Complete Cleft Palate: A New Scheme Of Treatment
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Citation

Abstract
The problems of complete cleft palate still represent a great challenge because of the potential associated sequelae and complications with the current treatment scheme which necessitated finding out a new scheme of treatment that can minimize these problems.

INTRODUCTION
Complete cleft palate is a real exhaust for the patient, his family and the treating team. The treatment does not end by closing the cleft, but may extend up to the age of 18 years or more. The increased incidence of complications as speech problems, middle ear infections and palatal fistula let us investigate this problem and compare between two techniques of closure as well as deciding the time of surgery.

INCIDENCE
Cleft lip and cleft palate are the most common congenital anomalies of the head and neck occurring as 1 in 750 live births. In Orientals it is 1:500, in Caucasians it is 1:1000 and in black Americans it is 0.4:1000. The recent views suggest that clefts are due to multifactorial etiology involving many genes and environmental factors. The isolated cleft palate is more heterogeneous. Associated anomalies are seen in cases as Robin syndrome and Fallot's tetralogy. Drugs during pregnancy, consanguinity, and exposure to radiation are common environmental causes in the etiology (Decker and Du Plessis, 1980: His 1901: El-Rakhawy, 1978: Stark and Kernahan 1959: Stark, 1954: Wyszynski et al 1997)

Figure 1
Picture 1

In Saudi Arabia and Malaysia: The Tabuk region lies in the North West of Saudi Arabia. It is a wide district with greatly increasing population. It was calculated that the incidence of cleft palate only 1:350 of live births. For cleft lip or palate, it is 1:250.

Incidence in Malaysia was estimated as 1:700

It was observed that the flow of complete type is more in Malaysia than in Saudi Arabia, while isolated lip or palate are more common in Saudi Arabia. (See table 1 and 2)

Figure 2
Picture 2: Example of bad surgery out-come

Figure 3
Table 1: Nationality of patients

<table>
<thead>
<tr>
<th></th>
<th>Saudi</th>
<th>Malaysian</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>36</td>
<td>8</td>
<td>4</td>
</tr>
</tbody>
</table>
Complete Cleft Palate: A New Scheme Of Treatment

**PATIENTS**

In this study, 48 cases of complete cleft palate had been managed. This study was carried out in Saudi Arabia and Malaysia in the period from 1991 up to 2003. Ten cases had well known congenital syndromes as Pierre Robin, Robert, Ellis-Van Creveld and Achondroplasia Syndromes. Some other cases had family history either brothers, sisters, or parents had the same problem. (Table 3 and illustration 1)

**METHODS**

The 48 patients were divided into two groups for comparing the new scheme and the old one as well as comparing two common popular techniques.

**A- CLASSIC SCHEME**

Patient was left for age of three months to close the lip. Some cases were seen after this age and I called them (Neglected cases). Palate was closed before two years in this group which included 8 cases using Veau Wardil technique, and 15 cases treated by modified Von-Langenpeck technique.

**B- THE NEW SCHEME**

Lip was closed in the first week of life. Palate was closed between 7 and 10 months age. 25 cases were treated in this way using Modified Von Langenpeck technique.

Modification of Von Langenpeck technique: This was done by wide dissection of the mucous membrane of the lateral walls of the pharynx together with double opposing Z-plasties in the soft palate to elongate the palate and uvula (Furlow’s technique),(Pavy, 1994; Lindsay 1975: Von Langenbeck,1861). Backward stitch of the mucosa was done to help to narrow the velo-pharyngeal orifice. In both techniques the other steps were greatly similar. Lateral gauze packs were placed and left in place for 3, to 5 days. (Demonstration 2, 3 and 4)
Wide dissection of the mucosa over the lateral and posterior pharyngeal walls and packing it with gauze was done. Backwards stitching of mucosa by the side of the new uvula. Cress-cross stitches in the mucoperiosteal flaps helped to stabilize the suture line. Placed packs were kept enough period of time until a good healing occurred. Two Z plasties were made posteriorly to elongate the antero-posterior length of the soft palate and decrease the velo-pharyngeal orifice. Antibiotics were continued for 2 to 3 days. Post-operatively the patient was given oral fluids and liquid diet for one week.

RESULTS

<table>
<thead>
<tr>
<th>Technique</th>
<th>VEAU-W</th>
<th>VON-L</th>
<th>VON-L</th>
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</thead>
<tbody>
<tr>
<td>No of cases</td>
<td>8</td>
<td>15</td>
<td>25</td>
</tr>
<tr>
<td>bleeding</td>
<td>---</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Stridors</td>
<td>---</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Missed packs</td>
<td>1</td>
<td>1</td>
<td>---</td>
</tr>
<tr>
<td>Fistula</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Speech</td>
<td>8</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Unsatisfied</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Six cases out of this series (48) had residual fistula. Five cases in group I = 21.7%, 3 cases were treated using Veau-Wardil method = 37.5 % and two cases by Von Langenpeck Method = 13.3 % and only one case in group II = 4%

In group (I) fourteen cases out of 23 had speech problems
equal to 60.9%, while 6 out of 25 cases in group II = 24% had residual speech problems. Speech therapy could manage majority of cases to level of satisfaction in group II, while in group I few cases could be improved and three cases needed pharyngo-plasty to narrow the V-P orifice.

Five cases belong to group I = 21.7% and one case in group II = 4%, needed bone grafting for residual alveolar margin defects, (Tables 4 and illustration 5).

**Figure 12**
Illustration 6:Ectropion of lower lip, let forward growth of teeth

**Figure 13**
Illustration 7: Uvula after closure after related technique showing the velopharyngeal orifice

<table>
<thead>
<tr>
<th>A-Langenpeck</th>
<th>B-Veau</th>
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<tr>
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<table>
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<th>C-Furlow's</th>
<th>D-New</th>
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<tr>
<td><img src="image3.png" alt="Image" /></td>
<td><img src="image4.png" alt="Image" /></td>
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</table>

**Figure 14**
Case 1: Lip closure at one month

**Figure 15**
Case 2: Lip is closed in the 1st week of life
**DISCUSSION**

Out of that number 18 cases (37.5%) had bilateral complete clefts, while 40 cases (62.5%) had unilateral complete clefts.

Twenty cases had left side, 10 cases had right side, and 18 cases had bilateral clefts.

The aim of management in cases of complete palate and lip is to close the lip and correct the shape as soon as possible to treat any psychiatric element for the parents, give the best aesthetic shape for the child, follow up for further palate closure as soon as possible when suitable, to achieve the maximum improvement of speech. Follow up continued for a long time by the speech therapist as well as orthodontic and plastic surgeon. Combination of plastic surgeon, orthodontic surgeon, speech therapist, and a psychiatrist constitute the cleft palate team in both areas where the study was done.
Figure 21
Case 8: 11 years old boy with lip closed and palate closed at 11 years

TIMING OF SURGERY


Our observation in illustration 6, a patient 40 years old came with old burn and ectropion of lower lip showed forwards projection of lower teeth, made me think of early lip closure in complete cleft varieties.

In this study, the author used the lip as a natural appliance to correct the residual alveolar arch deformity, but it should be done as early as possible and it showed acceptable results. Paevy (1994), in France, started to close the lip in the first week of life. He used to operate more than 250 cases per year. He used also to close the palate as early as possible. Heidbuchel et al (1998) studied the effects of early treatment on maxillary arch development in bilateral cleft palate. A study on dental casts between 0 and 4 years of age, showed good results regarding dental and speech outcome.

Ysunza et al (1998), published a study included 41 patients whom were operated at the age of twelve (12) months, and 35 patients were operated at age of six (6) months. He discovered that the outcome of speech was significantly enhanced in the 6 months group, and no compensatory articulation disorders were seen. Both groups had the same degree of maxillary collapse which is less in early operated cases.

It was found in bilateral clefts, that delaying the palatal surgery after the 10th month of age is better for achieving enough growth of the palatal shelves, and fusion of the primary palate and the alveolar arch.

Complications in group (I) were mainly due to delay in lip closure. This delay gave a chance for more stability of palatal shelves, arches, and alveolar margins in the abnormal place, which makes it difficult later to be closed well.

Figure 22
Case 9: 12 years old girl with neglected cleft palate after immediate closure

Figure 23
Case 13: Another 8 years old neglected cleft palate after closure

TECHNIQUE OF PALATE CLOSURE

Two techniques were used, Veau technique and Von Langenbeck technique.

Najmi (1999) used a full thickness skin graft, Malek as in Pavy (1994), Owman-Moll (1998) closed the palate in two stages. In our study we used Von Langenpeck with Fowler's Modification. We added the following points: wide dissection of lateralpharyngeal walls and keeping the packs for few days in lateral slits created after moving the flaps.

Hardens and Mazaheri (1972) studied the effects of cleft
palate on the growth of alveolar margins. They showed also the effects of treatment.

Takahashi et al. (1997) started to do alveolar bone grafting for the residual alveolar notches.

Vacher et al. (1997) studied the effect of treatment on the musculature of the soft palate and correlation to the outcome of treatment. In fact, this effect needs a more detailed study.

Williams et al. (1998) studied the velo-pharyngeal function after palatal surgery.

In our study the speech therapist gave a very good comment about the speech out come in patients treated early by the new scheme.

In our study we tried to return the normal anatomy of the lip and palate as early as possible. We regain the normal anatomy by early closure of the lip. No complications were seen.

CONCLUSION

Complete cleft palate in the present time can be managed in a systematic manner that can provide good esthetic as well as functional results. We recommend closure of the lip immediately after birth, (in the first week of age) and close the palate after the 10th month of age.

Wide mucosal dissection and stitching back of walls of the pharynx, with double (Z) plasties, have a beneficial effect to narrow the pharyngeal orifice to improve the quality of speech.

From the series, the timing and technique we used were effective for closure of the complete cleft palate with minimal complications, and a good speech quality.

The reasons for most of problems were found to be from the primary delay in closing the lip and or the improper lip closure.

REQUEST FOR INFORMATION

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