-9.
5. Tessier P. Anatomical classification of facial, cranio-facial, and latero-facial clefts. J Maxillofac Surg. 1976 Jun;4(2):69-92.

6. Reddy SG, Reddy LV, Reddy RR. Developing and standardizing a center to treat cleft and craniofacial anomalies in a developing country like India. *J Craniofac Surg* 2009;20 Suppl 2:1664-7.
7. Gil-da-Silva-Lopes VL, Monlleo IL. Risk factors and the prevention of oral clefts. *Braz Oral Res* 2014;28:1-5.
8. Agrawal K. Classification of cleft lip and palate: An Indian perspective. *J Cleft Lip Palate Craniofac Anomal* 2014;1:78-84.
9. Reddy GS, Webb RM, Reddy RR, Reddy LV, Thomas P, Markus AF, et al. Choice of incision for primary repair of unilateral complete cleft lip: A comparative study of outcomes in 796 patients. *Plast Reconstr Surg* 2008;121:932-40.
10. Shkoukani MA, Chen M, Vong A. Cleft lip - a comprehensive review. *Front Pediatr* 2013;1:53.
11. Mazzola RF. Congenital malformation in the frontonasal are: their pathofenesis and classification. *Clin Plast Surg*. 1976;3:573-509.
12. Markus AF, Delaire J. Functional primary closure of cleft lip. *Br J Oral Maxillofac Surg* 1993;31:281-91.
13. Pandey R, Bhagat N, Gupta R, Khatri A. Use of combination of Millard and Pfeifer incision technique for treatment of unilateral complete cleft of lip: A report of two cases. *SRMJ Res Dent Sci* 2016;7:178-83.
14. Urata MM, Kawamoto Jr HK. Median clefts of the upper lip: a review and surgical management of a minor manifestation. *J Craniofac Surg*. 2003 Sep;14 (5):749-55.
15. Wiemer DR, Hardy SB, Spira M. Anatomical findings in median cleft of upper lip. *Plast Reconstr Surg*. 1978 Dec;62(6):866-9.
16. da Silva Freitas R, Alonso N, Shin JH, Busato L, Ono MC, Cruz GA. Surgical correction of Tessier number 0 cleft. *J Craniofac Surg*. 2008 Sep;19 (5):1348-52.
17. Millard DR Jr, Williams S. Median lip clefts of the upper lip. *Plast Reconstr Surg*. 1968 Jul;42(1):4- 14