

## Key Stages in Cleft Palate Care and the Role of the Dentist

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### Introduction

A cleft palate (CP) is a congenital abnormality of the secondary palate and may be complete or incomplete, unilateral or bilateral, or submucous [1]. Cleft palate is commonly associated with Treacher Collins Syndrome, Stickler Syndrome, Velocardiofacial Syndrome, Opitz G/BBB Syndrome and Pierre Robin Sequence while a combination of cleft lip and palate is associated with Van der Woude and ectrodactyly ectodermal hyperplasia [1]. Isolated cleft palate is more likely to be syndromic than cleft lip and palate [1]. Maternal alcohol consumption is often associated with an increased risk of isolated cleft palate [2]. Other maternal risk factors include diabetes, nutritional factors (e.g. vitamin A, folic acid), and anticonvulsant medication [3].

Dentists play an important role in the treatment of cleft lip and palate patients. They are responsible for advice regarding preventive measures as well as routine dental check-ups. Their support can be crucial in the success of the specialist team. The routine dental treatment of cleft palate patients is significantly more challenging than routine dental care and it is the dentist's responsibility to be well aware of techniques which may provide optimum care for such patients.

### Problems associated with cleft palate

Children with cleft lip and palate usually have poorer dental health than children in general population [4,5]. Major problems associated include feeding, hearing, speech, facial growth, dental anomalies and psychosocial problems [6]. These problems lead to considerable difficulty in dental care. A level of comfort needs to be developed between the patient, his parents and the dentist for his dental care. This probably reflects why nearly 70% of parents prefer to consult their own family dentist rather than visiting (ideally) a paediatric dentist [6].

### Role played by the dentist

The involvement of a dentist with children having cleft palates and their families usually begins before birth and extends well into adulthood [7].

The Clinical Standard Advisory Group has recommended a team that would consist of core dental team members such as orthodontist, surgeon, paediatricians as well as a restorative dentist that would work in a close liaison with psychologists, geneticists and speech therapists [8].

It is essential that the dentist have a working knowledge of the problems faced by cleft palate patients as unfamiliarity with the care pathway can lead to compromise in the level of dental care [9].

### Birth - School (5 years)

Pre-diagnostic tests and ultrasound scanning can detect cleft palate at early stages. Parents who have a family history of cleft palate are more likely to encounter a baby having cleft palates.

CLAPA (Cleft Lip and Palate Association) has good resources regarding information ranging from antenatal diagnosis to feeding. They also organize Parent contact training weekends [10].

A child born with cleft palate has a higher rate of caries and must be registered with a dentist at the earliest. Since orthodontic intervention is not indicated at a deciduous dentition stage, The family dentists plays an important role to provide with early preventive advice [7] regarding good dental habits as well as fluoridation. The family is usually overburdened by the amount of specialists they have to visit and hence the family dentist can also provide a level of comfort at this stage. Parents should be given dietary advice along with instructions in cleaning areas around the cleft [6] with the use of interdental brushes. They should be advised regarding the possibilities of bleeding from inflamed gingivae after surgery.

During the weaning stage, it may be necessary to keep the patient off sugar containing drinks [11]. Advice should also be given regarding the use of acidic fruit drinks [11].

As the child grows up, it is advised to put him on sugar free medicines as far as possible and a four month check-up is usually advised. The dentist must establish a good communication and be understanding in these stages since it may be possible that the patient has trouble with speech and hearing. The dentist must examine the presence or absence of teeth as well as supernumerary teeth and the quality of enamel of developing dentition [12]. Fluoridation is advised after taking into account levels of water fluoridation in the area. Fluoridation can be achieved by toothpastes, varnishes and gels.

### **Mixed dentition stage (5 - 10 years)**

#### **Eruption of maxillary incisors**

Maxillary incisors may be displaced, rotated, hypoplastic or absent [9]. A tendency of a Class III relation developing is seen. Orthodontic treatment is usually deferred till the age of 8 - 11 when the extent of malocclusion is clearer. The parents may be concerned regarding the apparent malocclusion at this point and care should be taken to explain the reasons of deferring the treatment at a later stage. Orthodontic intervention, if necessary, should be carried out only after consulting the cleft team [9].

#### **Alveolar bone graft and constricted maxilla**

Placement of bone grafts is done with the aim of maintaining a continuity with the alveolar bone. This may be affected by the eruption of canine and incisors. Maxillary constriction may occur in some cases requiring orthodontic expansion.

#### **Eruption of permanent molars**

Molars may be of poor quality, but their maintenance is essential and a quad helix may be used to attach them and achieve desired movements. Teeth with hypoplasia may be sensitive and require treatment. The dentist may require to extract teeth which have a hopeless prognosis, but should do so only after consultation with the orthodontist.

As mentioned earlier, the use of meticulous care and prevention is necessary. Fluoride mouth rinses are prescribed specially during orthodontic intervention. Toothpaste containing 1350 ppm of Fluoride is prescribed and fluoride varnish must be applied to teeth 3 - 4 times yearly (2.2% F-) [11]. Proper diet counselling and restricting sugar intake is also reinforced. The patient and parents usually get overwhelmed by the amount of treatment that is required and it is essential for the dentist to maintain a good preventive regime [13].

### **Permanent dentition stage (11 years - adult)**

#### **Orthodontic treatment**

Orthodontic treatment is delayed until most of the permanent teeth have erupted and the extent of malocclusion is completely known [9]. Lateral incisor is missing in 50% of the cases [9] and incisors may be malaligned or rotated and have abnormal shapes. A class III

malocclusion is usually presented. If skeletal discrepancy is not significant, fixed orthodontic appliances can be given at this stage [9]. The orthodontic treatment can cause plaque build-up and additional care may be required during this time. The dentist must explain ways of cleaning teeth during this treatment and prescribe fluoride mouth rinses. Regular check-ups are advised to ensure good oral hygiene. A retention regime is usually required after completion of the orthodontic treatment since the chances of relapse of treatment are high. The dentist must ensure that retainers are regularly used.

### Orthognathic surgery

In patients demonstrating a skeletal malocclusion, which may be the case due to constricted maxilla, orthognathic surgery is required. A class I LeFort surgery is usually carried out to advance the maxilla [9]. Other surgical procedures such as implant surgery can now be considered at this stage.

Some cases may present with obturators or collapsed arches and fistulae. In these cases the chances of early surgical intervention is lost. The dentist must make sure proper advice is given and such patients are directed to the proper cleft team.

### Conclusion

It may be impossible for the entire cleft team to monitor stages of treatment. This responsibility lies with the dentist. Proper advice, regular dental check-ups and close coordination with the cleft team is essential. The dentist must ensure that the patient is reinforced with proper preventive strategy at every stage.

The amount and time required for treatment that is carried out may burden both children as well as parents in different stages of his childhood. The dentist should aim for a treatment plan that would cause minimal disruption to the child in leading and enjoying a normal childhood while dealing with the adverse consequences of the defect.

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