



Full Length Research Article

MANAGEMENT OF COMPLICATION INVOLVING MODIFIED FIXTURE MOUNT USED AS A TRANSMUCOSAL ABUTMENT TO SUPPORT FIXED IMPLANT PROSTHESIS

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ABSTRACT

Immediate loading protocols for the implants were developed to reduce the time required for healing phase, avoid second surgical procedures and provide a functional provisional prosthesis. Immediate loading requires recording impression soon after placing implants and fabrication of the provisional prosthesis. Several techniques have been utilized to support provisional immediately loaded implant prosthesis, which includes; a fixture mount with three-in-one design, temporary abutment supplied separately by the manufacturer, and modifying fixture mount by grinding to serve as a temporary abutment. However, in the present case report, the patient received an implant supported final fixed partial denture; supported by a modified fixture mount, which was used as a transmucosal abutment on one of the implants. After a period of 6 months of service, the modified mount fractured at neck level with intact mount internal screw. The following case report describes management of fractured modified fixture mount at the neck level and retrieval of implant-supported prosthesis, which could serve longer.

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INTRODUCTION

Immediate loading protocols for the implants were developed in 1980's to reduce the time required for healing phase, avoid second surgical procedures and provide a functional provisional prosthesis in the shortest time period. Immediate loading requires additional steps in the form of recording impression soon after placing implants and fabrication of the provisional prosthesis. Several techniques have been described to attach impression copings over the implants while recording impression and use of temporary abutments to support the provisional immediately loaded implant prosthesis. Implant manufacturers have developed a modified mount with a three-in-one design that, in addition to a mount, can be used as an impression coping and as a temporary abutment to support the provisional prosthesis (Glenn Hsuan-Chen Chang et al., 2011). Many authors have put forth a different technique, which involves modifying fixture mount supplied along with the implant (McCarthy and Morgan, 1995; Papazian and Morgano, 1998).

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Ganddini et al, in 2004, described seven uses of fixture mount as a surgical guide, positional index, impression coping, verification device, provisional abutment, implant-supported record base, and occlusal registration stop (Ganddini et al., 2004). Abundant literature exists on techniques that use a modified implant carrier/ fixture mount for supporting the provisional prosthesis. However, for a patient who received an immediately loaded prosthesis, the fixture mount was modified and used as a transmucosal abutment on one of the implants to support fixed partial denture over it. The following case report presents a mechanical complication associated with fracture of a modified fixture mount used as a transmucosal abutment to support the final prosthesis.

Clinical report

A 56-year-old male patient presented with the chief complaint of dislodged implant prosthesis, which was delivered 6 months ago. On oral examination, it was noted that the implant in the region of first molar in the mandibular right quadrant demonstrated a fractured abutment with an intact screw, cold-welded to the fixture. The internal screw height was seemingly longer than normal (Fig. 1).

The cement-retained implant supported prosthesis had a portion of fractured abutment embedded within the retainer (Fig. 2). The lodged fractured fragment appeared thin in cross section. The implant in the region of third molar in the mandibular right quadrant demonstrated intact abutment screwed to the fixture. The treatment plan was discussed with the patient, including successful removal of the internal screw from the implant and the fractured portion of the abutment lodged within the retainer of the implant-supported fixed partial denture. It was informed to the patient that damage to the internal threads of the implant might occur during removal of the internal screw, which may render it unserviceable. The proposed procedure described here was carried out to remove the screw as well as fractured abutment retained within the prosthesis so that implant could potentially support the dislodged prosthesis.

Procedure

- Initially, a torque wrench was used to unscrew the broken fragment from the fixture but it failed to unfasten the screw due to cold welding between screw and internal threads. A sharp tip ultrasonic scalar with copious irrigation was then used and inserted deeper to engage the threads and break the cold welding for easy retrieval of screw. Thereafter, the screw was removed from the fixture using a torque wrench (Fig. 3).
- As the prosthesis was in a good condition and could serve longer, it was decided to pull out the fractured abutment portion luted inside the retainer of the implant-supported prosthesis. Thin straight fissure metal trimming bur was used to cut the abutment carefully. It was alternated by ultrasonic instrumentation (Fig. 4).
- The fractured abutment fragment was finally removed from the implant-supported prosthesis. The outer surface of the abutment was rough indicating that it was actually a modified fixture mount, which was used to serve as an abutment. This explained the presence of a long internal mount screw and a thin abutment, which was noted during the oral examination (Fig. 5,6).
- A new abutment corresponding to the size of fixture was torqued to 30 Ncm over the implant in the region of first molar (Fig. 7). The prosthesis was inserted over the abutments and fit checker (GC America) was used to modify the internal surface of the FPD by selectively grinding areas showing contact to ensure acceptable fit.
- The contacts of the implant-supported prosthesis with opposing occlusion were noted and high points, if any, were reduced.
- The prosthesis was luted in place with temporary cement (Kalzinol, Dentsply, UK) (Fig. 8).

DISCUSSION

This case report describes a mechanical complication involving the body of a modified fixture mount used as an abutment to support a fixed prosthesis with the internal screw, intact and cold-welded to the fixture. Ultrasonic instrumentation combined with thin metal trimming burs were used to retrieve fractured parts. The author was initially surprised to see a long screw, cold-welded to the fixture and a thin abutment portion retained in the retainer portion of the prosthesis, which later was confirmed to be a modified fixture mount. The physical properties of a fixture mount, usually supplied with the implant make it unsuitable to use as an abutment for final prosthesis. Its use may lead to serious clinical complications such as fractured screw fragments at apices of the implant that is difficult to retrieve. The clinician may not always be successful in resolving such issues (Imam et al., 2014; Satterthwaite and Rickman, 2008). Such practices should be discouraged. In any case, this kind of fracture with intact screw usually would not result in damage to the internal threads of the fixture and is easier to retrieve than broken screw fragments lodged deeper inside the fixture. Nevertheless, the risk of damaging internal threads in the fixture is always present and should be handled carefully.

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