



American Cleft Palate– Craniofacial Association

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Replacing a Missing Tooth

Patients born with cleft lip and/or palate often find that they are missing one or more teeth, most often the lateral incisor (immediately next to the front central incisor). This tooth may be missing on one or both sides; in either case, special planning is needed to solve the functional and cosmetic problems the absence creates.

Who will be involved in dealing with the missing tooth?

Several types of dental specialists will be important in planning treatment. Orthodontists align improperly placed teeth, while prosthodontists can replace missing teeth in a variety of ways. Oral and maxillofacial surgeons perform surgery on the teeth, mouth, and surrounding areas of the head and face. Coordinated planning by all specialists involved is necessary to select the best method of treatment and achieving the best result.

What role does the orthodontist play in replacing a missing tooth?

The large majority of patients with clefts will require full orthodontic treatment, especially if the cleft has passed through the tooth-bearing ridge. The goals of treatment will be to line up the teeth in the arch of the upper jaw, create an arch form that is harmonious with the lower dental arch, and center the upper jaw over the lower jaw. When a tooth is missing, the other teeth may be shifted off center, and their positioning must be corrected too. A space is often opened up and maintained for later replacement of the missing lateral incisor.

During orthodontic treatment, an artificial tooth may be attached to the orthodontic wire as a temporary replacement for the lateral incisor. When the braces are taken off, a removable retainer with an artificial tooth will serve to maintain the space and improve speech and appearance until a definitive restoration is made.

Can the space of the missing tooth be filled by another tooth?

In many instances, the space for the lateral incisor will be orthodontically and/or surgically closed by moving the canine tooth forward into the space normally occupied by the lateral incisor. The canine must then be modified to make it look like a lateral incisor, which is often accomplished by adding plastic or porcelain filling material or a porcelain crown.

What options are available for permanent replacement of the lateral incisor?

Treatment options for the permanent replacement of the lateral incisor depend upon whether or not the cleft has been repaired with a bone graft. (See below for information about patients who have had bone grafts) In a non-grafted dental arch, there are two options for replacement.

In the first option, a removable partial denture may be used to replace the missing tooth. While this option may be made to look acceptable, it has several disadvantages. The removable prosthesis must cover most of the palate for support, which may cause irritation on the roof of the mouth or at the gum line where it rests. Many patients also object to the extra bulk and the removable nature of the partial denture, reporting that it feels unnatural. This type of prosthesis is best used as a temporary replacement.

The second option for a patient without a bone graft is a fixed bridge. The missing tooth is replaced by an artificial one connected to crowns (caps) on the teeth on each side of the cleft. Because there is too little supporting bone beneath the teeth directly next to the cleft, *two* teeth on each side must usually be crowned to give adequate support to the bridge. This type of prosthesis is not removable. Its contours and appearance look and feel more natural than a removable partial denture. However, it does require grinding down the support teeth in order

to crown them and connect them to the artificial tooth. Cleaning between the crowned teeth is also more difficult since they are connected.

At what age can a fixed bridge be made?

In a teenager or young adult, the nerves and blood vessels in the tooth pulps are rather large. Drilling these teeth down for crowns may expose the pulps and require root canal therapy. Therefore, this type of treatment must usually wait until middle adulthood when the pulps are smaller.

What options are available for a patient who has had a bone graft?

Bone grafting the cleft site in the upper jaw creates a more normal arch and may make tooth restoration easier. (See ACPA's Factsheet *Bone Grafting the Cleft Maxilla* for more information on this procedure) A conventional fixed bridge as described above may then be used to replace the tooth. In many cases, however, only one tooth on either side of the cleft needs to be crowned, since the graft has stabilized the arch and added bone. If the teeth that hold the bridge are not otherwise in need of restoration, a resin-bonded fixed bridge requires much less tooth reduction of adjacent teeth, and there is no danger of nerve involvement. A porcelain replacement tooth is held in place by metal extensions cemented to the backs of the adjacent teeth. This process requires less interference with other teeth, but still requires connecting teeth together.

The most natural, lifelike restoration for a patient with a bone graft is a single porcelain crown attached to an osseointegrated dental implant. This method involves a surgical procedure in which a titanium screw the size and shape of a tooth's root is inserted into the bone at the site of the missing tooth. It is covered by the gum for six months while the bone bonds to the implant surface. Then the implant is uncovered, and an artificial tooth (crown) is attached. While this procedure does require minor surgery, it does not require cutting down or crowning any other teeth. Cleaning is also easier because the replacement tooth is not connected to any other teeth. This restoration gives the most natural result, but does require that sufficient bone is present in order to hold the screw.

Please contact ACPA Family Services for further information or for a referral to a cleft palate/craniofacial team.