CASE REPORT

Implant Management after Loose Cover Screw Causes Purulent Exudate in a Partially Dentate Patient

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Abstract

Dental Implants are becoming standard of care to replace missing teeth; however, the ability to manage complications must coincide with this new treatment modality. Our case was a 40-year-old male who was in good general health and wanted to replace his missing tooth with a dental implant. After the successful dental implant surgery, the patient returned for other dental treatment and we noticed a fistula in the area of the dental implant. A radiograph was taken and revealed that the cover screw of the dental implant had loosened causing the fistula. The decision was made to open the site, debride the area, and check osseointegration. We concluded that the body of the implant osseointegrated and we progressed directly to our stage two procedure, thus relieving the complication.

Keywords: Cover screw, Dental implant, Fistula, Osseointegration.

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Introduction

According to Market Watch, dental implants are billion dollars a year industry.[1] As this modality of dental treatment becomes more popular and the standard of care, clinicians will require the ability to place, restore, and manage complications that arise during treatment. Difficulties in dental implant placement and the restorative phase may arise due to medical issuese, trauma, poor case selection, or operator error.

WebMD reports that the success rate for dental implants is significantly high at around 98%[2]; however, when complications arise it is vital that the clinician be aware of how to manage these difficulties. The inability to predict and rectify dental implant complications can lead to oral-facial infections, implant loss, paresthesia, and pain.[3] These poor outcomes will then in turn lead to dissatisfied patients and disappointed clinicians.

Case Report

A 40-year-old male arrived at our health center with the chief complaint that he wanted to restore his missing tooth with an implant. A review of his medical history found no contraindications such as uncontrolled diabetes, anticoagulant therapy, antiplatelet therapy, bisphosphonate therapy, advanced periodontal disease, or any intraoral pathology.[4] The patient seemed to be in good general health and he denied smoking, drinking, or use of illicit drugs.

At this initial appointment, we examined the area of the missing upper left first premolar and it was decided that the thickness of the maxilla, the architecture of the bone, the intraocclusal space, and the space between the adjacent teeth were acceptable to place an implant-supported crown for the patient. Financials were discussed with the patient and the case was accepted.

After 1 week, the patient returned for the dental implant placement. Prior to surgery, we verified that the patient took his antibiotic prophylaxis, and both written informed consent and photographic consent were obtained from the patient. His vitals were recorded, and his blood pressure was 135/88 with a pulse rate of 90 bpm and respiratory rate of 14 bpm. We administered one carpule of 2% lidocaine with 1:100,000 epinephrine and one carpule 4% septocaine with 1:100,000 epinephrine on both the buccal and palatal aspects of the implant site.

Upon testing and verifying anesthesia, a mid-crestal incision followed by sulcular incisions around the adjacent teeth and one releasing incision by the mesial portion of the canine were placed. Buccal and palatal full-thickness flaps were reflected and the fabrication of the osteotomy took place using the blue sky bio surgical drill kit with stops. Incremental drills were used to achieve the desired osteotomy width and length. As we advanced through each surgical drill a radiograph was taken to ensure proper angulation. We completed our osteotomy at a width of 2.5 and length of 11.5. We then proceeded to situate the dental implant, blue sky bio lot 19-0560, size 3.0 mm width by 11.5 mm length, at a torque of 35 ncm into the slightly undersized osteotomy (Fig. 1). This technique helps ensure that we achieve a level of primary stability resulting in adequate osseointegration. Immediately after implant placement, the cover screw was hand-tightened and the flap was sutured using 3.0 chromic gut and silk. Our suturing technique allowed for primary closure and we also injected 2 mL of dexamethasone into the surgical site in order to decrease postsurgical inflammation. The patient was prescribed both amoxicillin and Motrin after the procedure. Finally, the patient was given the standard 4-month follow-up appointment to perform the stage two procedure.

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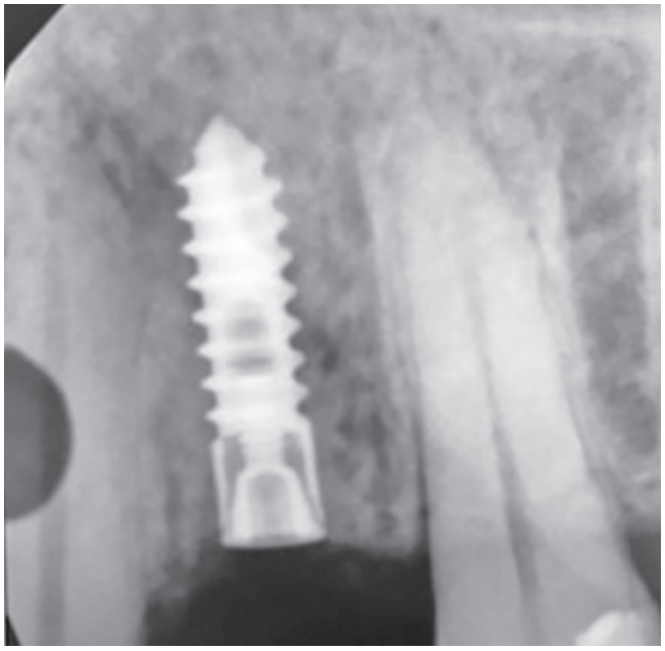

Fig. 1: Completed dental implant surgery

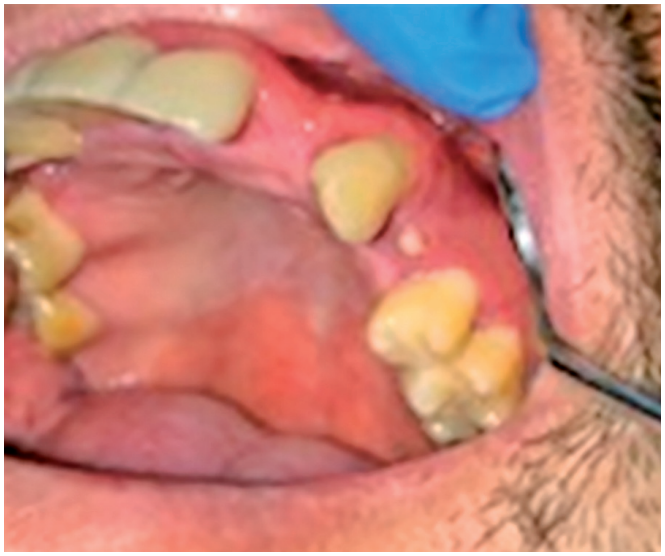

Fig. 2: Apparent fistula

After 2 months the patient returned for other dental treatment and a small fistula in the area of the dental implant was noticed (Fig. 2). The fistula was approximately 2 mm in diameter and no other signs of intraoral swelling were present. The patient did not report any pain and did not notice the fistula. A radiograph of the area was taken and we observed the cover screw withdrew approximately. 64 mm from its original position (Figs. 3 and 4). We decided to prescribe the patient a one-week supply of clindamycin and peridex and have him return in a week for implant exposure.

The patient returned one week later and the fistula was still present and the patient still reported no symptoms. The fistula did not increase in size or severity. We anesthetized the patient with one carpule 2% lidocaine with epinephrine 1:100,000 and placed a

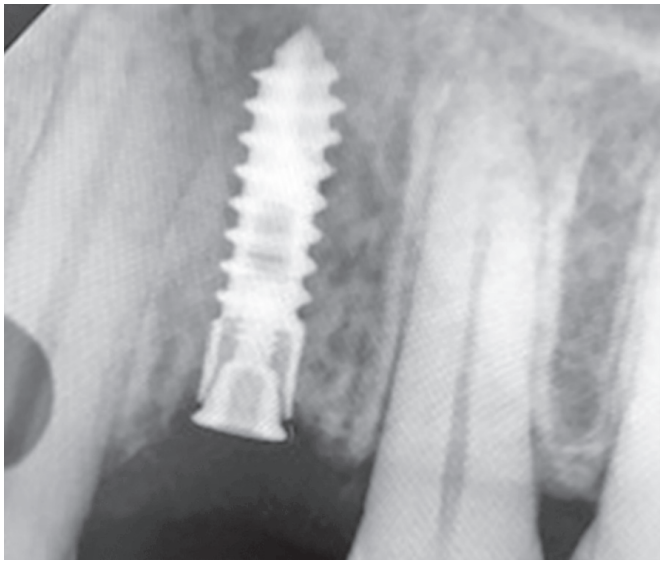

Fig. 3: Loosened dental implant cover screw

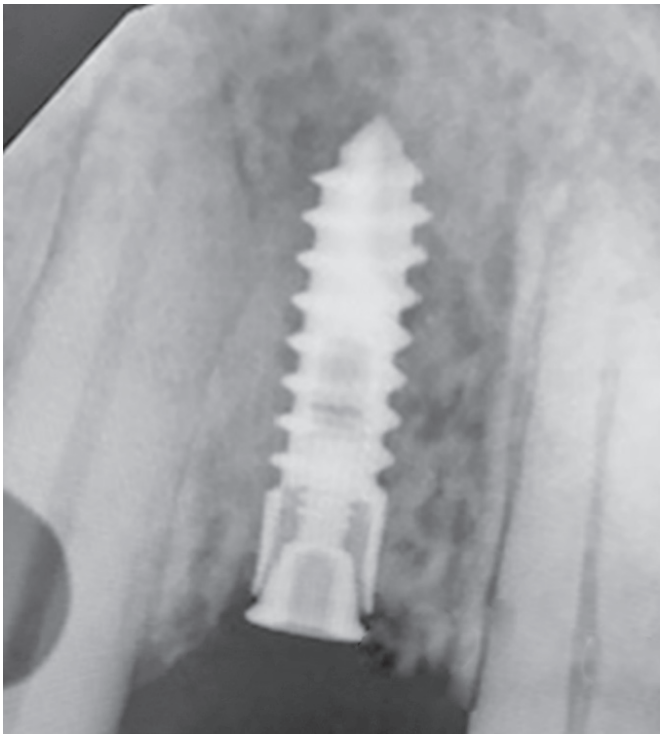

Fig. 4: Measurement of loose dental implant cover screw

mid-crestal incision and exposed the implant site. We removed the loosed cover screw, debrided the area which did not have much bleeding or purulent exudate. We proceeded to irrigate the area with a copious amount of saline. Once we felt that the area was clean and free from the disease we placed a blue sky bio 4.3 mm by 5 mm healing abutment into the dental implant and used the implantest to verify osseointegration[5]. Our implantest gave us a recording of 8.9 revealing adequate osseointegration of the dental implant (Fig. 5). We concluded the visit by suturing around the healing abutment and prescribing another week supply of amoxicillin.

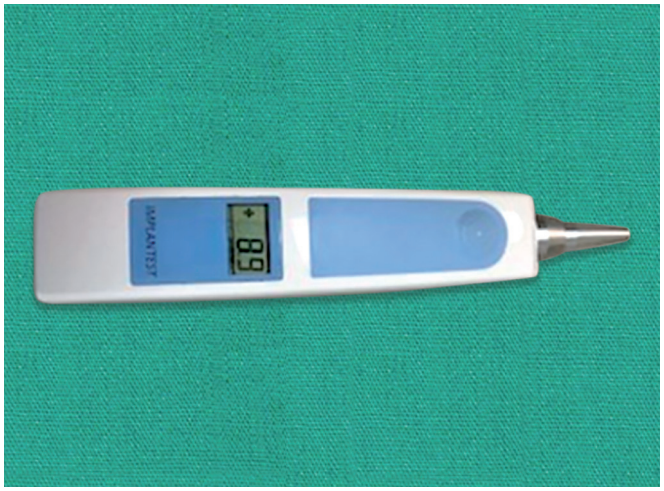

Fig. 5: Implantest recording

After 1 month, the patient returned for the restorative impression. Visual examination revealed no signs of pathology and the patient reported no pain. We used the closed impression technique and fabricated a screw-retained zirconia crown for the patient.

Discussion

The dental team could have taken other approaches or even referred the patient to an oral and maxillofacial surgeon. However, these other tactics may have led to a poor patient experience; therefore, our approach of exposure, debridement, antibiotic therapy, and a wait-and-see approach led to a positive outcome. The ability to diagnose, reason, and perform surgical procedures allowed us to manage this dental implant complication.

Conclusion

A range of complications from paresthesia to esthetic concerns can emerge during dental implant procedures; therefore, it is crucial that the clinician be able to foresee, manage, and rectify these situations. In our case, the ability to diagnose the etiology, followed by conservative surgical treatment, and antibiotic therapy guided us to resolve the complication and have a positive outcome.

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