Primary Cleft Palate Surgery

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GSR Institute of Facial Plastic Surgery



- Non-profit hospital established in 1996
- Dedicated Cleft & Craniofacial Centre of Excellence
 - Presently 1600 cleft and cranio-facial surgeries are done every year
 - 2 surgeons and 4 fellows with full support team
 - More than **20,000** cleft & craniofacial surgeries have been performed since 1996
 - 600 primary new born cleft children are treated every year



Cleft Palate

Cleft of hard and soft palate associated with cleft lip





Type Ia Unilateral complete cleft palate associated with cleft lip with palatal shelves at the same level anteriorly Type Ib

Unilateral complete cleft palate associated with cleft lip with palatal shelves at the different levels anteriorly

How do we identify the affected part? Cleft Palate Cleft of hard and soft palate associated with cleft lip



Type IIa

Bilateral complete cleft palate associated with cleft lip with palatal shelves at the same level of the premaxilla anteriorly



Type IIb

Bilateral complete cleft palate associated with cleft lip with palatal shelves at the different levels of the premaxilla anteriorly

How do we identify the affected part? Cleft Palate

Isolated Cleft Palate





Type IIIa

Cleft of soft palate

Cleft of hard and soft palate

Type IIIb



How do we identify the affected part? Cleft Palate





Type IVa Submucous cleft palate

Type IVb Bifid uvula



SOFT PALATE AND SPEECH



Tensor veli palatini muscle
Levator veli palatini muscle
(To move Soft Palate Cranially)
Palatopharyngeus muscle
Palatoglossus muscle
(To move Soft Palate Pharyngeally)
Musculus Uvulae

Source: Gray's Anatomy



HARD PALATE AND GROWTH

In non-cleft subjects:

- Transverse growth of the maxilla depends on the activity of the overlying palatal mucosa.
- Divided into three distinct zones.



Source: Complete Management of Cleft Lip and Palate : Chapter 5: A. F. Markus, W. P. Smith, J. Delaire

HARD PALATE AND GROWTH

In cleft palate patients

Complete unilateral cleft palate patients:

- The vomer is continuous with the palatal shelf on non-cleft side.
- The palatal fibro mucosa is reduced but maxillary and gingival fibro mucosa are identical to that is found in non-cleft subjects.

Complete bilateral cleft palate patients:

- The vomer is reduced in height though it is anatomically correct position.
- Palatal mucosa on cleft side is same as that of unilateral cleft palate.

Source: Complete Management of Cleft Lip and Palate : Chapter 5: A. F. Markus, W. P. Smith, J. Delaire

How do you decide which is the best way to repair the palate



Palatoplasty

Stage

One Stage Two Stage

Technique

Bardach Delaire Radical Muscle Dissection Furlows

Single Stage Bardach Repair (1997-2001)



Medial Incisions and Lateral incisions to expose the soft palate musculature and mobilize the hard palate flaps Nasal layer carefully preserved and detached from superior to the palatal shelves and sutured. Uvula sutured posteriorly



Detached muscle sutured to the corresponding muscle on the other side Palatal mucosa approximated Adaption sutures placed to hold down hard palate mucosa reducing dead space. Sling sutures placed laterally

Single Stage Bardach Repair (1997-2001)

COMPLETE PALATE CLOSURE (At 12 months)





Two Stage Delaire Repair (2001-2007)

Rationale

Following closure of the soft palate and cleft lip there is function both anteriorly and posteriorly causing the distance between the hamular processes, the tuberosities and the divided hard palate to dramatically diminish by age of about 12 months.

The residual hard palate cleft can be closed at that time, often without the use of lateral palatal incisions.



Source: Oral and Maxillofacial Surgery: Volume 6: Chapter 3: David S. Precious

Two Stage Delaire Repair (2001-2007)

SOFT PALATE CLOSURE (At 8 months)

Transverse incisions are given to move the soft palate medially.

Muscles are completely freed from the nasal layer and reoriented medially towards the midline





Two Stage Delaire Repair (2001-2007)

HARD PALATE CLOSURE (At 18 months)





Review of Surgical Repair (2010)

Retrospective comparison 100 consecutive patients treated with two stage palatoplasty and 100 consecutive patients treated by a single stage palatoplasty

88

- Number of patients 174
 - Two stage palatoplasty 86
 - Single stage palatoplasty
- Follow up period 8 years

Source:

Comparison of treatment outcomes for children operated with one stage and two stage palate repair for complete unilateral cleft palates Reddy R, Gosla Reddy S, Berge SJ, Kuijpers-Jagtman, AM; Submitted for publication to Plastic and Reconstructive Surgery

One Stage Palatoplasty



Complete Palate Repair

Follow up at age 8 years



Two Stage Palatoplasty



Stage I Soft Palate Repair





Follow up at age 8 years

Stage II Hard Palate Repair

Review of Surgical Repair (2010) Post operative index for primary cleft palate repair (Using GOSLON Index and Nasometry)

Comparison of 100 consecutive patients treated with 2 stage palatoplasty with 100 consecutive patients treated with 1 stage palatoplasty

	PRESENT	
	2 Stage	1 Stage
Anterior palatal fistulae	09	11
Fistulae at junction of hard & soft palate	03	01
VPI (Nasometry)	29	31
Disturbed maxillary growth (Crossbite)	48	51

Source:

Comparison of treatment outcomes for children operated with one stage and two stage palate repair for complete unilateral cleft palates Reddy R, Gosla Reddy S, Berge SJ, Kuijpers-Jagtman, AM; Submitted for publication to Plastic and Reconstructive Surgery

Systematic Review

No Randomized Clinical Trials comparing techniques as on December 31, 2015

Source:

Is One Stage Palatoplasty more Advantageous than a Two Stage Palatoplasty. A Systematic Review of Literature. Reddy R, Gosla Reddy S, Berge SJ, Kuijpers-Jagtman, AM; Submitted for publication Plastic and Reconstructive Surgery

Two Stage Repair with muscle dissection (2010)

SOFT PALATE CLOSURE (At age 10 months)



Two Stage Repair with Muscle Dissection (2010) SOFT PALATE CLOSURE (At age 10 months)



Two Stage Repair with muscle dissection (2010)

HARD PALATE CLOSURE (At age 18 months)





Single Stage Bardach Repair (2010)



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Review of Surgical Protocol (2016)

Effect of One and Two Stage Palatoplasty in Children with Unilateral Complete Cleft Lip and Palate on hypernasality and fistula formation: A Randomized Controlled Trial

Rajgopal R. Reddy, Srinivas Gosla Reddy, Stefaaan J. Berge, Ann Kummer, Anne Marie Kuijpers-Jagtman

Prospective randomised study of 100 consecutive children operated for cleft palate repair in complete unilateral cleft defects between January 2010 and December 2010.

The 100 children were divided into two groups (A and B) through block randomization with 20 children in in each block.

Group B

Group A one stage repair two stage repair

(Complete palate at age 12 months) (Soft Palate at age 10 months, Hard Palate at age 18 months)

Effect of One and Two Stage Palatoplasty in Children with Unilateral Complete Cleft Lip and Palate on hypernasality and fistula formation: A Randomized Controlled Trial

> Rajgopal R. Reddy, Srinivas Gosla Reddy, Stefaaan J. Berge, Ann Kummer, Anne Marie Kuijpers-Jagtman

All patients studied for speech and fistula rates.

RESULTS:

Nasalance was statistically higher in the one stage repair

Fistula rate was higher in the two stage repair

Two Stage Furlows Palatoplasty (2011)

SOFT PALATE CLOSURE (At age 10 months)





Two Stage Furlows Palatoplasty (2011)

HARD PALATE CLOSURE (At age 18 months)





Bring the Smile Back



Thank You

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