Question 2 How can I use canine risers to restore canine disocclusion?

Background to the Problem

Natural teeth wear over time, and the loss of enamel tooth structure may ultimately expose the dentin, causing tooth sensitivity and, in some cases, devitalization. The reasons for tooth wear are many. Age-related wear is normal, whereas pathologic wear may result from trauma, parafunction or other activities.

Sleeping posture is known to affect jaw parafunction and unilateral tooth wear. [1] If the canines on one side are extremely worn, the dentist is advised to determine the patient's habitual sleeping position. A pattern of unilateral side-sleeping often causes wear of the canines on the opposite side (frequently with key-in-lock facets), as well as balancing interferences and temporomandibular joint (TMJ) and muscle pain on the sleeping side.

The purpose of canine guidance and canine-protected occlusion is to disocclude the anterior and posterior teeth. As canine wear progresses, the posterior teeth begin to contact in lateral movements and are more prone to symptoms of tooth overload. The anterior teeth (especially the laterals) can also become notched and worn.

Flat guidances[2] are more often associated with TMJ changes on the ipsilateral side.

Management

A dental appliance is often the first approach to treatment. The stabilization splint, often referred to as a Michigan splint, is most effective for stabilizing occlusions and restoring canine protection. Such an appliance should provide for canine lift-off and clearance of any anterior and posterior tooth contacts. The splint is effective while it is being worn. It is primarily worn at night, and may be impractical for day wear.

Training risers made of composite are useful in that they are a full-time measure and can convince the patient or the dentist of the need for a permanent restoration.

Permanent restorations include bonded porcelain or processed ceramic risers, as well as cast gold, metal–ceramic or all-ceramic full- or partial-coverage restorations.

Desirable Patterns of Canine Guidance

Improving canine guidance must involve both canines on the side being treated. Ideally, the lower distal and upper mesial surfaces glide across one another, producing latero-protrusive movement pattern of the jaw, with a downward vector or disocclusion. All ipsilateral posterior working contacts should be concurrently relieved, as should any remaining contralateral balancing interferences. When the treatment is effective, there will be a remittance of early TMJ clicking on the contralateral side. To test the effectiveness of the downward movement of the canines, brace a thin metal spatula against the upper canine and train the patient to move the jaw sideways on the blade of the spatula while palpating the opposite TMJ from the auditory canal. This approach is equally effective in

Figure 1: *Acetate shell is fitted over the canine tooth.*

Figure 2: *Acetate shell is removed before occlusal refinement.*

Figure 3: *Completed riser provides lift-off in right lateral movement.*

demonstrating the effectiveness of removing the balancing or nonworking interferences by occlusal refinement.

Training Risers

1. Give your patient a written statement indicating that this is a provisional training service, not a permanent solution. Informed consent and an estimate of cost are required.
2. Concurrent occlusal adjustment of the balance of the mouth is frequently needed.
3. Determine which surface is most damaged. Check the opposite canine, and reshape it to a more optimal form.
4. Minimal tooth reduction will be required. The enamel must be roughened, but tooth reduction of 0.3 mm is usually sufficient. On the inside or palatal surface, leave 0.5 mm of clearance. Use cheek and lip retractors (Morita, J Morita Corporation, Kyoto, Japan) to provide access to the tooth.
5. Use a transparent plastic crown form, ideally positioned on a diagnostic model, and trim the form to cover only the tip of the canine tooth. Place one or more vent holes from the inside of the crown form (**Fig. 1**).
6. Select a microhybrid composite with good flow characteristics.
7. Isolate and etch the prepared portion of the tooth. Use dentin bonding agent if dentin is involved or unfilled resin. Do not overfill the crown form.
8. Seat the loaded crown form in place, and use your fingers to mimic the shape of the canine.
9. Remove the acetate shell (**Fig. 2**), trim, confirm the desirable occlusal design and polish (**Fig. 3**).
10. Monitor 3 times yearly for wear. Fracture or chipping indicates overload. Anticipate a lifespan of 12–36 months.
11. A supportive night splint or appliance may also be needed.
12. Canine risers should not be considered an insurance benefit, because they represent a provisional service. Any insurance benefit should be claimed when the permanent restoration is done.

Limitations

This approach is useful when damage to the canine tooth is slight. More severe tooth breakdown requires a more definitive restorative approach. ◆

Dr. Nasedkin *is a certified specialist in prosthetic dentistry in Vancouver, B.C.* *He has no declared financial interest in the companies manufacturing the types of products mentioned in this article.*

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