

**WIDE PALATAL CLEFT – SINGLE STAGE OR TWO STAGE CLOSURE??**

<sup>1</sup> Visalakshi D	<sup>1</sup> Senior Lecturer
<sup>2</sup> Suresh Kumar M	<sup>2</sup> Reader
<sup>3</sup> Giri K Y	<sup>3</sup> Professor and Head
<sup>4</sup> Sreelakshmi N	<sup>4</sup> Professor

<sup>1,2,3</sup> Department Of Oral and Maxillofacial Surgery, Meghna Institute Of Dental Sciences, Nizamabad.. A.P.

<sup>4</sup> Department Of Pedodontics and Preventive dentistry, Kamineni Institute Of Dental Sciences, Narkatpalli, A.P.

**ABSTRACT**

Clefts of lip and palate presents a distressing blow to the family of the patient and their surgical correction a challenging task for the reconstructive surgeon. The patients affected with this deformity are handicapped by the psychological feeling of separation from the society in addition to the horror of a chain of surgeries and visits to the dental office. In addition to these single procedures requiring two stage approach add to the existing sequence further hampering the psychological well being of the patient.

Closure of a wide palatal cleft often entails a two stage closure to ensure proper speech and functional outcomes to prevent future dehiscence of wounds leading to fistulae formation. This paper discusses the report of a patient reporting with wide palatal cleft of hard and soft palate treated by a single stage closure in an attempt to reduce the number of surgical procedures for the patient, resulting in a satisfactory treatment outcome considering the width of the cleft and age of the patient at the time of presentation.

**KEYWORDS:** Cleft Palate, Wide Cleft, Single stage closure.

**INTRODUCTION**

The abnormal clefting of palate has been of great interest to surgeons for a considerable time. However, rehabilitation of cleft lip or palate patient is not limited only to surgical repair of cleft to restore normal anatomy<sup>1</sup>. A number of functional and morphological aspects such as phonetics, hearing, occlusion and craniofacial growth may be impaired in a patient with cleft palate, which requires surgical intervention by an interdisciplinary team at appropriate time for achieving complete rehabilitation<sup>1</sup>. Recently emphasis is being laid on psychological aspect of a cleft patient's health to allow for their integral rehabilitation in the society. The present case deals with primary closure of a wide palatal cleft of a patient who reported late for surgical repair, where a near satisfactory outcome was achieved.

**Case Report**

A 23 year old female patient reported to the Department of Oral and Maxillofacial Surgery with a complete left unilateral cleft of lip, alveolus, hard and soft palate. Cleft lip was operated previously and presented



**Fig.1 Preoperative photograph of the wide palatal cleft**

with a wide cleft of hard and soft palate, with a width of 21mm at its widest portion (**Fig.1**). The cleft of palate was surgically closed under general anesthesia using the two flap technique. After local infiltration with 2% lignocaine and adrenaline, palatal mucosal flaps were raised based

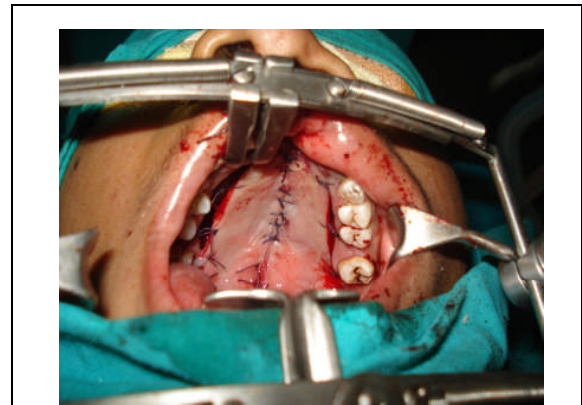
on greater palatine vessels on either side of the cleft by incising along the junction of oral and nasal mucosa on cleft side starting from anterior part of hard palate upto posterior part of soft palate. This incision is continued from anterior part of hard palate along the mucogingival junction on the lateral side upto and behind the maxillary tuberosity. The mucoperiosteal flaps are released and mobilised. The nasal mucosa is released from the nasal side of the palatal shelves. The muscles of soft palate i.e. palatoglossus, palatopharyngeus, tensor veli palatine, levator veli palatine are released from their abnormal attachments and mobilised. Nasal mucosa of the both sides is sutured in the midline of the cleft to form the nasal layer, muscles of the soft palate are sutured in their normal anatomical position and then finally mucoperiosteal flaps are slid towards midline and sutured together to form the oral layer of the cleft palate leaving raw areas on lateral side of palatal shelf to granulate secondarily. 3-0 vicryl was used for suturing all the layers obviating the need for suture removal. The patient is instructed to take liquid for four weeks and oral hygiene instructions given. The palatal healing was uneventful and speech therapy was instituted after complete healing.

**Discussion**

Attaining normal speech and maxillary growth are the primary goals of cleft palate repair<sup>2</sup>. Ideally, cleft palate repair must be completed before the age of 2 years<sup>3,4</sup>. Less satisfactory outcome can be seen in late primary repair even though hypernasality can be eliminated, because of habitually retained compensatory articulation errors<sup>5</sup>.

A study by Skoog<sup>4,6</sup> demonstrated better speech results when cleft palate was repaired before the age of ten years of age. Owing to poor economic status, lack of awareness regarding surgical facilities and inaccessibility to these services, palatal closure is possible only at age of 10 years or later in many children in India. Cleft repair recreates the natural anatomical barrier the nasal and oral cavity, following which most patient show improvement in feeding with special reference to nasal regurgitation. This is the focus of many surgeons to assess the benefits of cleft palate surgery in overall patient satisfaction<sup>1,6</sup>.

The present patient showed an overall improvement in speech intelligibility with variable levels of improvement in the speech parameters like articulation, resonance and nasal air emissions. Home speech training was provided to the patients at the time of discharge. There was significant improvement in the patient's physical appearance following uncompromised feeding and improved nourishment. A study by Rohrich and Gosman<sup>4,5,7</sup> questioned the justification of performing the late primary palate repair with resulting high complication rates and poor speech outcomes. Sell and Grunwell<sup>8,9</sup> indicated that palate repair during adolescence with no



**Fig.2**



**Fig.3.**

**Fig.2.and Fig.3. Immediate post operative photograph after single stage closure using**

supportive speech therapy does not produce significant improvement in speech. In contrast, patients older than 10 years of age who received late primary repair with no following speech therapy also showed some improvement in speech<sup>4</sup>. Other secondary factors that may influence speech outcomes are width of cleft, length of the cleft palate and the technique of palate repair used. In clinical practice, clefts of the palate more than 15mm wide are difficult to repair<sup>4</sup>.

Diffenbach<sup>1</sup> recommended that clefts of the hard palate could be closed by separating palatal mucosa from the bone, and/or lateral relaxing osteotomies to close secondary palatal clefts. Warren mentioned that narrowing of a wide cleft of hard palate can be induced by early closure of soft palate, which was repopularized by schweckendick<sup>1</sup>. Raising the bilateral mucoperiosteal flaps by subperiosteal dissection was introduced by Langenbeck<sup>1</sup>. Veau pointed out that palatal lengthening was not achieved by this technique and converted Langenbecks bipediced flaps into single pediced flaps based on descending palatine vessels<sup>1</sup>. Modifications of Veau's basic technique were made by Wardill, Kilner and Peet resulting in pushback technique for closure of clefts of the secondary palate<sup>1</sup>.



**Fig.3. Late post operative photograph showing satisfactory palatal healing.**

Simultaneous lengthening of the nasal surface of the velum can be accomplished by the Cronin modification. Furlow advocated a double Z plasty type of cleft palate closure for palatal lengthening<sup>1,10</sup>.

The present case was operated using a two flap technique and the 21mm wide palatal cleft closure was achieved successfully without wound dehiscence or palatal fistula formation. Aiming at achieving satisfactory primary closure of the wide cleft compromised the soft palate lengthening. The patient's nutritional and psychological status showed marked improvement post surgically and speech intelligibility showed some improvement after speech exercises.

Although speech therapy will help to improve learned misarticulations, many patients will need surgical intervention to correct velopharyngeal incompetence.

### CONCLUSION

In developing countries like India, a large number of patients are denied early primary cleft repair considering socioeconomic reasons. Creating the natural anatomically correct barrier between the nose and the mouth rehabilitates the patients and promotes integration in society. Palatal repair in subjects presenting late for surgery has a tremendous encouraging effect on the patient's psychology and function in spite of speech outcomes not being considered satisfactory.

### References

1. Joseph G. McCarthy M. D, Court B. Cutting, M.D, V. Michael Hogan, M.D. Introduction to facial clefts. Plastic surgery. vol.4. Cleft lip & Palate and Craniofacial anomalies. pg 2437.
2. Nyberg J, Westberg LR et al. Speech results after 1 stage Palatoplasty with or without muscle

reconstruction for isolated cleft palate. Cleft Palate Craniofacial. J 2010;47(1):92-103.

<http://dx.doi.org/10.1597/08-222.1>

3. Landis P, Cuc T. Articulation patterns & speech intelligibility of 54 Vietnamese children with unoperated oral cleft; clinical observation & impression. Cleft palate J 1972; 12: 234-243.
4. Jyotsna Murthy, Sunitha sondhilmatham, Syed Altaf Hussain. Speech outcome following late primary palate repair. Cleft palate Craniofac J 2010; vol 47.No.2: 156-161. <http://dx.doi.org/10.1597/08-230.1>
5. Skoog T. The pharyngeal flap operation in cleft palate. Br.J plastic surgery 1965; 18: 256-282. [http://dx.doi.org/10.1016/S0007-1226\(65\)80046-7](http://dx.doi.org/10.1016/S0007-1226(65)80046-7)
6. Rohrich RJ, Gosman AA. An update on the timing of hard palate closure: critical long term analysis. Plast Reconstructive Surgery 2004; 113: 350-352. <http://dx.doi.org/10.1097/01.PRS.0000097286.00667.4F>
7. Rohrich RJ, Edward JL, Steve B, Donnell J. Optimal timing of cleft palate closure. Plast Reconstructive Surgery 2000; 106: 413-419 <http://dx.doi.org/10.1097/00006534-200008000-00026>
8. Sell D, Grunwell P. Speech results following late palatal surgery in previously unoperated Srilankan adolescent with cleft palate. Cleft palate J 1990; 27: 162-168. [http://dx.doi.org/10.1597/1545-1569\(1990\)027<0162:SRFLPS>2.3.CO;2](http://dx.doi.org/10.1597/1545-1569(1990)027<0162:SRFLPS>2.3.CO;2)
9. Sell D, Grunwell P. Speech studies in the unoperated cleft palate subject. Eur J Disord commun. 1994; 29: 151-164. <http://dx.doi.org/10.3109/13682829409041489>
10. Furlow LT Jr. cleft palate repair by double opposing Z-plasty. Plastic Reconstructive Surgery 1986; 78: 724-738. <http://dx.doi.org/10.1097/00006534-198678060-00002>

### Corresponding Author

**Dr. Visalakshi Devarakonda MDS**  
 Senior Lecturer,  
 Department Of Oral and Maxillofacial  
 Surgery  
 Meghna Institute Of Dental Sciences,  
 Nizamabad, A.P.  
 Telephone: +91 9885680404  
 Email: [dr.visalakshi@gmail.com](mailto:dr.visalakshi@gmail.com)