

Alternative Surgical Treatment for Retrograde Peri-implantitis

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Introduction

Peri-implantitis is an infection involving supporting bone loss around an implant. Apical or retrograde peri-implantitis occurs at the apex of an implant, leading to a symptomatic periapical lesion. The two most common treatments for retrograde peri-implantitis include removal of the implant or surgical regenerative treatment, which consists of implant surface debridement and placement of bone graft material. However, implant surface debridement, or “implantoplasty”, has been documented in the literature to have several drawbacks. We present a case involving a surgical technique that is an alternative to removal of the implant or surface debridement.

Case Presentation

A 47 year old woman with a history of smoking and periodontal disease had titanium implants placed to replace the maxillary incisors. One year after implant placement, the patient reported she had developed severe pain surrounding the implant. A periapical radiograph of the implant showed a radiolucent lesion with apical bone loss, and a diagnosis of retrograde peri-implantitis was made.

Photos and Treatment

Initial antibiotic treatment was prescribed to reduce infection prior to and following surgery. The contaminated implant surface required surgical intervention. As the implant remained functional, and the infection was localized to the apex of the implant, an apicoectomy was performed on the implant. The socket was curetted and flushed with chlorhexidine, and filled with human allograft bone. Serial periapical radiographs at 1, 2, 4, and 7 months showed initial reparative tissue, and a follow up radiograph showed complete bone remodeling 2 years later. The patient’s condition was monitored, and bone remodeling continued with successful implant maintenance for more than 6 years thus far.

Fig. 1 Periapical Radiograph shows radiolucency at apex of implant #8.
Fig. 2 Radiograph 2 years post-apicoectomy. Full bone remodeling evident.

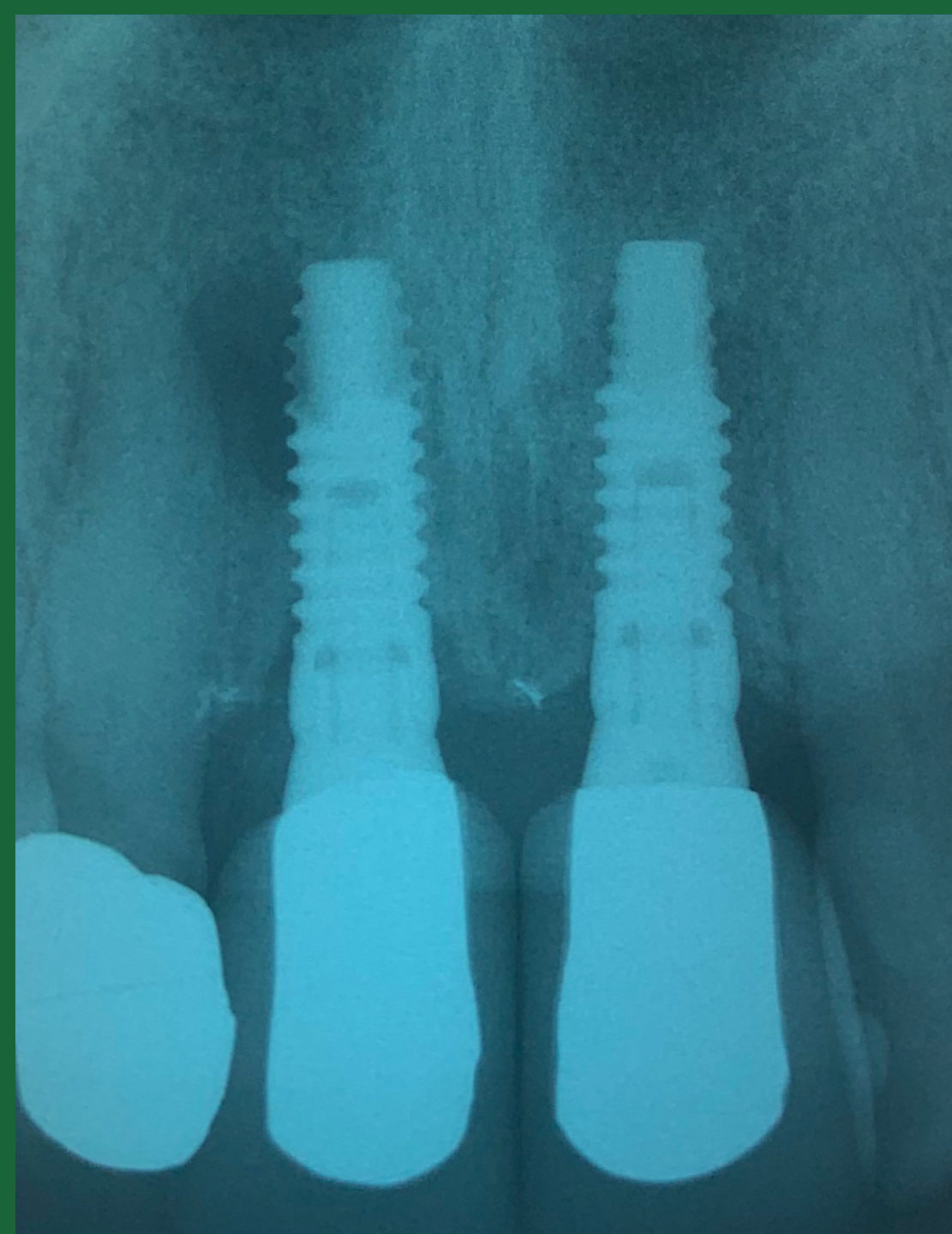


Figure 1

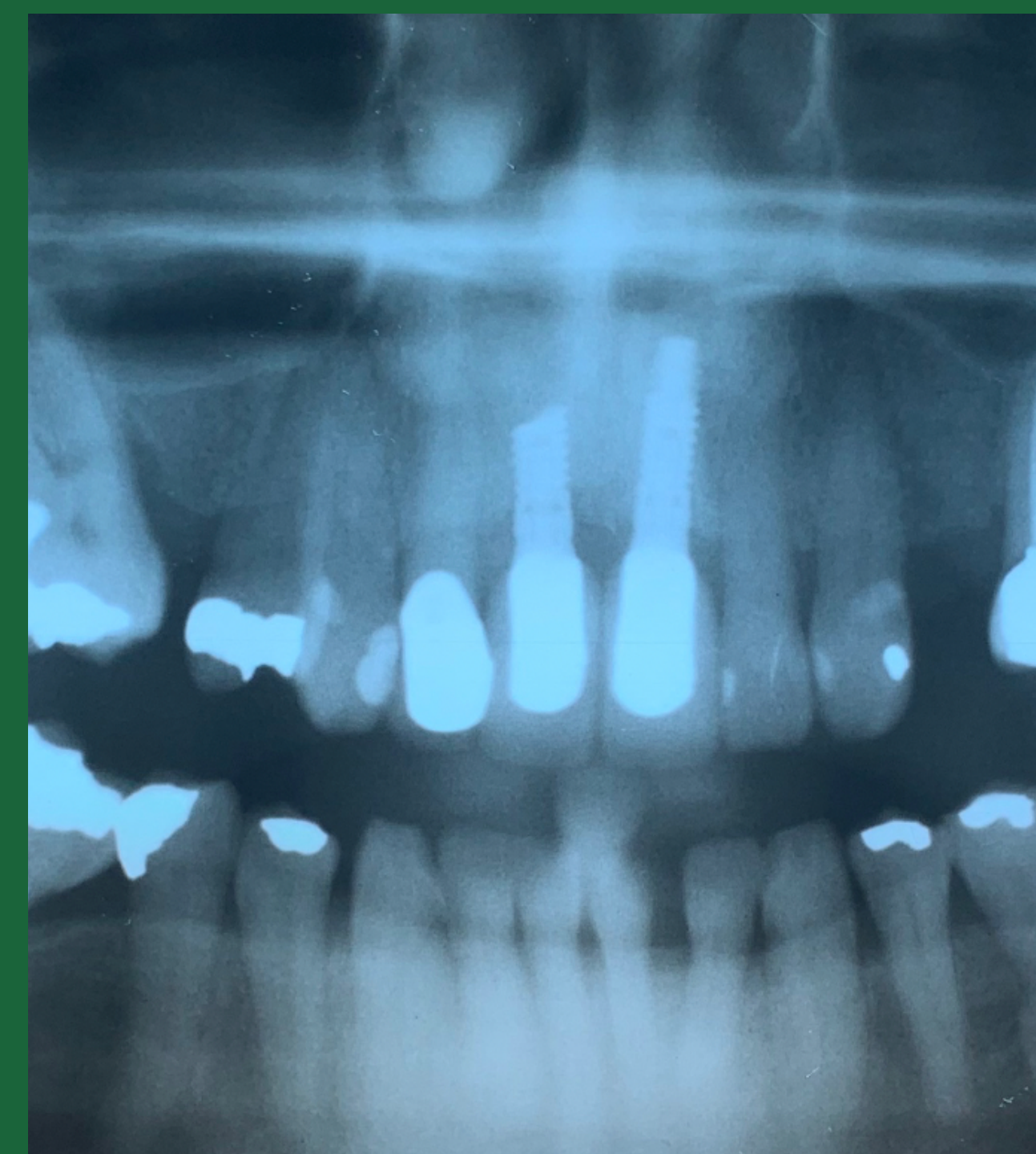


Figure 2

Discussion

An apicoectomy was chosen over implant removal or surface debridement due to the location and size of the abscess, as well as the length of the implant. The implant's location made it difficult to fully access the entire infected site without removal of the apex. The patient was left with an adequate length for successful implant maintenance. Implant removal was disfavored as an option by the patient due to aesthetic reasons. This alternative option is less invasive as it is a brief single surgery rather than surgical removal of an integrated implant, repair of the implant site, and subsequent replacement. With our approach, the patient retained the aesthetic and functional success of the implant while the lesion healed and eliminated the risk of bone destruction. While an apicoectomy of the implant was successful in this case, other treatments for retrograde peri-implantitis should be considered during planning, as this approach has limitations. Primarily, the cutting of the apex of the implant must be accompanied by sufficient irrigation to prevent overheating of the adjacent bone. Our approach is also limited by the length of healthy implant. As much length should be maintained as possible, in order to increase the success of the implant. This approach requires a substantial amount of healthy bone to facilitate remodeling and continued implant stability.

Conclusion

By performing an apicoectomy, we were able to more fully ensure bacterial pocket elimination directly than could be obtained without removal of the apex. The apicoectomy allows for complete access to the field, which permits careful removal of all infectious material. We have described the successful treatment of retrograde peri-implantitis through an apicoectomy of an implant. The findings from this case suggest that immediate removal of implants with periapical lesions is not inherently necessary, and our approach offers a less invasive, expedient alternative approach to implant surface debridement or implantoplasty. With careful consideration, an apicoectomy can provide an alternative, conservative treatment for retrograde peri-implantitis by dentists.

References

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