



## LOGISTICS OF SINGLE STAGE CLEFT LIP AND PALATE REPAIR- A 3 YEAR PROSPECTIVE STUDY

### Plastic Surgery

**Dr. Bibhuti Bhusan Nayak** Mch, DNB, Asso. Prof, Department of Plastic Surgery, SCB Medical College, Cuttack, Odisha

**Dr. M. Lopamudra\*** Mch, Assistant Professor, Department of Plastic Surgery, SCB Medical College, Cuttack, Odisha \*Corresponding Author

### ABSTRACT

**Objective:** The purpose of this study was to compare one stage lip and palate repair with two stage repairs with respect to clinical outcome, complications and psychosocial impact.

**Settings and Design:** This was a prospective study of patients with cleft lip and cleft plate operated between June 2015 to May 2018 by the same surgeon

**Materials and Methods:** Between June 2015 to May 2018, 280 patients underwent surgery of cleft lip with cleft palate out of which 181 cases had single stage lip and palate surgery (CLP) and 99 (CL followed by CP) patients have completed both stages.

**Results:** The average time for one stage (CLP) was 1 hour and 30 minutes compared to 2 hours for staged surgery (CL+CP). The group undergoing single stage lip and palate repairs had 4.9% fistula rate compared to 12.1% from the other group. Speech evaluation of both groups was comparable with no significant improvement above 5 year group. The single stage group was 32% more economical with lesser hospital stay and follow ups.

**Conclusions:** Fistula rate was higher in the staged group. The patients save time and gain economically in the single stage group with less psychosocial trauma. There is no scope for drop out for palate surgery in the single stage group.

### KEYWORDS

Anterior palatal fistula; one stage lip and palate repair; palatoplasty; speech result

### INTRODUCTION:

A preliminary account of one stage lip and palate repair was given by Davies<sup>[1]</sup> in 1966. One stage lip and palate repair was practiced in India by Dr.Pinto and subsequently by Dr.Goleria because of noncompliance by patients for palate surgery operated for cleft lip. They called this "Hole-in-one Repair" using golf terminology<sup>[2]</sup>. There are many studies supporting this concept showing favorable results with maxillary growth and speech outcome<sup>[3-6]</sup>. There are some studies which reveal unfavorable results<sup>[7-9]</sup>. Now there are more centers following this practice.

### SUBJECTS AND METHODS:

Since majority of our patients report late, they qualify for this procedure unless there is anesthesia or surgical fitness related problems. The protocol practiced in our center is: child should be 9 months and above, weighing more than 9kg, Hemoglobin more than 10gm. Syndromic clefts are excluded, since there is an increased incidence of congenital cardiac anomalies. The parents are explained about the combined procedure and their consent is obtained. Clinical photographs of all stages are taken. The palate is infiltrated with 1:100,000 solution of adrenaline. Lip marking during this period saves time and gives adequate time for the adrenaline to act on the palate. The procedure for palatoplasty is chosen depending on the needs of the case. The lip is infiltrated before starting oral mucosal closure to allow adequate time for adrenaline to act. Then the lip repair is carried out after completion of palatoplasty. We routinely use 6.0 vicryl rapid for the lip repair to avoid another anaesthesia for suture removal. The Patient is observed in the post anaesthesia care unit for 6 hours and then shifted to the ward if all routine parameters are within normal limits. Clear liquids are allowed and IV fluids omitted after 6 hours. The patient is discharged on the third postoperative day on oral antibiotics, which are continued for 5 days. The patient follows up after 3 weeks when normal diet is allowed. Speech therapy is started after 2 months.

Patients operated under both groups had undergone identical procedures by the same surgeon. One stage group had repair of soft palate, hard palate, alveolus and lip simultaneously. The two stage group had repair of lip and anterior palate followed by repair of hard and soft palate three months later. Millard's lip repair<sup>[9]</sup> was done when the vertical height of medial segment was shorter by 2mm or less. Otherwise Randal- Tennison's lip repair<sup>[10]</sup> was carried out. In bilateral clefts, straight line repair with orbicularis oris reconstruction was done. The alveolus was repaired by periosteal flap. The hard palate closure was done with vomerine and mucoperiosteal flaps. The soft palate was repaired by classical intravelar veloplasty<sup>[11]</sup>. All surgeries were carried out by a single surgeon. None of our patients received presurgical orthodontics.

### RESULTS:

**Table 1: Age and gender distribution**

Female	102	36.42 %
Male	178	63.57 %
<1 year	125	44.64%
1-5 years	128	45.71 %
>5 years	27	9.64 %

**Table-2: Comparison of single stage cleft lip & palate (CLP) with double stage cleft lip followed by cleft palate (CL & CP)**

	CLP (n= 181)	CL & CP (n= 99)
Op-time	1 hr 30 min	2 hr
Anesthesia drug exposure	Single(once)	Double(twice)
Risks of anesthesia	Reduced by 50%	
Medication	Single	Double
Blood loss	Comparable	Comparable
Recovery	Comparable	Comparable
Post-op pain	Slightly more	
Hospital stay	3 days	3 + 3 days
Follow-up	At least 2	At least 4

Between June 2015 to May 2018, 181 cases had one stage lip and palate surgery (CLP) and 99 patients had two staged repair (CL+CP). 99 patients having cleft of lip with palate had first stage lip repairs and were kept for second stage palatoplasty after three months due to exclusion criteria.

The male to female ratio in one stage lip and palate surgery (CLP) was 1.74:1. The average age at surgery was 3.4 years. Patients reporting for surgery below 1 year were 44.64%. [Table 1]

The average time for one stage (CLP) was 1 hour & 30 minutes compared to 2 hours for staged surgery (CL+CP). Operative blood loss was comparable to staged repair. However physiological stress was more since net blood loss per bodyweight was more. However no blood transfusion was necessary for any patient. There was no significant difference in both groups as far as recovery was concerned. The single stage group complained of more pain and discomfort and difficulty in deglutition for 2-3days post surgery which settled down with analgesic cover. 2 patients were admitted for secondary haemorrhage requiring observation. 1 of them was from single stage group. [Table 2]

Of the 181 patients undergoing single stage surgery, only 9 patients

(4.9%) had palatal fistula whereas 12 patients (12.1%) out of the 99 patients undergoing double stage repair reported with palatal fistula.

	No. of patients	palatal fistula (%)
CLP	181	9 (4.9%)
CL+CP	99	12 (12.1%)

Speech evaluation of both groups was comparable with no significant improvement above 5 year group. The age group operated below 2 years had satisfactory speech on follow up. No perceptible facial growth anomaly was observed since the follow up time was less than eight months.

**DISCUSSION:**

The single most advantage of one stage lip and palate repair is preventing drop outs after lip repair. It is a very safe procedure. There is gain in time for both the surgical team and the patient. The patient is administered single anaesthesia. Pain and discomfort is slightly more in this group. There is no added complication observed because of the combined procedure. The incidence of anterior palatal fistula (4.9%) is less than the staged procedure (12.1%)<sup>[12]</sup>. This is because the surgeon has a superior field in the region of anterior palate in a single stage when lip is wide open and tissue is virgin obviating the need to enter into a scarred area<sup>[13]</sup> [Figure 1, 2,3,4,5]

The speech results between the two groups are comparable and age related. According to Jacobsen and Ponten<sup>[14]</sup> speech results are superior in the one stage group compared to two-stage (delayed hard palate) closure. Patients reporting after 5 years of age had marginal to no benefit in terms of speech. The group which benefited maximally was below 18 months of age, where palatoplasty was performed at the chronologically acceptable time. The conventional age for lip and palate repair may thus be followed in patients reporting in time. The patients deviating from the schedule will benefit from the combined procedure.

Facial growth between the two groups was satisfactory. There are multiple studies based on varying the time schedule for lip and palate repairs, interestingly with no significant differences in midfacial measurement.<sup>[12,15,16]</sup> A longer follow up will be necessary.



Figure 1- a 2 yr old with bilateral cleft lip and palate



Figure 2- picture showing bilateral cleft palate



Figure 3- repaired cleft palate



Figure 4- repaired cleft lip



Figure 5- follow up picture at 4 years of age

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