

## Sharonlay for a mandibular second molar teeth - A Case Report

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**Abstract**

Sharonlay is a single unit post endo restoration, comprising of an Onlay with a Post Extension, which not only gives retention but also reinforces the single rooted premolar at its neck i.e. cervical region. Cervical reinforcement was well achieved with Sharonlay because of its ease in establishing a straight line of draw without excessive loss of tooth structure while designing this single unit cast restoration.

Sharonlay may be indicated in a multirooted tooth mainly for retention especially when the clinical crown is short that it cannot support an onlay or a crown or an Endocrown.

Here an attempt is made to design an Sharonlay for the multirooted second molar making use of the distal canal which is in a straight line of draw to the coronal onlay, it is mainly designed for additional retention as the clinical crown in case of mandibular second molar is short, especially so when it is the last tooth in the arch and tooth structure not adequate to support an only a crown or an Endocrown.

This is the first case of Sharonlay reported on a multirooted molar tooth.

**Keywords:** Post Endodontic Restoration; Mandibular Second Molar; Metal Sharonlay

**Key Messages**

Metal Sharonlay designed on mandibular second molar to enhance retention.

**Introduction**

An Endodontically treated tooth loses its strength to 60%, due to dehydration, caries, access preparation and biomechanical preparation [1,2]. A Post endodontic restoration should not only restore the tooth to its normal form, function and esthetic, but also protect the remaining tooth structure from fracture due to masticatory load [3,4].

The various Post Endodontic restorative options available to treat a posterior tooth are simple access closure, prophylactic post and access closure, post and core with crown, Endo crown, Onlay, to a Sharonlay [5,6]. The Choice of the restorative option is the operator's discretion based on the remaining tooth structure, masticatory load and retention [7,8].

One of the reasons why a full crown fails in spite of a full coverage is the lack of vertical height of the clinical crown, also leading to reduced occlusal clearance [9]. In such situation an intracoronal and extra coronal coverage in the form of an Onlay, Endocrown and Sharonlay [6,10] is suggested to enhance retention.

Sharonlay is a single unit Onlay with a post extending into the root canal to enhance the Retention and Resistance based on the clinical situation [6]. Sharonlay is indicated for single rooted premolar or molar where the root canal is in line with the line of draw of the supra structure-onlay. Case has been reported where a two rooted upper first premolar also has been restored with a Sharonlay, where the buccal canal is blocked and the palatal canal which had a straight line access was used for the post extension [6]. Sharonlay in a single rooted premolar is indicated to enhance retention and cervical resistance [6].

However, a multi rooted molar has not been restored with a Sharonlay, hence here is a case report of a lower second molar restored with Sharonlay to enhance retention.

### Case History

A female patient aged 35yrs, visited Shivani Dental Speciality Clinic & Research Centre with a complaint of dislodged filling in a root canal treated lower right second molar, which was treated 2yrs back. IOPA X ray showed incomplete instrumentation (Figure 1) of the mesial canals. Since the tooth was asymptomatic and patient was not willing for a retreatment, with the consent of the patient it was decided to place a final post endodontic restoration.

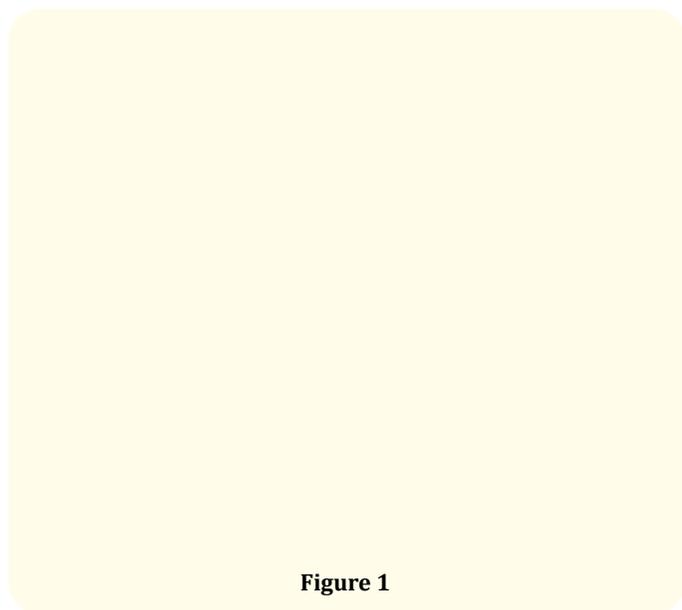


Figure 1

On examination, the second molar on the mandibular right side was the last tooth in the arch as the third molar was not erupted. The crown length was less, especially on the lingual side as the upper tooth had supraerupted into the cavity of the lower tooth, also the residual tooth structure was just 1 mm above the free gingival margin on the lingual and distal side. The pulp chamber was open and shallow with gutta-percha visible in all the 3 canals. Based on clinical picture, the options of core buildup and crown, endocrown also was ruled out because of retentive failures and it was decided to place a Sharonlay, extending into making use of the distal Canal which had a straight line axis and could be aligned with the supra structure (Figure 2) Prepared tooth.

### Clinical Procedure

The gutta-percha in the distal canal was removed up to 6mm, from the canal orifice, with a minimum resultant surface contact of 10mm on the lingual side (4mm of pulp chamber and lingual wall). The canal was enlarged up to peeso reamer 3 and canal aligned to

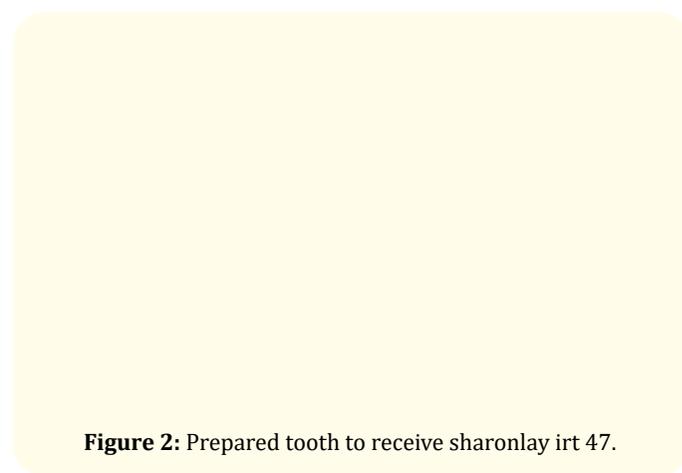


Figure 2: Prepared tooth to receive Sharonlay irt 47.

the line of draw. The Mesiobuccal, Mesiolingual canal orifice and the floor of the pulp chamber was blocked with Poly Carboxylate cement. The remaining portion of the pulp chamber along with the buccal and lingual, mesial and distal walls were prepared with a taper of 5 degree. Minimum of 1.5 mm of occlusal clearance was established and a 1-2 mm of reverse bevel was placed all around, a minimal bevel was placed on the lingual and distal side as the tooth structure was not bulky enough (Figure 3) (Model Lingual view).

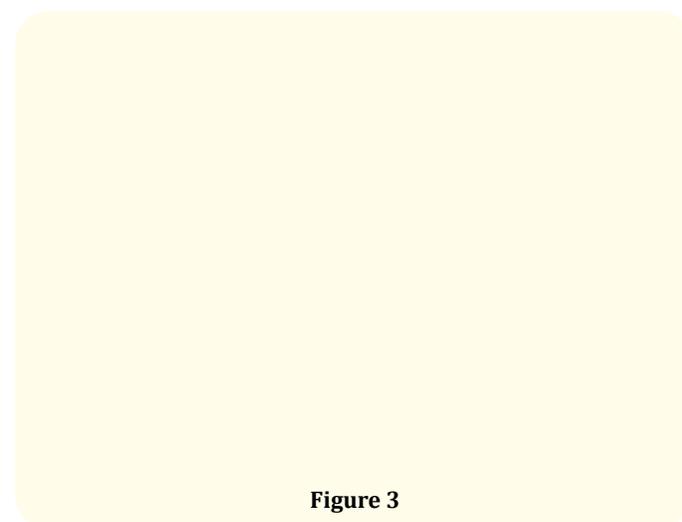


Figure 3

In this case, the impression of the post space was taken in green stick compound, and the remaining portion of the tooth with alginate [Tropicalgin]. Other alternatives such as inlay wax or light body rubber base can be used for impression of the post space, and instead of alginate rubber base could be used for the impression of the tooth in arch [to the convenience of the operator].

The cast is poured, models sent to lab where a die and wax pattern was prepared and Sharonlay fabricated in Ni-Cr alloy and cemented with GIC luting in the patient mouth after trial (Figure 4 and 5) {cast Sharonlay, Finished case}.



Figure 4

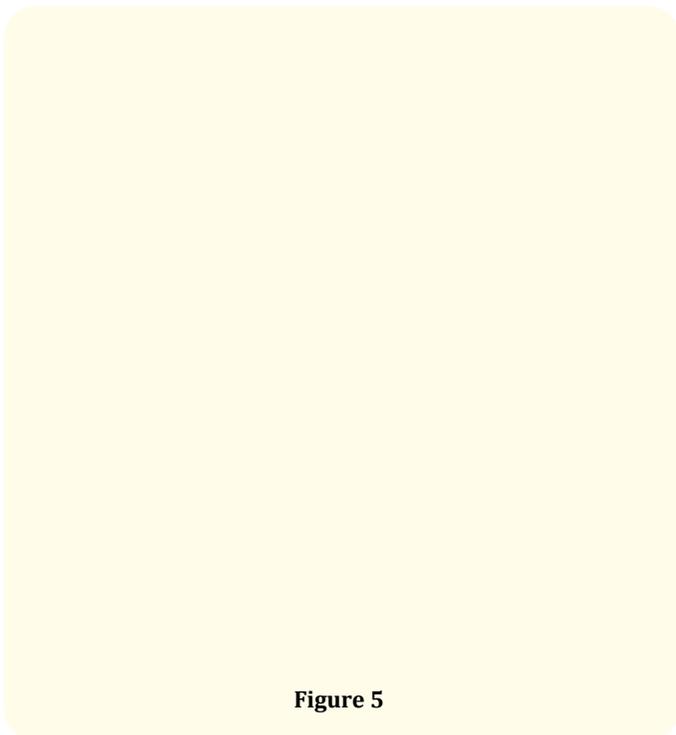


Figure 5

## Discussion

Minimal Invasive Dentistry (Conservative Dentistry), demands minimal tooth preparation even for a post endodontic restoration.

An onlay is the most conservative posterior post-endodontic restoration to withstand compressive loading when adequate tooth structure is available on buccal as well as lingual sides for a posterior teeth, when the vertical crown length is inadequate for a full Crown, an Onlay, or Endocrown, SHARONLAY is a design consisting of an onlay with post extending into the radicular portion of the tooth, casted into a single component giving the advantages of the onlay and radicular post extension is indicated to enhance retention as the post in a multirooted molar does not enhance resistance [10]. Single component restorations have a greater surface area for dissipation of stresses, thereby taking more load before fracturing compared to two unit components [11]. In conventional post and core restorations, the post is extended 3-5 mm short of the apex, whereas in SHARONLAY, the radicular extension can be kept as minimal as possible (minimum 7 mm) so as to enhance resistance at the cervical region and not weakening the radicular portion. However, in cases where the coronal tooth structure is weakened, the length of the post can be proportionately increased to dissipate the load [resistance] and also enhance the retention [12,13]. The diameter of the post would depend upon the final preparation of the canal, with minimal enlargement with size # 3 peeso reamer in order to orient the post to the overlying onlay and provide adequate strength to the post. To conclude Sharonlay provides both retention and resistance based on the clinical condition and designing. Sharonlay in case of second molar is mainly designed for the post to provide retention and the onlay providing resistance to the coronal weakened, short clinical crown.

## Conclusion

Post Endodontic restoration should be planned before commencing a endodontic treatment. Post endodontic restoration is more challenging than endodontic treatment. Selection of appropriate case is of prime consideration for the success of the treatment. A post Endodontic Restoration should not become a cause for endodontic failure. Sometimes the post endodontic restoration is more expensive, which has to discussed with the patient. This is a case report of a Sharonlay in the distal canal designed on a lower 2<sup>nd</sup> molar, with a short clinical crown, with the purpose to enhance retention. A SHARONLAY can be tried in a upper molar using the palatal root.

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