MANAGEMENT OF CLEFT LIP AND PALATE: AN APPRAISAL OF 50 CASES MANAGED IN ORAL & MAXILLOFACIAL SURGERY DEPARTMENT, ARMED FORCES INSTITUTE OF DENTISTRY, RAWALPINDI, PAKISTAN

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ABSTRACT

From Jan 2006 to Dec 2007 a total of 50 patients of congenital cleft lip & palate were managed in oral and maxillofacial surgical department of Armed Forces Institute of Dentistry (AFID), Rawalpindi. Cleft of the lip was repaired with functional repair technique, and cleft in the palate was repaired using intra velor veloplasty. Cleft lip & palate is a congenital anomaly which requires a coordinated care of the patient involving multiple disciplines of medicine & dentistry. Unfortunately the incidence of clefts is on a rise in developing countries due to lack of awareness and improper handling of pregnancy by the mother. Lack of resources on the part of both, i.e. patients and the medical professionals is not helping the cause. Although a comprehensive care of the cleft patients is far from a reality in the subcontinent, we are reporting the cleft lip & palate cases which have been treated in coordination with different specialties accessible at the Armed Forces Institute of Dentistry (AFID), Rawalpindi. In this study, we highlight the demographics, clinical features and surgical management of cleft lip & palate.

Key words: Cleft Lip and Palate, Management, Oral & Maxillofacial Surgery

INTRODUCTION

Clefts of lip and palate are the most prevalent congenital birth defects in human. A recent study by Elahi et al describing population based data on the incidence of cleft lip and palate obtained from birth registry information in Pakistan revealed an incidence of 1.91 per 1000 births (one per 523 births). The incidence of cleft lip and palate in multi ethnic Hawaii population was reported as 12.5 per 10,000 live births and 1.94 per 1000 live births for cleft lip with/without palate in the Philippines. For Australian children from Victoria report showed 7.8 per 10,000 pregnancies.

The management of oral clefts is very important and sensitive because these children, once born, start their life with difficulty in the basic instinct of suckling, and are prone to develop deep seated disturbances about their self image. There is also the maternal guilt of giving birth to a deformed child.

The management of oral clefts begins when the first attending pediatrician refers the infant to oral
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cleft surgery unit and feeding device is requested. Pre-
surgical orthopedics management involves the fabrica-
tion and insertion of molding devices. Thus prosth-
odontist and orthodontist have a definite role7,8. The
history of cleft lip and palate surgery shows names of
many distinguished surgeons among them the French
dentist Lemonier is credited with the first Palatal
repair16,22. The present day oral & maxillofacial surgery
apart from primary cleft lip & palate repair offers
alveolar reconstruction9,25,26,27,28, pharyngoplasty20,31,32 and
orthognathic surgery10,29 which are the final steps in the
management. The management of cleft lip and palate
has become a recognized subspecialty of oral & maxil-
lofacial surgery because of availability of allied support
of orthodontist and prosthodontist under the same roof
although there is still lack of awareness11.

The technique of Z-plasty has always been used to
produce acceptable esthetic results. Millard’s rotation
advancement technique12, the complex mathematical
formulae of Tennison14 and Randal13,15 , all have
basic concept of Z-plasty. The names of Le Mesurier16,
Skoog17 and Hagedorn18 are notable for their significant
contributions to cleft lip surgery.” The foundations of
modern day cleft surgery are deeply rooted in den-
tistry. Because of the good work of Hullihen, Truman
Brophy, Chalmers Lyons and Robert Ivy23,24, it has now
progressed from conventional repair to functional cleft
surgery20, and also involves tissue engineering, genet-
ics and fetal surgery1. The proper timing of cleft surgery
has been an issue of heated controversy. The timing
proposed by various authors is as variable as one day to
one year. The results of cleft lip surgery are difficult to
assess objectively due to the many variables involved.

The epidemiology and surgical management of
cleft lip has been described in great detail in Western
literature, however, not much has been written in the
local literature.7,9,2,21 In this study we aim to present our
experience.

MATERIALS AND METHODS

During the period Jan 2006 & Dec 2007, a total of
50 patients belonging to various parts of the country
reported to AFID with cleft lip & palate. AFID is a
referral institute with tertiary care hospital facilities.
Most of the patients were the dependants of the armed
forces personnel. Three patients who had associated
anomalies were excluded. The classification being used
in AFID depicted the clefts as follows:

Cleft lip (Complete or Incomplete)
Cleft lip with alveolus
Cleft palate (Soft or Hard, Right, Left, Complete or
Incomplete)
Unilateral Cleft lip & palate (Complete or Incom-
plete)
Bilateral Cleft lip & palate (Complete or Incom-
plete)
Submucous Cleft

The surgical management of patients with cleft lip
was done using the functional lip repair technique
(Fig3) as advocated by Delaire20. All the clefts were
closed primarily, and no lip adhesions were performed.
Only very wide clefts of lips were closed with Z plasty
technique (Tennison) (Fig1)-14 while all others with
straight line closure (Fig2). In most of the cases, where
required preoperative orthopaedic treatment was used.
General endotracheal anesthesia was employed in all
cases. Inability to intubate, accidental extubation, and
apnea were noted. After marking the cleft margins of
the lip, the three layers of the tissue were dissected and
then re approximated separately. Proline and Vicryl
sutures were used to close the flaps in layers. The
palatoplasty was performed using intra velor-veloplasty
technique . It involves raising the muscles from their
abnormal insertions on the posterior edge of hard
palate and joining them in the centre and all other
layers sutured separately. All mothers had the choice
of breast-feeding their babies following surgery. The
NG tube attached with syringe was used when the
breast-feeding was difficult. A systematic photography
was done pre and post operatively. Patients were
discharged after three days. All the patients were
followed to the possible limits.

RESULTS

We treated 47 patients at AFID during a course of
two years. Out of these 47 patients, 20 (42.5%) were
males while 27 (57.5%) were females (Table 1), giving
a male to female ratio of 1:1.35. Out of 20 males, 11 were
treated in 2006 while 9 of them were treated in 2007.
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Fig 1a: Unilateral Cleft Lip, Pre Operative View
Fig 1b: Unilateral Cleft Lip, Post Operative View

Fig 2a: Unilateral Cleft Lip, Pre Operative View
Fig 2b: Unilateral Cleft Lip, Post Operative View

Fig 3a: Unilateral Cleft Lip, Pre Operative View
Fig 3b: Unilateral Cleft Lip, Post Operative View
Surgical management of 12 female patients was performed in 2006 while that of 15 female patients was done in 2007. The largest age group (Table 2) reporting to AFID was above 1 year of age, reaching up to a number of 28 (59.6%). According to the site (Table 3), 10 (21.27%) patients of bilateral cleft lip & palate, 8 (17.02%) patients of cleft palate, 14 (29.78%) patients of unilateral cleft lip & palate and 1 (2.12%) patient each of alveolar cleft and cleft of soft palate, 13 (27.65%) patients of cleft lip were managed at our centre. Only one patient with bilateral cleft lip had minor dehiscence which did not require resuturing. No death occurred. There were two vermilion mismatches, three residual palatal fistulas and no infection.

**DISCUSSION**

Although this is a relatively small group of patients, however, it indicates that the stigmata of cleft lip in the society can be reduced by organizing and utilizing the services of oral & maxillofacial surgeons all over Pakistan. In our study male to female ratio was 1:1.35 for all type of clefts which is different from other studies in the region, where male predominance has been reported. There were 59.6% patients above the age of one year. Only two patients were in their teens. The important observation in these patients was the relative absence of cleft related maxillary hypoplasia. In cleft lip cases the left side was more commonly involved than right side and isolated cleft palates were

![Graph showing gender distribution of clefts in two years](image)

**Table 1: Gender Distribution of Clefts in Two Years**

<table>
<thead>
<tr>
<th>Year</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>5</td>
<td>20</td>
<td>25</td>
</tr>
<tr>
<td>2007</td>
<td>7</td>
<td>18</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td>38</td>
<td>50</td>
</tr>
</tbody>
</table>

![Graph showing age distribution](image)

**Table 2: Sample Distribution based on Chronological Age**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Pts</th>
</tr>
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<tbody>
<tr>
<td>below 1 yr</td>
<td>20</td>
</tr>
<tr>
<td>1-12 yr</td>
<td>25</td>
</tr>
<tr>
<td>above 12</td>
<td>5</td>
</tr>
</tbody>
</table>
more common in females. These observations have also been reported by another local study. Unilateral complete cleft lip and palate were more common than bilateral. Our demographic results are not very typical because of limited entitlement of treatment in our hospital and also because of being referral centre for a very wide area. We liberally utilized other facilities like Prosthodontics and Orthodontics available in Armed Forces Institute of Dentistry (AFID). The results were quite encouraging and we recommend presurgical orthopedics in the management of cleft lip and palate.

Below is the treatment protocol presently being used in most cleft treatment centers including AFID.

- **Newborn** - Diagnostic examination, general counseling of parents, feeding instructions, palatal obturator (if necessary); specification of diagnosis; recommendation of a protocol for the treatment of a cleft
- **Age 3 months** - Repair of CL (and placement of ventilation tubes)
- **Age 6 months** - Presurgical orthodontics, if necessary; first speech evaluation
- **Age 9 months** - Speech therapy begins
- **Age 9-12 months** - Repair of CP (placement of ventilation tubes if not done at the time of CL repair)
- **Age 1-7 years** - Orthodontic treatment
- **Age 7-8 years** - Alveolar bone graft
- **Older than 8 years** - Orthodontic treatment continues
- **Other surgical procedures can be performed in patients with severe clefts as necessary**

### CONCLUSION

One of the most common congenital afflictions of human being affecting the orofacial region is cleft oral cavity. Oral cavity is the domain of oral surgeon. Oral surgery in particular and dentistry in general involves, in depth, training and research in and around the oral cavity. Most of the specialists treating cleft oral cavity belong to dentistry, because of this uniqueness, the solution to the problem of cleft oral cavity can well be answered by cleft lip and palate surgeons with training in dentistry. When there are too many options available to perform a procedure, then there is no definite option and the same is also true for repair of cleft lip and palate. The concept of a coordinated effort is emerging to treat cleft lip and palate under one roof. This can easily be done as a subspecialty of oral and maxillofacial surgery. Our results support this concept and we favour this concept for Pakistan also.

### REFERENCES