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Case Report

Creating natural gingival profiles of missing anterior teeth using ovate pontic

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A 42 year old serving soldier reported to Military Dental Centre, Trivandrum with a complaint of mobile upper left front tooth. On examination upper left central incisor had Grade II mobility with deep periodontal pocket (Fig. 1). RVG showed that teeth 11,21 and 22 were root canal treated and 21 was fractured at the junction of middle and apical third of the tooth (Fig. 2). Patient was concerned about aesthetics of his upper anterior teeth. He also had a high lip line. So it was planned to extract the fractured tooth and replace it with ovate pontic which exactly simulates lost tooth in form, function and aesthetics.

Introduction

Replacing lost teeth has always been an aesthetic challenge in fixed prosthodontics. Preserving the interproximal tissues after the extraction of anterior tooth/teeth is very important and is detrimental for the aesthetic outcome of a case.¹ When a tooth is extracted the recession of the interproximal papilla and the collapse of the buccal bone takes place which makes it difficult to restore the aesthetics to full satisfaction. It is important to preserve the socket size, shape and the space of the gingival tissue in order to preserve the tissue height.²

Over the years, there have been many designs that attempted to create pontics that are both natural and hygienic. The design of ovate pontic gives us an opportunity to achieve both these goals. The ovate pontic is a technique used to create an illusion that the tooth is growing out of the gums, which is also known as emergence profile and can also help to create and maintain the interdental papilla. The ovate pontic contour is an effective design for cleansability.

Ovate pontic fabrication technique

Final tooth preparation was done for the teeth (upper right central and left lateral incisor teeth) adjacent to the tooth to be extracted. An irreversible hydrocolloid impression of the maxillary arch including the teeth prepared and fractured tooth was made. The tooth to be extracted was scored off from the cast making 3 mm depression simulating the post-extraction socket (Fig. 3). Provisional fixed partial denture was fabricated using tooth coloured polymethylmethacrylate resin (Fig. 4). The tooth was extracted atraumatically taking great care not to damage both buccal and lingual plates (Fig. 5). This step is very critical for bone conservation as well as to preserve the interdental papillae.³

Provisional fixed partial denture was inserted on prepared tooth with apical portion of the pontic submerging into the extraction socket by 2–3 mm, so that it creates a depression of 1–1.5 mm once the tissues shrink during healing process (Fig. 6). The necessary adjustments were carried out to facilitate

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Fig. 1 – Pre-operative intra oral view of the patient with teeth in occlusion.

Fig. 2 – RVG showing the fracture of the central incisor at the junction of apical and middle third.

Fig. 3 – Tooth to be extracted is scored out on the model and a depression of 2–3 mm depth was created simulating the post-extraction socket.

Fig. 4 – View of tissue surface of ovate pontic in provisional fixed partial denture before the adjustment.

the proper positioning of the FPD including positioning of ovate pontic. The tissue surface of the pontic was finished and polished so that it does not irritate the healing tissues of the socket and also for preventing bacterial plaque accumulation. The restoration was cemented with provisional restorative material. The patient was instructed to return after 48 h for the removal of provisional restoration and evaluation of the healing socket. After evaluation the provisional restoration was recemented again with provisional luting material. A series of provisional fixed partial dentures were made to manipulate the soft tissues to recreate ovate pontic receptor site.

After 3–4 months once the extraction site was healed and soft tissues were matured (Fig. 7), impression of the abutment tooth and the prepared soft tissue site was made using an elastomeric impression material. Ceramo-metal restoration was fabricated and cemented using type-I luting material (Fig. 8).

Discussion

Patient desire for naturally appearing tooth replacements has prompted the development of various procedures and

Fig. 5 – Intra oral view after the extraction of fractured tooth.

Fig. 6 – Provisional fixed partial denture in situ with tissue surface of the pontic 2–3 mm inside the socket.

Fig. 7 – Intra oral view of the extraction socket after 3 months of healing period.

techniques designed to achieve natural appearance of soft tissues around the replaced tooth.⁴ Specifically, use of ovate pontic is among the most versatile and effective means for obtaining desired aesthetics.⁵ Ovate pontic was first developed by Abrams in 1980.⁶ The concept has been successfully

Fig. 8 – Post operative view of teeth in occlusion with ceramo-metal fixed partial denture in situ.

used in conjunction with fixed and removable partial dentures and also with implant prosthesis. The tissue surface of the pontic can be kept clean using super floss so as to prevent possible tissue inflammation. The convex shape of the tissue surface of the pontic always permits proper cleansing of the edentulous area below it, although some have questioned its viability.⁷ The histological study of the tissue surface of the pontic has not revealed any clinically significant problem with this design when appropriate oral hygiene is maintained.⁸ Daily meticulous cleaning with dental floss to provide continuous moderate pressure against the apex of the pontic and abutment connectors will ensure optimal tissue health.

This procedure has some disadvantages over the other conventional fixed partial denture fabrication procedures. The procedure of creating a pontic bed is time consuming. The detailed attention to tissue healing and existing provisional restoration is necessary for an acceptable marginal fit. Maintenance of oral hygiene by patient plays critical role in success of the procedure.

Conclusion

Aesthetic, functional and hygienic requirement of an artificial tooth in a fixed partial denture can be achieved using ovate pontic. Ovate pontic is recommended for the replacement of missing teeth in aesthetic zone or in patients with high smile line. The pontic creates an illusion of free gingival margin and interdental papilla minimizing the black triangles. Final success of the prosthesis rests with the oral hygiene practices of the patient.

Conflicts of interest

The author has none to declare.

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