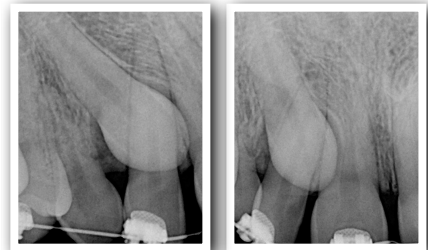


## RADIOGRAPHIC INTERPRETATION

Determining the location of an impacted tooth is very important in achieving the least invasive and most predictable means of tooth exposure. Two main types of radiographs are available: CT Scan or Periapical film.

A CT scan can provide precise information on the three-dimensional location of a tooth. This is particularly useful in more complicated impactions where adjacent tooth roots are in jeopardy of damage.

For the majority of cases, a pair of periapical films taken at slightly different angles will suffice. In this case, the SLOB rule applies: Same Lingual Opposite Buccal. This means that when comparing two films side by side, one being taken more anterior than the first, if the tooth appears to move in the same direction as the film (ie. the tooth moves anteriorly in relation to the adjacent teeth in the more anteriorly positioned film), then the tooth is located lingually. Conversely, if the tooth moves in the opposite direction from the film (ie. the tooth moves distally in relation to the adjacent teeth in the more anteriorly positioned film), then the tooth is located buccally. The radiographs below demonstrate the canine is positioned lingually: the mesial contact of the canine in the first image



the more mesially taken second image. The tooth moves in the same direction as the film, it is lingual.

## TOOTH IMPACTION: CAUSES AND TYPES

Teeth may remain impacted in the mouth for several reasons, the most common of which is genetics. The teeth most likely to be impacted in order of predilection are mandibular third molars, followed by maxillary canines. Besides the esthetic problem when a tooth is not present, there are form and functional issues as well. The lack of normal eruption of teeth leads to deformities in the alveolus, and poor eruption position of the adjacent teeth. This can lead to significant malocclusion or TMJ problems.

When a tooth is not erupting in the expected time frame, a decision needs to be made if the tooth can be utilized or not. Sometimes it is apparent quite early in development that the position of the developing tooth is so far from its normal eruption path, that it is not worth the time or the effort, particularly due to significant risk to adjacent teeth, to attempt to uncover and move the tooth into an appropriate site in the arch. If a tooth can be uncovered and moved into the correct position, then orthodontics is involved to help achieve the desired goal. In the meantime, the way in which the tooth is uncovered becomes important in attempting to achieve the best long term esthetic and hygienic outcomes.

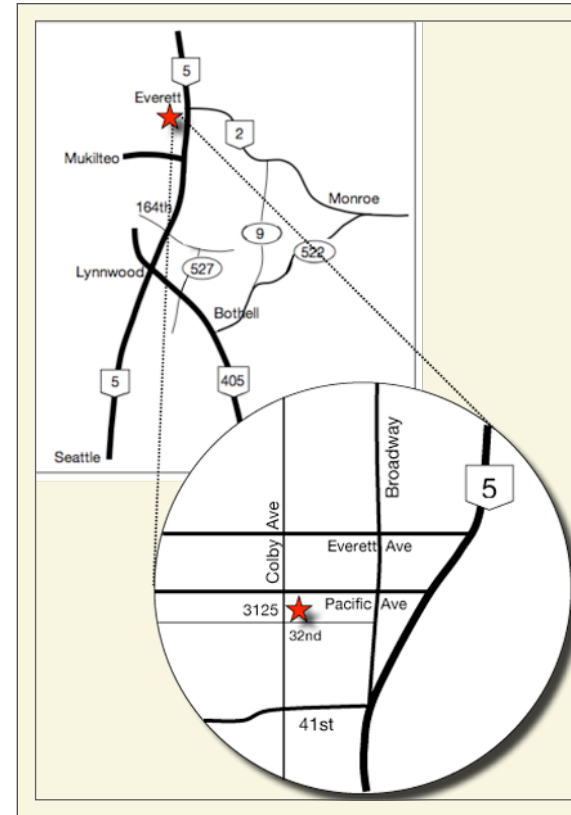
This issue of **ProbeTips** will review the currently most accepted methods for uncovering teeth which are to be used in the mouth which maintain the integrity of the surrounding tissues and provides a foundation for the best long term prognosis.

All cases are patients of Dr. Pamela Nicoara unless otherwise specified.

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# PROBE TIPS

A QUARTERLY PERIODONTAL  
NEWSLETTER

BY PAMELA NICOARA DDS MSD

## Surgical Tooth Uncovering



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# Tooth Uncovering

## GENERAL CONSIDERATIONS

The most common type of tooth uncovering is the maxillary canine. The tooth can be positioned either facially (33%) or lingually (66%) in the alveolus. There are several methods for exposing such teeth facially depending on the location of the incisal edge of the tooth relative to the mucogingival junction (MGJ). Palatally impacted canines are generally treated in one manner. Teeth located in the center of the ridge are easiest to expose.

## CENTRALLY LOCATED TEETH

Teeth that are located in the center of the ridge are usually very easily exposed. Whether a mandibular premolar or maxillary central incisor, a small apically positioned flap will usually suffice. Often times, the exposure of the tooth is sufficient to encourage the remainder of the eruption of the tooth, as with Case 1 below involving the central incisors.

Case 1



1wk PostOp

In other cases, if the tooth is rotated and orthodontics is already in progress, bonding an eyelet or chain to the tooth allows greater control in ideal final positioning of the tooth (see adjacent).



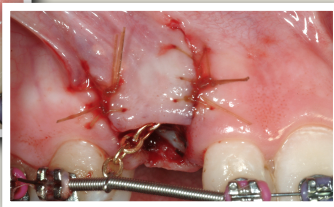
## FACIALLY IMPACTED CANINES

There are three methods for uncovering facially impacted canines, depending on the location of the tooth relative to the MGJ, the anticipated amount of bone that needs to be removed, and the amount of keratinized tissue that is present.

If the tooth is near the crest of the ridge, and coronal to the MGJ, a *punch technique* may be applied to allow bonding of a chain to the tooth, provided there is sufficient keratinized tissue. If there would be less than 3mm of keratinized tissue remaining with a punch technique, or the tooth is positioned very far apically to the MGJ, then a *closed flap procedure* is recommended. This allows temporary exposure of the

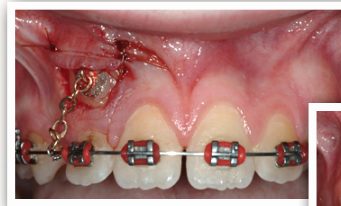


Case 2



tooth in order for the surgeon to bond a chain to the tooth,

then the flap is closed back over the tooth (Case 2). Finally, if there is very little keratinized tissue, an *apically positioned flap* is ideal (Case 3). In this case, the keratinized mucosa near the crest of the ridge is moved apical to the newly exposed tooth, so as to provide a band of keratinized tissue apical to the



Case 3



3yr PostOp

recession and re-intrusion of teeth exposed with an apically positioned flap, it is sometimes the only means available for exposure. Although these techniques are not fool-proof, choosing the correct method of exposure greatly reduces the need for gingival grafting post-orthodontic treatment.

## PALATALLY IMPACTED CANINES

Palatally impacted canines occur in about 2% of the population. They are best treated by exposure which allows time for auto-eruption prior to using orthodontic force to move the tooth into the proper position in the arch. This method greatly reduces the potential damage to adjacent tooth roots by allowing the tooth to find its own path of least resistance into the mouth, rather than being mistakenly guided across adjacent tooth roots, which could lead to root resorption, bone loss, mobility, and long term periodontal and esthetic defects not only on the impacted tooth, but also on the adjacent teeth. This procedure is ideally performed pre-orthodontically, which

shortens the total time in orthodontic brackets.

It is important that the exposed tooth remain exposed in order to facilitate proper auto-eruption. Typically a large palatal flap is raised in order to find the tooth. Any bone covering the crown of the tooth and around the CEJ is removed. An eyelet or button is bonded to the tooth (Case 4), and the flap is replaced. A hole is punched through the flap over the exposed tooth so

Case 4



1mo PostOp, Removal of Barricaid

that application of a barrier material such as Barricaid, can be mechanically held onto the eyelet to prevent overgrowth of the palatal tissue back over the newly exposed tooth. After 3-4 months, the Barricaid dressing is removed as sufficient tooth structure remains supra-gingivally, and after 6-9 months, the tooth is erupted sufficiently to allow the orthodontist to move the tooth into the arch.

## PREVENTIVE CONSIDERATIONS AND LONG TERM IMPACTIONS

For maxillary impacted canines, if the crown of the permanent canine is not positioned past the root of the adjacent lateral incisor, early extraction of the primary canines (age 8 or 9) can be an effective means of redirecting an ectopically erupting canine. If the primary canines have already exfoliated, then orthodontically moving the lateral incisor and pre-molar apart can predictably direct the permanent canine into the correct position. However, if these techniques fail, surgical intervention is required.

Of special note are patients with canines or other teeth impacted for decades. If over 30 years old, it is not uncommon for teeth to be ankylosed. Even if there is mobility at the time of surgery, the tooth may not move orthodontically. If the tooth will move, there is usually significantly more time necessary to move the tooth into the correct position. For adult patients, then, implants (if the impacted tooth can be easily removed) or fixed partial dentures, may be a better long term option.

## REFERENCES

- Dent Practit Dent Rec.* Bass, TB. 1967.
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\*complete references available upon request\*