

## **Case report**

### **Access post overdenture – a solution for challenging edentulous situation**

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#### **Abstract**

The dental profession is more aware of the problems associated with a complete denture than any other prosthesis. Sorrowful situation arises due to continuous resorption of the basal bone and lack of proprioception due to loss of teeth. The answer to this nagging problem lies in the scope of “Preventive Prosthodontics”. And there is no better example of such an effort other than overdentures. This paper presents a case report of “Access post overdenture”. The advantage of this overdenture post system lies in its patented, thick walled hollow tube design, stabilizing flanges, and undercuts of the shank which offers strength, retention due to nylon caps, and stability for the prosthesis.

**Key words:** Overdenture, access post, resorbed ridges.

#### **Introduction**

Continuous resorption of the basal bone and lack of proprioception are two major concerns with the loss of teeth. Answer to these nagging problem lies in the scope of “Preventive Prosthodontics” and there is no better example of such an effort other than overdentures.<sup>1</sup> Overdenture is a prosthesis that covers and rests on one or more remaining natural teeth, roots of natural teeth, and/or dental implants.<sup>2</sup> The main aim of using overdenture is to maintain teeth as a part of residual ridge to support prosthesis, decrease rate of residual ridge resorption and to preserve the periodontium around sound teeth to increase patients manipulative skills in handling the denture.<sup>1</sup>

The access post restoration provides a substructure for attachment of the final restoration to the root. Therefore, the ability of a prefabricated post to resist masticatory forces and remain firmly seated in the tooth is critical. The triple tiered parallel passive design of the EDS access post allows the dentist maximum retention while distributing functional stresses evenly<sup>3</sup>.

#### **Case history**

A 54-year-old female patient reported to the Department of Prosthodontics with the chief complaint of midline fracture of upper overdenture (Fig 1). On intraoral examination metal copings with 13, 23, 33 and 43 and gingival inflammation was seen. A treatment protocol was planned which involved removal of coping followed by oral prophylaxis and final prosthetic phase included

access post retained overdenture. The treatment plan was explained to the patient and an informed consent was obtained from the patient.

Access post kit<sup>4</sup> consists of primary reamer, countersink drill, access post and nylon cap. Features of access post are ball and socket attachment which allows rotation of the denture attachment. Thick-walled, hollow tube design which provides strength of solid shank post<sup>5-8</sup>, Vents hydrostatic pressure of cementation, offers ability to remove post without surgically widening the canal<sup>4</sup>, guides retreatment drills for safe post removal and access to the apex. Undercuts of the shank locks-in the post cement to provide high retention.<sup>8</sup> Multiple tier provide greater stability of post and dissipate forces of occlusion that otherwise may fracture post or root.<sup>9</sup> Adapts to anatomical flare of the canal for optimum dentin-to-metal contact and maximum stability. Standard nylon cap provides 3 to 5 pounds of retention and is easily replaced at low cost within office procedure.

#### **Treatment Procedure**

##### ***Step I: Post space preparation***

Tooth was reduced to about 1mm above gingival margin (Fig 2). Post length was measured against undistorted intra oral peri-apical radiograph, leaving 3-5mm of gutta percha. Gutta percha was removed with Peeso reamer. (No. 3 Peeso reamer for Red primary reamer, No. 4 Peeso reamer for Blue primary reamer and No. 5 Peeso reamer for Green primary reamer).

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Primary reamer was used to prepare full length of post. Countersink drill was used to create flange & second tier preparations. Trial insertion of access posts (Essential dental system {EDS}) was done to determine their fit. To adjust post length, apical end was cut to ensure full seating of flange and second tier.



**Figure 1:** Extra oral photograph of patient



**Figure 2:** Intraoral photograph of prepared teeth after removal of metal coping



**Figure 3:** Prepared abutment teeth, cemented with access post



**Figure 4:** Incorporation of nylon caps in denture



**Figure 5:** Post operative photograph

***Step 2: Post cementation***

The canal was etched and luted with resin cement using lentulo-spiral. Post was coated with resin cement and placed in canal till the flange & secondary tiers were fully seated. Excess cement removed (Fig 3).

***Step 3: Denture fabrication:***

Primary impression was made with alginate and a custom tray was fabricated. Secondary impressions were made with medium body addition silicone. Jaw relations were recorded and teeth arrangement was done. Try-in was done and the denture was processed in a conventional manner.

**Step 4: Incorporation of Nylon caps in denture:**

Rubber bands were placed to cover the height of contour of the ball of post. Female caps were placed on the post. Denture was seated in place and chair-side reliner was allowed to set followed by removal of the denture with attachment cap. Rubber bands were removed & flash was trimmed (Fig 4, 5).

**Discussion**

The access post overdenture is a passive, parallel, multi-tiered post that has a ball attachment on its coronal end. The post allows the dentist to utilize the remaining roots to support the retention of a denture. The forces of occlusion, travelling through a short lever arm are generally well tolerated by the residual root. The access post overdenture attachment has the unique design of being a hollow tube allowing for its atraumatic removal if necessary.<sup>3=</sup>

Among various techniques, Access Post retained overdenture has the following added advantages<sup>3-9</sup>

1. Simplicity, predictability and retreat ability.
2. Thick walled, hollow tube design.

3. Ball and socket attachment which allows rotation of the denture.
4. Stabilizing flanges.
5. Undercuts of shank.

Since the EDS access post design utilizes a thick-walled hollow tube configuration, the hollow tube allows easy access to the root canal apex. Therefore, the EDS access post system allow the practitioner to place a stable parallel multi-tiered post with grooved dentin for enhanced retention and in the event of a failed root canal this post can be removed with no harm to the root in a safe and predictable manner.

**Conclusion**

The access post retained denture not only helps in achieving the primary goals of an overdenture. Besides, it is a passive post that provides necessary strength, retention and stability a restoration requires. As the name says, it also gives access to the periapical tissues and ability to retreat if they get infected post-treatment, providing a much predictable overdenture treatment option.

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