

# **CLINICAL ARTICLE**

# Use of a molar clamp to isolate two adjacent single-rooted teeth: a clinical aid

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#### Abstract

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**Aim** To emphasize the importance of rubber dam isolation in root canal treatment and to present a technique to simultaneously isolate two single-rooted teeth using a molar clamp. **Summary** Isolation of two adjacent teeth with inadequate tooth structure is a challenge. The split-dam technique or using two clamps have drawbacks. This report presents a technique to simultaneously isolate two adjacent single-rooted teeth that are difficult to isolate by conventional methods. Its advantages are efficiency, reduction of radiation exposure, better access, good visibility and isolation.

#### **Key learning points**

- The basis of this technique is to isolate two teeth as two roots of a molar tooth.
- The indications for this technique are two adjacent prepared crowns and crownless roots.

• The appropriate molar clamp can be selected on the basis of the mesial–distal clamp jaw distance being equal to the mesial–distal spacing of the two roots. The buccal–lingual jaw distance of the clamp should be smaller than the dimension of the roots to provide adequate retention.

Keywords: molar clamp, root canal treatment, rubber dam isolation.

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## Introduction

Rubber dam isolation is mandatory for root canal treatment (Grossman 1971, Cohen & Schwartz 1987, Cochran *et al.* 1989). It serves to protect the patient from ingesting or aspirating endodontic instruments and materials and to prevent the gagging reflex. Its use is also necessary to provide a clean, dry field and to prevent bacterial and salivary contamination in the root canal system, which are essential for successful treatment. For

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Figure 1 Incomplete endodontic treatment and chronic apical periodontitis was diagnosed in teeth 21 and 22. The porcelain-fused-to-metal crowns had been removed to reveal severely broken-down coronal tissue.

easy application of rubber dam, it is necessary to use the appropriate equipment, and successful retention often depends upon appropriate clamp selection and placement. Clinically, it is common to find severely broken-down (decoronated) teeth following removal of poorly fitting crowns and bridges, making it difficult for a clamp to be retained (Fig. 1). Several techniques have been reported to overcome this difficulty (Greene *et al.* 1984, Morgan & Marshall 1990). For a single-rooted tooth, a clamp with small jaws (retentive clamp) can solve the problem. For two or more teeth, a split-dam technique is usually recommended (Glickman & Pileggi 2002). However, there are some drawbacks: **1.** For severely broken-down teeth, it is difficult to provide a completely dry field and good visibility using the split-dam technique.

**2.** Because of the mesial–distal relationship of two adjacent teeth and the wings of the clamps, it is difficult to simultaneously isolate both teeth with two clamps (Fig. 2).



Figure 2 Two adjacent anterior teeth are difficult to simultaneously isolate with two clamps. The wings of each clamp often interfere during placement. Cavit is placed to prevent leakage.

This report presents a technique to isolate simultaneously two teeth that were difficult to be isolated by conventional methods, that is, using a molar clamp to isolate two adjacent single-rooted teeth. The basis of this technique was to consider them as two roots of a molar tooth. The indications for this technique are:

**1.** Two adjacent teeth without adequate tooth structure such as those prepared for crowns or two adjacent roots.

2. Two incisors without crown or two severely broken-down premolars.

### Technique

Select an appropriate molar clamp:

**1.** The mesial-distal clamp jaw distance should be equal to the mesial-distal spacing of the two roots.

**2.** The buccal-lingual jaw distance of the clamp should be smaller than the dimension of the roots to provide adequate retention.

3. Try the clamp without rubber dam for stability and retention (Fig. 3).

4. Isolation of the teeth with the clamp and rubber dam (Fig. 4).

#### Discussion

A rapid, simple and effective method of rubber dam isolation is essential for root canal treatment. Several techniques can be used to isolate two adjacent decoronated or prepared single-rooted teeth. Split-dam or large-hole techniques can be useful in some clinical cases (Reid *et al.* 1991, Glickman & Pileggi 2002). However, moisture control, visibility and safety are usually compromised by these techniques. Retentive clamps can be used for teeth with poor coronal structure, but usually only one tooth can be isolated at a time (Fig. 5). This is because when two clamps are used, the wings of each clamp will interfere with each other during placement (Fig. 2) and the bow could compromise vision and access.

The advantages of the present technique are:

**1.** Efficiency and reduction of radiation exposure: because two teeth can be treated simultaneously, efficiency is increased and radiation exposure is reduced. In addition,



Figure 3 The jaws of a molar clamp are retained on two roots to provide stable four-point contact.

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Figure 4 Two teeth are simultaneously isolated with a molar clamp and rubber dam.



Figure 5 A retentive anterior clamp is retained only on one tooth. Its bow will limit vision and access if the two adjacent teeth are also to be treated.

there is no need to adjust or modify the clamp to adapt to the teeth (Glickman & Pileggi 2002).

2. Accessibility and visibility: a single clamp bow will rarely limit vision and endodontic access.

**3.** Good isolation: this technique allows better adaptation and isolation than split-dam techniques.

#### Conclusion

The importance of the rubber dam isolation is recognized. Proper rubber dam placement can be achieved quickly and will enhance root canal treatment. Simultaneous isolation of

adjacent teeth can present a challenge. This report presents a technique that uses a stable molar clamp to isolate two adjacent single-rooted teeth.

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