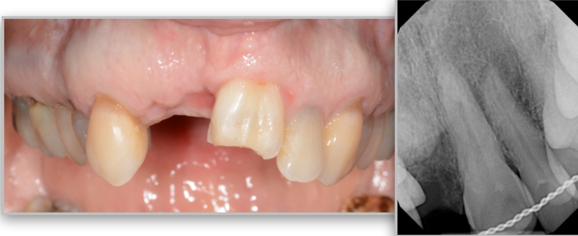
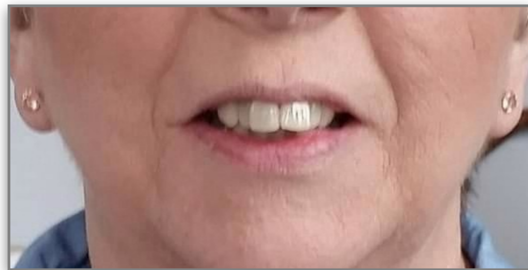
## LK's Treatment Options

The 67 year old female patient in the case below suffered from a fall in which she immediately lost teeth #7 and 8. Tooth #9 intruded and was forced mesially and facially from the fall, but the long term prognosis was questionable at best as root resorption was highly likely.



As you can see from a self taken photo from the patient prior to the accident, there was significant maxillary crowding and a class II relationship of the maxillary teeth to the mandibular teeth.



So with the expectation that tooth #9 was also to be removed, a three tooth space is now to be dealt with.

If the original presentation is attempted to be maintained, considering two implants at site #8 and 9 with a cantilever to replace #7 off implant #8 would result in an obvious deficit in the papilla on the left side distal to #8 compared to the natural papilla distal to #9 on the right.

Because the patient was unhappy with the facial flare of the centrals prior to the fall, a plan was made to orthodontically reduce three tooth spaces to one.

## Multiple Missing Teeth

Replacement of missing teeth can vary from a simple fixed partial denture or single tooth implant, to full arch removable dentures. Either extreme with regard to the number of missing teeth can be relatively easy to correct. However, even two adjacent teeth that are missing can become quite a challenge to restore, particularly when esthetics is a chief concern.

It can be argued that two adjacent missing teeth in the anterior sextant may be one of the most difficult restorations to achieve optimum esthetics, particularly when missing anything other than two central incisors. The difficulty lies in obtaining an interproximal papilla between the two missing tooth sites, as well as matching the porcelain on the missing tooth site to the natural tooth adjacent.

Tarnow and Salama have each published research to indicate that the least possible papilla height from osseous crest is achieved when two implants are side by side (~3mm), and the greatest possible papilla height can be achieved around a pontic (~6mm). Other factors such as ridge and socket grafting, or root banking in the pontic site, increases the chance of success. Even so, nothing beats having an implant between two natural healthy adjacent teeth for the best esthetics, which can also be altered by factors such as soft tissue biotype and variable patient healing capacities.

Please enjoy this issue of **ProbeTips** which will review a case using an orthodontic approach to facilitate replacement of adjacent missing teeth.

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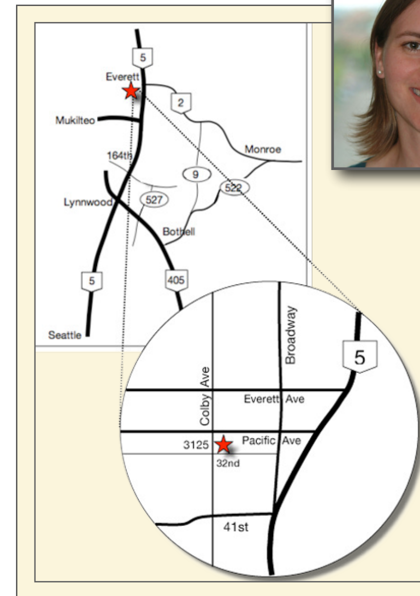
Pamela Nicoara is a Board Certified Periodontist practicing in Everett since 2007. She is a UW Perio graduate, and a transplant from Dallas, Texas.

She is driven to achieve esthetic and predictable outcomes, particularly for anterior implant cases, and is always looking to improve processes and results. You can email her directly below with questions, comments, or suggestions for future newsletters.





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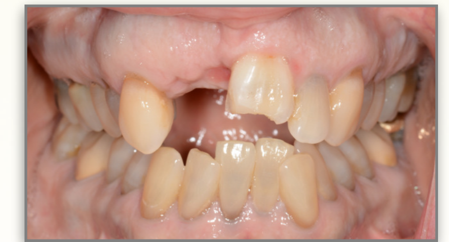
# Probe Tips

A Quarterly Periodontal Newsletter

by Pamela Nicoara DDS MSD

# Managing Traumatic Loss of Multiple Teeth



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# Managing Replacement of Multiple Missing Teeth

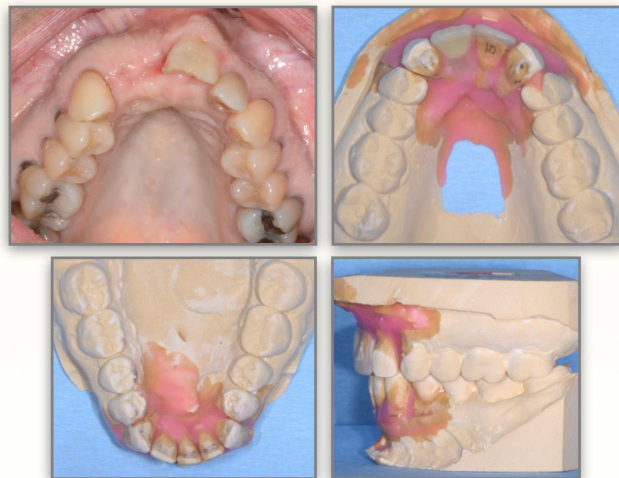
## Weighing the Options

If orthodontic space closure is considered, an orthodontic set up is performed to confirm that such a treatment is feasible.

In this case, the two existing canines would be moved mesially to be substituted for lateral incisors. Canine tooth shape should not be too large or bulky in order to be reduced into the shape of a lateral incisor. Additionally, the plan was to move tooth #10 into the position of #9 and have it substitute for a central. The root of the lateral must be bulky enough to allow for a more normal emergence of the crown from the root, otherwise if the root is too diminutive, the crown will look like a mushroom on the root.

The advantage ultimately is that only one implant is necessary then to replace #8. The disadvantage would be the orthodontic treatment time to accomplish the desired outcome.

The orthodontic set up below confirms that the intended tooth movements and restorations are possible. The patient was already missing a lower incisor.



Orthodontic Set Up by Dr. Graham Jones

## In Progress

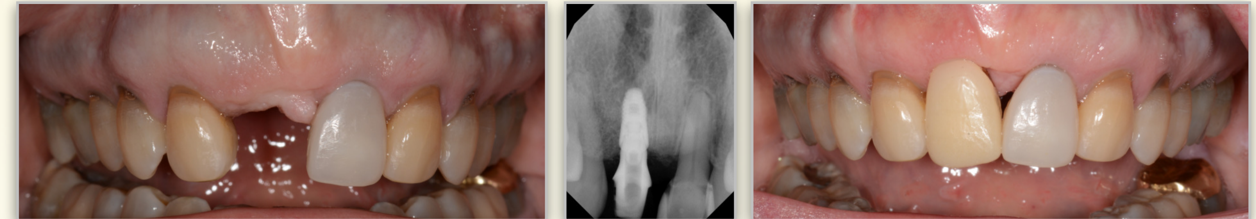
Once it was decided to pursue orthodontic treatment, brackets were placed and tooth #9 was removed. Tooth #10 was slowly moved into site #9, and the canines moved into the lateral positions. Progress photos are below. Various temporary removal appliances were used to mask the missing teeth.

Once #10 was closer to where it should be to replace #9, it was provisionalized by Dr. Kyle Schmidt to mimic the central. The crown on #10 would maintain the gingival margin at the CEJ of #10, but add considerable incisal length to match a central incisor shape. At the same time, Dr. Schmidt also shaped #6 and 11 to look more like lateral incisors, flattening the cusps and reducing facial prominence. This would help guide Dr. Jones to upright #10 and extrude the canines so that their gingival margins would be more coronally positioned as natural lateral incisors would be relative to adjacent central and canine teeth. Bracket placement by Dr. Jones was relative to gingival margins rather than incisal edges.

## Implant Placement and Final Restoration

When orthodontic tooth positioning was completed, spacing was confirmed for implant placement and restoration by myself and Dr. Schmidt. At this point, no further tooth movement would be performed as the implant position would be fixed.

A surgical guide was fabricated with the final restorative tooth position in mind, and the implant was placed. After 4 months, it was provisionalized in my office.



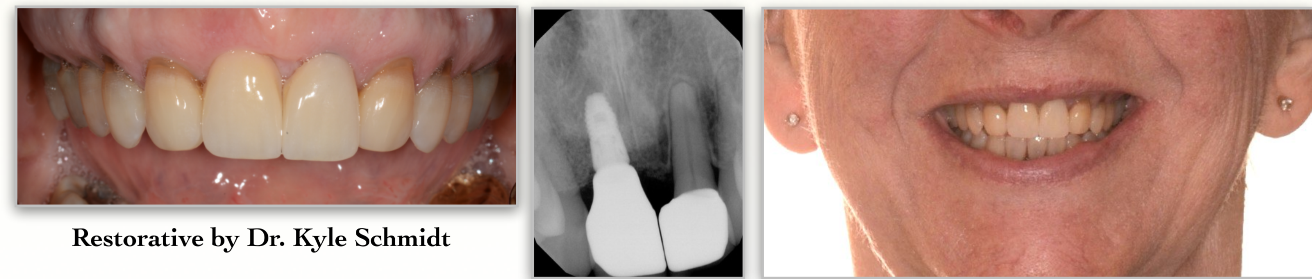
Pre-Operative

Provisionals 4 months after implant placement

The provisional on both the implant and lateral incisor give the restorative dentist an understanding of where additional materials are needed to achieve a better esthetic result, particularly in the mesial embrasure of both centrals to pinch the papilla there and better fill the embrasure.

Despite the thick biotype, root surfaces near the CEJ were visible throughout likely from a past history of aggressive tooth brushing with abrasive toothpastes and an abrasive toothbrush. Gingival grafting is not possible in these situations because the gingiva is at a correct position vertically, and there is not enough papilla interproximally to move the gingiva any further coronally. Any improvements would need to be through facial veneers to cover the exposed root surfaces, but the patient did not want to pursue this.

The final result shows radiographically in particular the extra material needed on the mesial of #10 replacing #9 as the root could not be brought any further mesially orthodontically. Here again you can see that if the root were wider, the emergence would be less aggressive. Regardless, the patient was very happy with the final result.



Restorative by Dr. Kyle Schmidt

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