

## CLEFT PALATE TEAM IN GERMANY (INTERDISCIPLINARY CARE MODEL)

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Cleft lip and palate is one of the most common congenital anomalies. Treatment of this deformity presents a serious problem for health delivery systems all over the world. Evaluation and accurate presentation of the long-term results of multidisciplinary treatment are essential to proper assessment of treatment strategies and techniques. In this article, we present a broad spectrum of various problems related to the multidisciplinary treatment of patients with clefts in Germany. The rehabilitation of children born with cleft lip and palate involves the participation of many specialist because of the multiplicity of anatomic and structural changes and the variety of functional problems associated with these changes. Current standards of cleft care include comprehensive multidisciplinary management by a qualified cleft lip and palate team. The concept of an organized team evolved to address fragmentation of care by individual specialists. Specialists from the 3 major areas of cleft care include medical and surgical (maxillo-facial and plastic surgery, pediatrics, nursing, social and psychological services), dental (pedodontics, prosthodontics, orthodontics) and speech and hearing specialists (otolaryngology, audiology, speech therapy). This comprehensive team approach gives the child with a cleft the greatest opportunity for a pleasing appearance, healthy teeth, intact hearing, and intelligible speech. Additionally, the approach allows early identification of problems, should they develop, and limits the negative consequences of facial cleft deformities. The cleft palate team also addresses the complex social and psychological issues in treating persons with these birth defects. Many hospitals throughout the country have established cleft teams for this purpose. In such a team, all the specialists work together to meet the needs of a growing child with a cleft. The team approach provides a broad perspective of the child which includes the family, social, emotional, psychological, and educational needs.

In Germany, cleft lip and palate teams vary in location, scope of services, membership, and funding. The cleft lip and palate teams exist in university tertiary medical centers.

### *Role of the Cleft team members in Germany*

#### *· Oral and maxillofacial surgeon*

All surgical management of the cleft lip and palate patient is performed by these surgeons. They evaluate the effects of lip and palate surgery

and do extensive planning in surgical procedures, including secondary corrections of the lip-nose and palate deformities, bone grafting and surgical-orthodontic treatment.

#### *· Orthodontist*

The orthodontists are responsible primarily for correction of malocclusion. They analyze maxillary retrusion and mandibular prognathism relative to craniofacial growth. They play an important role in integrating surgical and orthodontic treatment.

#### *· Pedodontist*

The pedodontists are responsible for the prevention of dental caries. When patients are admitted for lip or palate surgery, the pedodontist counsels the parents about oral hygiene and arranges regular check-up examinations.

#### *· Speech Therapist*

The speech therapist evaluates speech and language development. Examinations include analysis and evaluation of speech intelligibility, audiometry and sound spectrograph analysis, among other factors.

#### *· Pediatrician*

The pediatricians advise on nutrition and physical condition. Also, they recommend the appropriate timing for surgery.

#### *· Otolaryngologist*

The otolaryngologists may recommend hearing testing or place the patient under observation when hearing impairment or middle-ear effusion is suspected.

### *The incidence of cleft lip and palate in Germany*

The true incidence of cleft lip and palate is controversial. Current genetic research does not segregate cases by syndromic involvement. Despite this, awareness of the categories (clefting with or without syndromic involvement) is important to provide appropriate genetic counseling to the affected individual and his or her family. The general incidence of cleft lip with or without cleft palate is believed to be 1 per 700 live births. The incidence of nonsyndromic cleft palate alone is believed to be lower (1 per 2000).

Nonsyndromic cleft palate occurs as follows:

- 1 per 1500-3000 whites
- 1 per 200-5000 blacks
- 1 per 1600-4000 Asians

Estimate of cleft lip with or without cleft palate is as follows:

- 1 per 775-1000 whites

- 1 per 1300-5000 blacks
- 1 per 400-850 Asians

Reports on the incidence of oral clefts in Germany over long periods do not exist because there has been no continuous system of registering malformations in place. However, since 1980 there has been such a system of registration in place in Magdeburg, which, with a population of 1.5 million, has had a yearly birth rate of approximately 8000. Study of data for the region indicates that there has been a very high rate of oral clefts, mainly a cleft lip with or without a cleft palate, with a rate of 1.85 per 1000 births, ie. 1:540. 22% of all children with oral clefts had additional malformations. Heart defects accounted for the highest occurrence at about 10%. A peak occurrence of neural tube defects from 1987 to 1989 resulting in increased incidence of clefts in 1988 and 1989 may be a causal factor in the high overall incidence reported.

#### **Neontal care**

Management of cleft lip and palate offers a unique challenge for nursing specialist and necessitates a multidisciplinary approach for provision of optimal care. As a vital member of the cleft team, the nurse's role is established immediately after the birth of an infant with a cleft deformity. Initial nursing intervention is related to feeding techniques and the provision of emotional support to the family. Feeding the infant with a cleft prior to repair offers a special nursing challenge.

Feeding methods throughout Germany vary, but most commonly involve the use of bottles with long soft nipples and enlarged holes. In Germany, a simple acrylic feeding plate may be provided by the orthodontist. In most centers, impressions are taken within the first few days for study models, and photographs are taken for documentation purposes.

#### **Presurgical Orthopedic Treatment**

Active presurgical orthopedic alignment of the alveolar segments is carried out in a majority of German centers prior to closure of the lip. Simple obturating/feeding plates is widely used in all centers. Extra-oral strapping is often in conjunction with plates to reduce the width of the cleft of the lip and, in bilateral clefts, to align the premaxilla.

#### **Primary Surgery**

Lip correction in Germany generally the lip is closed when the child is between 2-6 months of age. The surgeon can chose one of several methods according to the kind and extent of the cleft and the kind and quantity of tissue available. In any case the surgeon will carefully study your child's lips and operate using the method which promises the most success for your child. The most favored method of lip closure in Germany is the rotation-advancement of Millard and Pfeifer wave-line procedure. For wide clefts use the Millard technigue. For narrow and incomplete clefts use the wave-line technigue introduced by Pfeiffer in 1970. Incomplete bilateral cleft lip cases are repaired in one operation, most often with a straight-line skin closure or using the wave-line technigue Pfeiffer.

Two-stage lip repair is preferred in complete bilateral clefts to control the premaxillary protrusion by repairing one side at 4 months of age and other at 7 months of age. Palatal closure usually is scheduled at 9 to 24 months of age, prior to the development of speech. The surgeon in the main use primary veloplasty combined with Widmaiers technique for closure of the entire palatal cleft.

#### **Alveolar Bone Grafting**

Closure of the alveolar fistula with bone grafting is performed in the period of mixed dentition, just

Surgical and Orthodontist Protocol in Germany

Table

Age of patient	Surgery	Orthodontist
0-3 days	counseling and information to the parents	counseling
1-4 weeks		presurgical infant orthopedics
2-6 month	primary lip repair-method Millard, Pfeifer wave-line procedure, Tennison-Randall method	
9-18 months	surgical closure of palate- two flap	
3-6 years		early orthodontics treatment
6-11 years	Bone grafting Surgical closure of fistulae	Mixed dentition treatment
11-14 years		comprehensive orthodontics- permanent dentition treatment
16-19 years	Orthognatic surgery Lip, nose revision	Orthodontics in conjunction with orthognathic surgery

prior to the eruption of the canine teeth. This is usually between 7 and 10 years of age.

Orthognathic Surgery in cleft patients.

In the last 30 years far greater advances have been made in correction of the facial skeleton of cleft patients. All patients with complete unilateral or bilateral clefts will develop malalignment of the teeth and some degree of malocclusion.

Ideally, orthognathic surgery for cleft patient is performed when growth of the patient is complete. This usually means around the age of 15 years for girls and 17 to 18 years for boys. Orthodontic bands are applied prior to surgery, and the teeth are aligned within each arch. All levels of maxillary osteotomy ( Le Fort I, II, III) performed in cleft patients with a secondary maxillary deformity. But the most common is the Le Fort I procedure.

### Conclusion

The concept of multidisciplinary management for the treatment of patients with cleft lip and palate comprises the need to provide maximal care and shared responsibility for problems in widely differing fields and to exchange investigative materials for better service.

The goals of treatment for the child with a cleft lip and palate:

- repair the birth defect (lip, palate, nose)
- achieve normal speech, language and hearing
- achieve functional dental occlusion and good dental health

· optimize psychosocial and developmental outcomes

- minimize costs of treatment
- facilitate ethically sound, family-centered, culturally sensitive care

In Germany following themes are use for achieving these goals:

· An interdisciplinary cleft lip/palate team is needed because cleft lip/palate outcomes are in surgical, speech, hearing, dental, psychosocial and cognitive domains.

- Providers with training and expertise in cleft

lip/palate care are needed because of the complexity of treatment interventions.

· Continuity of care is essential because outcomes are measured throughout the child's life.

· Proper timing of interventions is critical because of the interaction of facial growth, dental occlusion and speech.

· Coordination of care is necessary because of the complexity of the medical and social factors that must be considered in treatment decisions.

· Better early management leads to better outcomes, fewer surgeries and lower costs.

This interdisciplinary care model makes the Cleft team in Germany one of the best in the world.

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