



The Success Of Immediate Implants Placed In Extraction Sockets With Periapical or Periodontal Pathology: A Literature Review

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INTRODUCTION:

Immediate placement of dental implants has been a widely accepted treatment modality to prevent bone loss and preserve extraction sockets.

Several studies have looked at immediate implant placement in sites with periapical lesions, periodontitis or a combination thereof.

Most investigations show that no compelling basis exists to conclude these pathologies are risk factors for immediate placement of implants.

Nevertheless, many questions remain about immediate implant placement in sites with a periapical lesion or periodontal disease.

PURPOSE:

The purpose of this study is to review the literature and find the success rate of immediate implants placed in sites with periapical pathologies

MATERIAL AND METHOD:

A systematic search using Ovid, PubMed and Cochrane library to look for studies where patients had teeth extracted and replaced with immediate implants in sites with either periapical lesion or periodontal disease. Studies reviewed included implants placed between July 2011 to July 2021. All human studies were included.

Keywords were immediate implant, periapical lesion, periodontal disease and implant survival

RESULTS:

- Ten studies met the proposed inclusion criteria. These comprised of two case studies, three systematic reviews and five prospective studies.
- 465 teeth were extracted followed by immediate implant placement which may or may not have periapical or periodontal lesions.
- Since the sample size was low, no failures were reported. It was not possible to perform a meta-analysis ($p=0.15$).

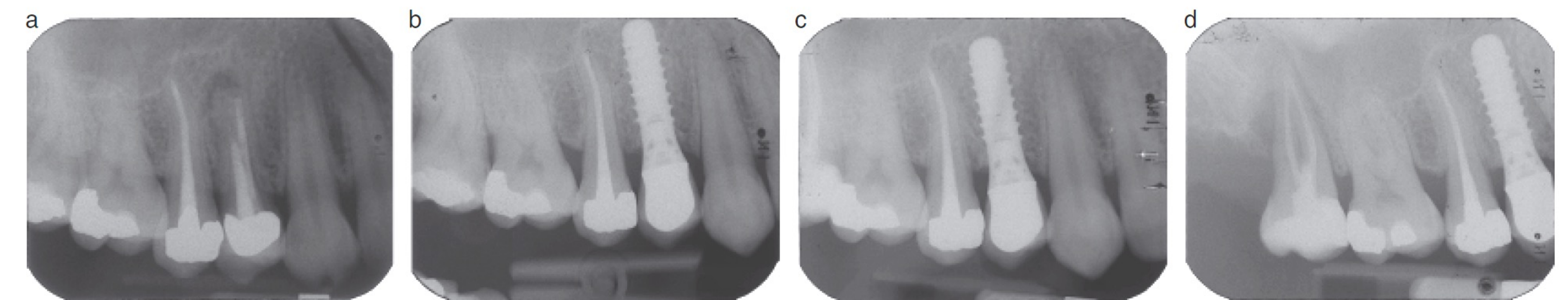


Fig. 1. Periapical radiographs showing a test implant at position 14. (a) At baseline, (b) at loading after 3 months, (c) at 1 year after placement and (d) at 3 years after placement.

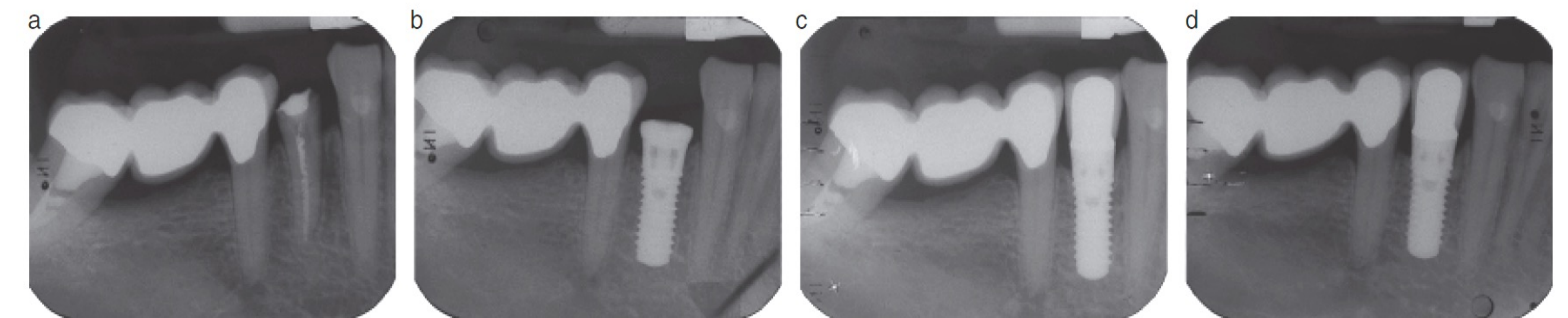


Fig. 2. Periapical radiographs showing a control implant at position 44. (a) At baseline, (b) at loading after 3 months, (c) at 1 year after placement and (d) at 3 years after placement.

Courtesy: Thomas Truninger, Robert Jung

Truninger, Thomas C et al. "A prospective, controlled clinical trial evaluating the clinical and radiological outcome after 3 years of immediately placed implants in sockets exhibiting periapical pathology." *Clinical oral implants research* vol. 22,1 (2011): 20-7. doi:10.1111/j.1600-0501.2010.01973.x



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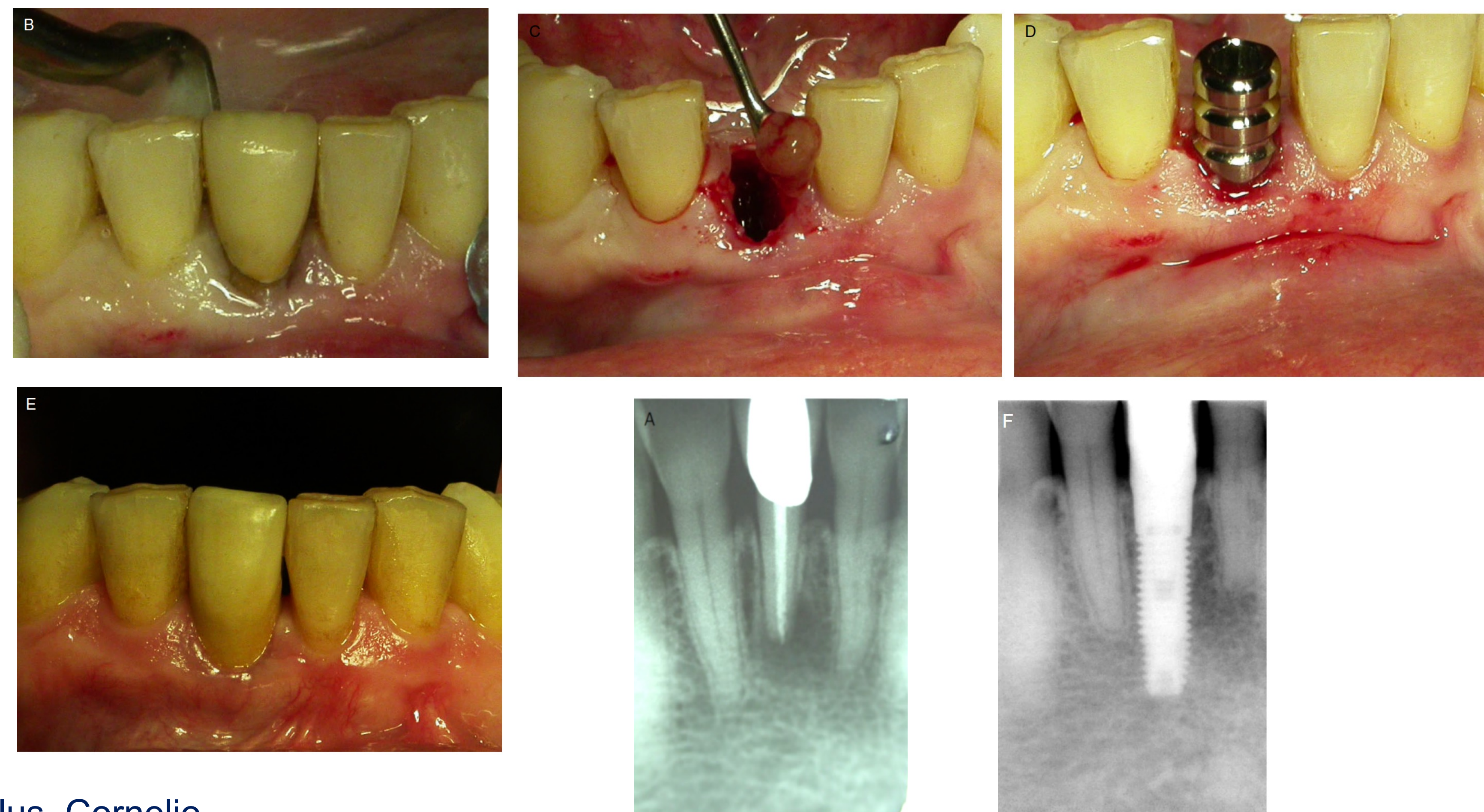
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DISCUSSION:

This updated review confirms that the survival of immediate implants is the same whether placed in site with or without peri-apical pathologies.

There are few previous studies about implants placed in infected sites with similar high implant survival rates. However, most studies do not have a long term follow up period. The term retrograde peri-implantitis was introduced as radiolucencies around the apical part of an osseointegrated implant. The possible etiology is thought to be the remaining scar or granulomatous tissue after immediate implant placement into extraction sockets (Quirynen et al. 2005)

This review answered the following questions:



Courtesy: Blus, Cornelio

Blus, Cornelio et al. "Immediate implants placed in infected and noninfected sites after atraumatic tooth extraction and placement with ultrasonic bone surgery." *Clinical implant dentistry and related research* vol. 17 Suppl 1 (2015): e287-97. doi:10.1111/cid.12126

Does placing an implant in an infected site affect the survival rate?

This systematic review shows that there is no difference in the implant survival rate when comparing implants placed in sites with and without peri-apical infection. The 3-year survival rate reported for immediate implants in site with peri-apical infection was 98.6%. Implant survival should not be the only parameter while considering the success of the implants. Other clinical parameters like interproximal bone levels, soft tissue height and contour, gingival recession and volume of the interproximal papilla are other parameters for monitoring the implant success. This review is limiting as other parameters were not considered.

Is there a difference in the implant survival if immediate implants are placed in site with Acute vs Chronic infection?

This updated review finds no difference in the immediate implants placed in Acute vs Chronic infection sites. Most studies in this review have included chronic periapical pathologies which showed clinical signs like pain, periapical radiolucency of 1 mm, suppuration or a combination of these findings. One study (Cornelio Blus et, al.) compared noninfected, acute and chronic infections. This study reported 1-year survival rates of noninfected, chronically, and acutely infected groups as 98.8%, 100%, and 94.4% respectively. The differences were not statistically significant. Asepsis was achieved by starting patients on antibiotics 6-12 hrs. prior to extraction followed by antibiotic therapy for 6-8 days post-operatively. Thorough and vigorous debridement and irrigation of the extraction sockets were performed to ensure all remnants of soft tissue were removed prior to placement of Immediate implants.

If the granulomatous tissue is left in the fresh extraction socket, will that affect the implant survival rate?

This review finds no difference in the implant survival rate if the site is not debrided after extraction and prior to placement of the implant.

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CONCLUSION:

This updated Systematic review shows that there was no reduction in the success of immediate implants in patients that have either periapical lesion or periodontal disease. Survival rates at three years were 98.6%. The success remained consistent even in the study which included teeth that left granulomatous tissue in the socket. However, there is a need for prospective studies with large sample sizes to confirm our findings.

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