

## Short Communication

## Failure of Abutment Screw System in Screw Retained Dental Implant Restorations

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**Abstract:** Screw retained abutments are commonly employed in most implant systems available. Undue stresses on this screw retained joint may lead to abutment loosening or fracturing of abutment retention screw. Such hardware failure may be detrimental for the treatment planned. This technical note highlights a method to manage such a complication.

**Keywords:** Dental Implant, Abutment failure, Implant failure, Implant

### SHORT COMMUNICATION

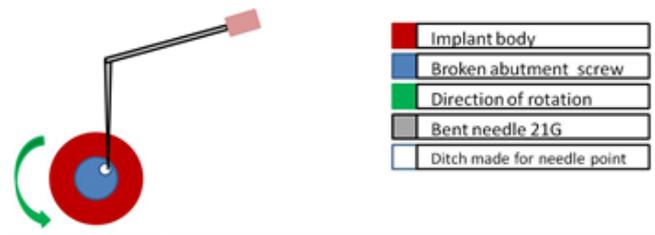
Titanium and its alloys are widely used in prosthetic dentistry, due to their biocompatibility, excellent mechanical and anti-corrosion behaviour [1]. Abutment implant interphase is always been a topic of debate and the failure of the interphase are caused due to numerous reasons [2]. Delayed fracture of dental prosthetics is frequently encountered. There are various factors that influence the mechanisms leading to fracture of the prosthesis include both the environmental (quality of biological fluids) and mechanical loading conditions (mastication habits, presence of prosthetic metallic/ceramic components) in the patients' oral cavity [1]. In most "two stage" implant systems, the basic implant body is hollowed out to accommodate threads within the dental implant. Thread in the hollow implant aids in screw type retention for the cover screw, fixture to analogue transfer, healing cap and the final fixture of the abutment for prosthetic rehabilitation. This mechanical screw type locking between the dental implant and the abutment may experience unfavourable forces during function. Studies have shown that a commonly reported complication of implant-supported prostheses is either the loosening or fracturing of abutment or retaining screws [3]. The stress concentration in the fixture screw of the abutment

may lead to the fracture of the screw and becomes an unfortunate event for the implantologist and the patient. The partial fractured screw within the implant body renders the receptacle port of the implant non-function. This technical note highlights such a complication and its management.

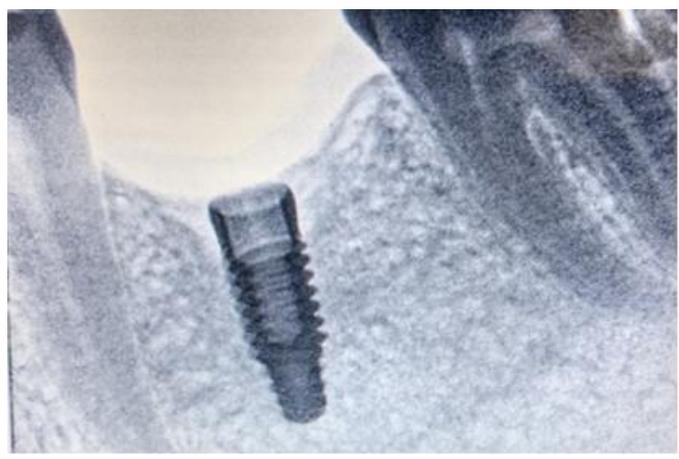
In an event of abutment screw fracture (Figure 1), if the fractured abutment can be visualized with or without magnification, a small round diamond bur with coolant irrigation on a contrangle hand piece can be employed to make a point depression on the flat surface of the broken abutment screw eccentrically. Precaution should be employed not to damage the inner threads of the abutment. Any damage to the inner threads will damage the abutment receptacle. A 21 gauge needle is bent and the needle point is used to engage the depression/ ditch created using the round bur on the flattened surface of the broken screw (Figure 2). After engaging the needle, the screw is rotated in an anticlockwise direction to unscrew the broken part of the screw. Each rotation of the needle may not produce rotation of the fractured screw, but a combination of multiple needle rotations while engaging the needle tip on the ditch created, will aid in upward movement as desired and its removal.



**Fig-1:** Radiograph showing dental implant in the mandibular posterior region with a broken screw of the abutment within the implant body



**Fig-2:** a. Procedure of retrieval showing direction for rotation for broken screw retrieval; b. Retrieved screw with a ditch created to facilitate its removal



**Fig-3:** Radiograph showing dental implant in the mandibular posterior region after retrieval of the broken screw of the abutment from the implant body



**Fig-4: Implant with abutment in place**

#### **REFERENCES**

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