

## Replacement of Missing Tooth Using Fixed Partial Denture: A Case of Quackery in the Modern Era

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### Abstract

Lately in Malaysia, there is an arise on the issue of dental quackery conducted by quack dentists. Quack dentists are individuals who conducts dental procedures illegally without proper educational dental background, and their treatment includes braces, dentures and dental veneers. The increase of desire to have better smile and dental aesthetics with cheaper service has led to the arise of this illegal cosmetic dental treatment.

This case report describes a case of replacement of a single missing tooth by a quack dentist. Bizarre aesthetic and restorative outcome were noted as six-unit fixed partial denture (dental bridge) was used to replace only one missing tooth 11, involving over the area of five teeth (area of tooth 13 until tooth 22). Other problems related to the bridge was also discussed.

It is hoped that this case report will highlight the presence of quack dentistry in the area of Kuala Lumpur, Malaysia and will urge the authorities to devise a strong national oral health policy to culminate this unethical dental practice.

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### Introduction

Tooth loss is one of the major oral health problem in the world and people with missing teeth usually will exert psychological effects in accepting the tooth loss and change in facial shape, thus will affect their confidence level<sup>1</sup>. Prosthodontic treatment for replacement of missing teeth are aimed to restore the oral function which are mastication, speech and aesthetics through the construction of dentures, dental bridges and placement of dental implants. The treatment of choice and attitude for replacement of missing teeth are influenced by the awareness and knowledge of the patients; which was found to be related to the persons' level of education<sup>2</sup>. Studies has shown that many patients would accept missing teeth in posterior region, but not the anterior region, especially

among female and young patients<sup>3</sup>.

The increase in desire to have better aesthetics but with cheaper costs among the public has led to the increase of dental quackery. Dental quacks or bogus dentists are individuals who conduct dental treatment but without proper educational dental backgrounds. The procedures offered by quacks includes fillings, dentures, bridge, braces (orthodontic treatment), and teeth whitening. The arise of dental quacks posed a big threat to the integrity of dental profession and also caused more harms to the people.

This case report presents a bizarre outcome of a poorly executed fixed partial denture to replace missing tooth 11 by a dental quack in an attempt to improve the aesthetics of a young adult. The justification of this report is as an evidence in support for the need of rigorous dental health education and functional disciplinary body against unprofessional dental practices.

### Case Report

A 28-year-old Indian male was referred to the Prosthodontics clinic, Universiti Sains Islam Malaysia, Kuala Lumpur with a request to replace his old bridge due to poor aesthetics and

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discomfort during chewing. The bridge was constructed three years ago after the loss of his front tooth due to a motor-vehicle accident. According to him, the treatment was completed all in one day for a fee of MYR1000 and it was done in a personal house located in Pudu, a downtown area of Kuala Lumpur. Past medical history revealed that the patient is healthy and without any known allergies and no history of hospitalization.

Upon extra-oral examination, the patient presented with class II skeletal pattern with average Lower Anterior Facial Height (LAFH) and Frankfort Mandibular Plane Angle (FMPA). The lips were incompetent with smile line slanting to the right. Intraoral examination revealed class II division 1 incisor relationship with 8mm overjet. The complaint site was a six-unit fixed partial denture (dental bridge), placed over the area of five teeth, which were from tooth 13 until 22. Upon examination, the bridge was loose, but could not be manually taken out by hands. Small sized teeth were used for the bridge, resulting in shifted midline to the right (Figure 1).



**Figure 1.** Frontal view showing slanting smile to the right with midline shift. Six teeth were used over the space of 5 teeth to replace missing tooth 11.

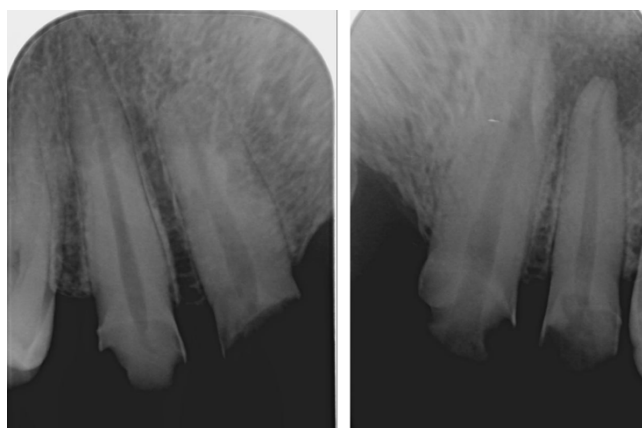
Poor bridge hygiene with abundance of plaque accumulation was noted at the bridge due to rough surface area, overhanged margin and presence of excess cement / bridge material at the gingival third of the bridge. This resulted in inflamed gingiva with loss of stippling and soft gingiva consistency, localized to the labial surface of the bridge (Figure 2).



**Figure 2.** Poor oral hygiene with overhanged restorations from excess bridge materials.



**Figure 3:** Dental panoramic radiograph showing presence of 13, 12, 21 and 22 as abutments and radiolucent bridge material that could be detected from radiograph.

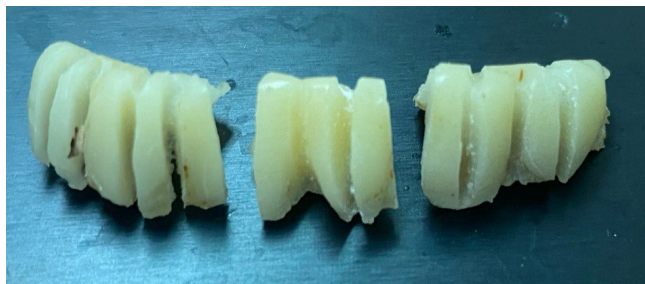


**Figure 4.** Periapical radiographs showing periapical radiolucency on tooth 12 and 22 and widening of lamina dura at tooth 13 and 21.

Dental panoramic radiograph revealed 29 teeth were present with missing teeth 18, 11 and 28. Generally, the bone height was in good condition. Teeth 13, 12, 21 and 22 were used as abutment teeth for the bridge. The bridge was translucent and could not be detected in the radiograph (Figure 3). Periapical radiographs showed periapical radiolucency on tooth 12 and



22, as well as widening of lamina dura at tooth 13 and 21, with all teeth showed no evidence of opacity for the bridge retainer / pontics / abutments (Figure 4). Pulp sensibility tests showed positive response on all teeth except tooth 12 and 22.



**Figure 5.** The sectioned bridge.

Routine primary impression was taken on the upper and lower arches using alginate for construction of study model and diagnostic wax-ups at the bridge area (area of tooth 13 until tooth 22). On the subsequent visit, the bridge was sectioned on multiple sites using highspeed handpiece and diamond bur under local anesthesia (Figure 5). Upon bridge removal, caries was noted at tooth 21 and 22, tooth 13 was without any significant problem and severe decay was noted at tooth 12 leaving only retained root. The bridge preparation was minimal with no definitive margin preparations could be determined on the abutment teeth (Figure 6).



**Figure 6.** Caries was noted at tooth 21 and 22 and retained root 12. No definitive margin preparations could be determined on the abutment teeth.

Caries free was conducted followed by assessment of restorability of all teeth involved. It was found that all teeth are still restorable except for retained root 12. Restorations on tooth 21 and root canal treatment on tooth 22 were carried out.

Retained root 12 was extracted under local anaesthesia. Subgingival scaling was conducted, margin preparations were refined and the teeth were restored with a four-unit temporary bridge (tooth 13 to 21) and temporary crown on tooth 22 while waiting for gingiva healing and completion of root canal treatment on tooth 22. Following completion of root canal treatment on tooth 22, impression was taken using 3M ESPE light body silicone and silicone putty. Conventional four-unit porcelain fused to metal (PFM) fixed partial dentures (13 to 21) and single unit PFM crown on tooth 22 were cemented using 3M ESPE Rely-X® cement. Review visit was done and the patient was happy with the new prostheses and without any problem (Figure 7).



**Figure 7.** Conventional four-unit porcelain fused to metal (PFM) fixed bridge (13 to 21) and single unit PFM crown on tooth 22.

## Discussion

Failure of a fixed prostheses can be either biological, mechanical or aesthetics and the most common complications for fixed bridge are caries, pulpal complications that requires endodontic treatment and loss of retention<sup>4</sup> which could cause discomfort to the patients. Fixed bridge failure can be avoided with proper treatment planning that ensures adequate support and even occlusal load distribution to the abutment teeth, right choice of bridge material, adequate bony support and good design which can facilitate hygiene care for the prosthesis.

In this case, the fixed partial denture was done by dental quacks which presented with poor aesthetics due to improper distribution of the space for the missing tooth and abutment teeth. Six-unit dental bridge was placed using four abutment teeth in an attempt to replace a single missing tooth on 11. In this case, the use of small

sized teeth which was not proportionate with the available space resulted in shifted midline and slanted smile. This is important as the smile design is influenced by the tooth proportion which represented by the frontal view of the maxillary teeth<sup>5</sup>, low gingival display and also with medium display of the buccal corridor<sup>6</sup>.

The bridge hygiene was also found to be poor due to rough bridge surface and presence of excess bridge material at the gingival margin. Overhanged and excess bridge materials acted as focal point for plaque and bacteria accumulation, causing inflammation to the soft tissue. The surface roughness of the bridge is influenced by the type of material used and the polishing and finishing techniques of the treatment<sup>7</sup>. This complicates the hygiene care of the bridge resulting in severe gingivitis on all abutment teeth and unfortunately, led to loss of vitality of one abutment tooth and unrestorable abutment tooth that required extraction. This finding is concurrent with a study by Harrita et al (2021) who revealed that abutment teeth of faulty prostheses usually will lead to periodontal problems, caries, gingival inflammation and non-vitality<sup>8</sup>.

Based on the clinical observation and the texture of the old bridge, it was suspected that the material used was self-cured acrylic. Improper use of polymethyl methacrylate might expose the patient to monomer leakage, which might lead to a wide range of health effects such as irritation to the mucosa, allergic dermatitis, asthma, neuropathy, liver toxicity and fertility disturbances<sup>9</sup>. Dental quacks are also known to use self-cure acrylic directly intraorally to fix the teeth over the gingiva which might cause severe burning sensation and might be carcinogenic to the patient<sup>10</sup>.

The main problem with this case was due to illegal practice by dental quack resulting in faulty bridge design and poor execution of treatment in addition to poor bridge maintenance from the patient. The issue of illegal dental practice by dental quacks are not new and had gone global. In Malaysia, illegal dentistry by dental quacks is also known as fake dentistry. Any individual who conducts dental procedures without licences and/or proper educational dental background are considered illegal and in Malaysia they are also known as fake dentist. Dental quacks usual treatment ranged from scaling, fillings, fixing braces, teeth whitening,

crowns, improper root canal treatment and making false teeth or bridge<sup>11</sup>.

A study had been conducted in India showed that most of the patients who had treatment with quack dentists were not even aware of any qualified practitioners and more than half of them were not aware that dentures need to be scientifically designed<sup>12</sup>. Good oral health literacy is important to assist the patients in making appropriate oral health decisions, and it is usually related to the persons' gender and education level<sup>13</sup>.

Prior to the patient's visit to our clinic, he was not aware that the treatment received was not the standard of treatment for fixed partial denture. It is also interesting to note that even though this patient comes from educated background and lives in Kuala Lumpur where dental clinics are in abundance, but he still opted for treatment from dental quacks. This is contrary to the belief that people seeking treatment from dental quacks are due to poor accessibility to dental clinics and illiteracy<sup>14</sup>. For this patient, the main reason was due to the guarantee of painless and immediate treatment from dental quacks. Equally interesting fact is that according to him, there were lots of 'patients' waiting to be treated by the dental quack even though it was conducted in a personal house in a downtown area of Kuala Lumpur and without any proper advertisement nor proper dental set-up of the 'clinic'. Most of the customers were locals and got to know the practice via word of mouth from friends and relatives.

Considering the impact of this unethical practices to oral health, it is important for the healthcare provider to tackle this problem. A few measures had been proposed by Jain (2019) to tackle this problem, which are; improve the accessibility of quality dental services in remote areas, a strong policy to stop unethical malpractices and increase the awareness on proper healthcare and dental quacks<sup>15</sup>.

## Conclusions

Even though there is an improvement in dentist-to-patient ratio in Malaysia due to constant increase in the number of dental graduates and a number of dental quacks that had been caught by the Malaysian authorities, however, the presence of dental quackery is still a worrying public health problem. It is hoped that

this case report will highlight the presence of dental quackery in the area of Kuala Lumpur, Malaysia and will urge the authorities to devise a strong national oral health policy to culminate this unethical dental practice.

### Declaration of Interest

The authors report no conflict of interest.

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