



Original article

## Immediate anterior tooth replacement by using an esthetic fixed bridge: A case report<sup>☆</sup>



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### ABSTRACT

**Introduction:** Loss of teeth due to extraction is often found in some cases. Preserving interproximal soft tissue and preventing alveolar bone from collapse due to tooth extraction is the most challenging issue. Ovate pontic design can give a natural look like the teeth out of a healthy gingiva. It can be achieved if temporary bridge with ovate pontic was made immediately after extraction expecting the pontic design becomes a guideline on gingival healing process.

**Objective:** To rehabilitate maxillary anterior tooth loss after extraction with bridge prostheses using ovate pontic design to restore the esthetic.

**Case:** A male aged 26 years came to a Specialist Clinic of Prosthodontics Faculty of Dentistry, University of Indonesia with complaints of the discolored and loosened maxillary anterior teeth. Intraoral and radiographic examination showed non vital maxillary right central incisor with periapical radiolucency, mobility grade 3, discolored, and cervical caries with crown–root ratio is 2:1. While maxillary right lateral incisor is vital with periapical radiolucency, mobility grade 3, crown–root ratio is 2:1. The treatment performed were extraction of maxillary right central and lateral incisor, and temporary bridge with abutment maxillary right canine, maxillary left central and lateral incisor.

**Conclusion:** Bridge prostheses with ovate pontic is an alternative treatment in cases of anterior tooth loss post-extraction requiring esthetic restorations.

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### Introduction

Loss of teeth due to extraction is often found in some cases. When a tooth was extracted, the esthetic of the oral cavity, chewing function, and speech function that previously supported by the tooth will be reduced.<sup>1</sup> In addition, the alveolar bone that supports the teeth sockets can also undergo resorption, as reported by Tan et al., it can reach 63% within a period of 6 months post-extraction.<sup>2</sup> Preserving interproximal soft tissue and preventing alveolar bone from collapse due to tooth extraction is the most challenging issue. Therefore, it is important to maintain tissue height and filling the extracted site with the provisional pontic immediately.<sup>2–5</sup>

There are different types of pontic design have been used in anterior region such as the saddle, the ridge lap, the modified ridge lap and the ovate pontics. The advantage of saddle pontic

is enhanced esthetics, but the disadvantage such as covering the ridge made flossing difficult and leading to poor hygiene maintenance. While the ridge lap pontic was designed to overcome the drawbacks of the saddle pontic, but could not be used for all types of ridge contours.<sup>5</sup> Ovate pontic is kind of pontic with a convex surface to adapt with concave contour of the edentulous mucosa. This pontic is widely used to replace the anterior teeth because it is resulted in the restoration with good emergence profile, helps to maintain the presence of interdental papilla. However, ovate pontic must be accompanied by the maintenance of good oral hygiene since there is an increased risk of plaque accumulation because of the contact of the pontic surface area and the mucosa.<sup>5–7</sup>

The disadvantage of ovate pontic is needed sufficient faciolingual width and apicocoronal height to incorporate the pontic within the edentulous ridge. It was contraindicated for the thin, knife-edge residual ridge. A surgical augmentation procedure was required when the faciolingual and apico incisal dimensions are inadequate.<sup>5</sup>

In this case report, we will discuss about the rehabilitation of the maxillary anterior tooth loss after extraction using bridge prostheses with ovate pontic.

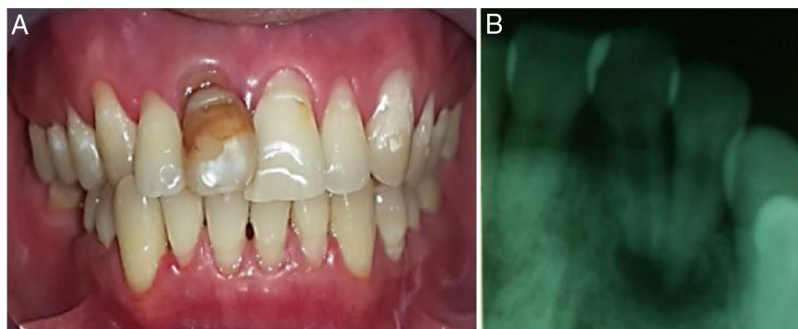
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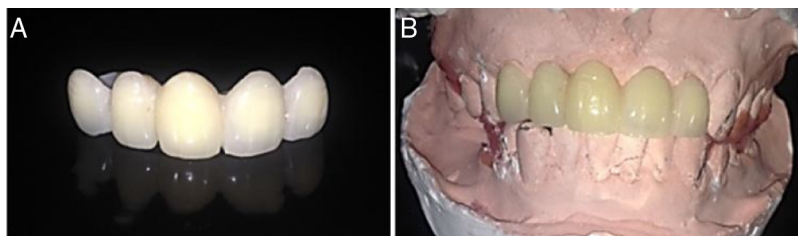
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**Fig. 1.** Extra oral image.



**Fig. 2.** (A) Intra oral image before treatment (frontal view), (B) periapical radiography. Case management.



**Fig. 3.** (A and B) Provisional bridge prostheses.

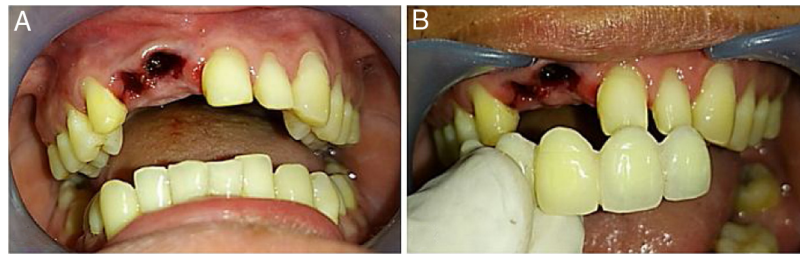
## Case report

A 26 year old male patients came to a Specialist Clinic, Department of Prosthodontic, Faculty of Dentistry, University of Indonesia with complaints of the maxillary anterior teeth were discolored and mobile due to stumble of the floor five years ago and wanted to improve his appearance with denture (Fig. 1). Intraoral examination found a good oral hygiene, normal occlusion with anterior overbite 3 mm and posterior right and left overbite for each 2 mm and 3 mm. Consecutively, anterior overjet and posterior overjet are 2 mm, and also orthognathic jaw relationship. Articulation of the mandible right and left were group function. There is no premature contact but there is blocking on maxillary right canine. Maxillary right central incisor is nonvital tooth with periapical radiolucency, mobility grade 3, discoloration and caries on cervical area, crown to root ratio is 2:1 (Fig. 2). Maxillary right lateral incisor is vital tooth, with periapical abnormality or shown radiolucency, mobility grade 3, crown to root ratio is 2:1. Maxillary right canine, maxillary left central and lateral incisor are vital teeth, with no periapical abnormality, and crown to root ratio is 1:2. The diagnosis of this cases is Kennedy class III and need rehabilitation in the form of rigid

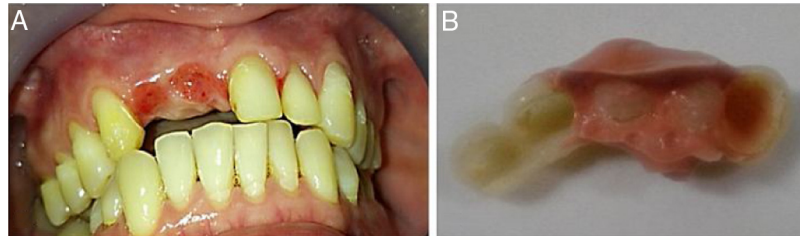
fixed bridge with ovate pontic and retained by fully veneered metal porcelain crowns on maxillary right canine, maxillary left central and lateral incisor.

After fill the medical record by doing anamnesis, clinical examination, then the initial impression using alginate in the upper and lower jaws for model studies. After that, prepare the abutment teeth on maxillary right canine, maxillary left central and lateral incisor, and then impressions were taken for working model to manufacture the temporary bridge prostheses. Once impressions were taken, the crown mounted directly to the abutment teeth that have been prepared. The working model that has been made were sent to a laboratory for making a temporary denture bridge on teeth maxillary right central incisor, maxillary right lateral incisor, maxillary right canine, maxillary left central incisor, maxillary left lateral incisor where in the teeth maxillary right central and lateral incisor were grinded to the depth of 2.5 mm from the gingival crest for preparation of the ovate pontic (Fig. 3).

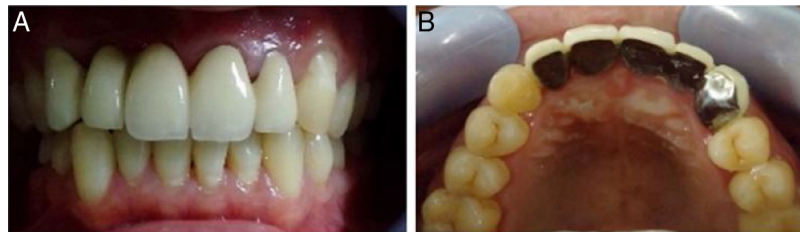
After provisional bridge was made, the patient was referred to the Specialist Clinic of Oral Surgery Faculty of Dentistry, University of Indonesia to get the maxillary right central and lateral incisor extracted. Extractions were done atraumatically to retain the



**Fig. 4.** (A) Post extraction condition and (B) the installation of provisional bridge prostheses.



**Fig. 5.** (A) Post extraction condition after temporary bridge prostheses installation, (B) the pressuring area were checked using PVS.



**Fig. 6.** Try in facing. Try in facing and temporary cementation, there should be no premature contact and no blocking in anterior articulation.



**Fig. 7.** (A) Control 1 month later. (B) Extra oral image after installation of the fixed bridge prostheses.

remnant of the existing tissues (Fig. 4). Then, the provisional bridge was installed, pontic was made into the sockets of maxillary right central and lateral incisor with a convex shape and rounded base. On the labial, embrasure contour the pontic was made so that there is no pressure on interdental papilla. Provisional bridge prostheses was polished using a bur, then mounted using temporary cement.

The first control performed two weeks after extraction, temporary bridge prostheses was lifted, the post extraction socket was still red and then the socket area were cleaned. Second control was done four weeks after extraction, the sockets were still looked reddish because of the pressure of the pontic, so the pontic was polished and the pressuring area were checked using polyvinyl siloxane (PVS). Redness because of the pressure of the pontic has disappeared. The socket form has become scalloped so the impression can be taken to produce working model for manufacture of fixed bridge prostheses (Fig. 5).

Try in facing and temporary cementation, there should be no premature contact and no blocking in anterior articulation (Fig. 6).

Then, as shown in (Fig. 7), permanent cementation was done using permanent luting agent. Control was performed after 1 week later for permanent cementation.

## Discussion

The success of fixed denture should be measured by the satisfaction in restoring function and esthetics, where the goal in the field of restorative and periodontal is to restore form, function, and esthetics.<sup>1,2</sup> Replacing missing teeth in an esthetic area requires prosthetic with corresponding shapes and colors, and also produces natural periodontium tissue around the prostheses.<sup>1</sup>

Restoration of the maxillary anterior teeth are difficult cases, especially in cases with high lip-line. Replace missing teeth in this location becomes more difficult due to the cervical area of the teeth and surrounding soft tissue exposure. Insufficient alveolar bone or alveolar bone deformity is a common problem and affects the esthetic of the restoration that will be made.<sup>2</sup>

Esthetic is important in making fixed restorations in the anterior region but we as clinicians need to see it in a comprehensive manner in which not only the esthetic alone but aspects of biological and mechanical must also be taken into consideration. In these patients, the abutment teeth is maxillary right lateral incisor, maxillary left central and lateral incisor due to the condition of the maxillary left central incisor crown was fractured up to the middle third and in order to increase the resistance of bridge prostheses especially during articulation to anterior, then the maxillary left lateral incisor was engaged as an abutment.

Ovate pontic design was selected because of this pontic design is the most esthetic. Pontic is indicated for anterior teeth because the contour of cemento-enamel junction (CEJ) in the anterior region is more curved, making it look more concave than the posterior region.<sup>7</sup> The convex contact surface at the base of the ridge, resulting in unnatural appearance like teeth out of the gingival. Moreover, the risk of impaction of food is smaller because of the convex form and in contact lightly with gingival, because of the wider and convex geometry made the thickness of porcelain is greater so that its strength is greater than the modified ridge lap, and as the base surface was convex then there is access to dental floss when cleaning. As the base of pontic is in contact with the mucosa, the patient must keep his oral hygiene to avoid tissue inflammation. A study has conducted research using ovate pontic in the region of the premolars and molars. The result proves that with the pontic contact the mucosa with no pressure accompanied with adequate oral hygiene then there is no clinical signs of inflammation found.<sup>8</sup>

## Conclusion

Bridge prostheses with ovate pontic is an alternative treatment options which can produce restorations that not only restore masticatory function, but also esthetic function.

## Conflict of interest

The authors declare no conflict of interest.

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