



Interproximal Contact Loss Between Dental Implant Restorations and Adjacent Natural Teeth

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Background

This literature review aims to explain the reported presence and possible etiology of interproximal contact loss between dental implant restorations and adjacent natural teeth. A consensus on the exact cause of interproximal contact loss is lacking.¹ This complication presents a challenge for the restoring dentist and requires clinicians to actively monitor for the development of interproximal contact loss.

Interproximal Contact Loss Complications

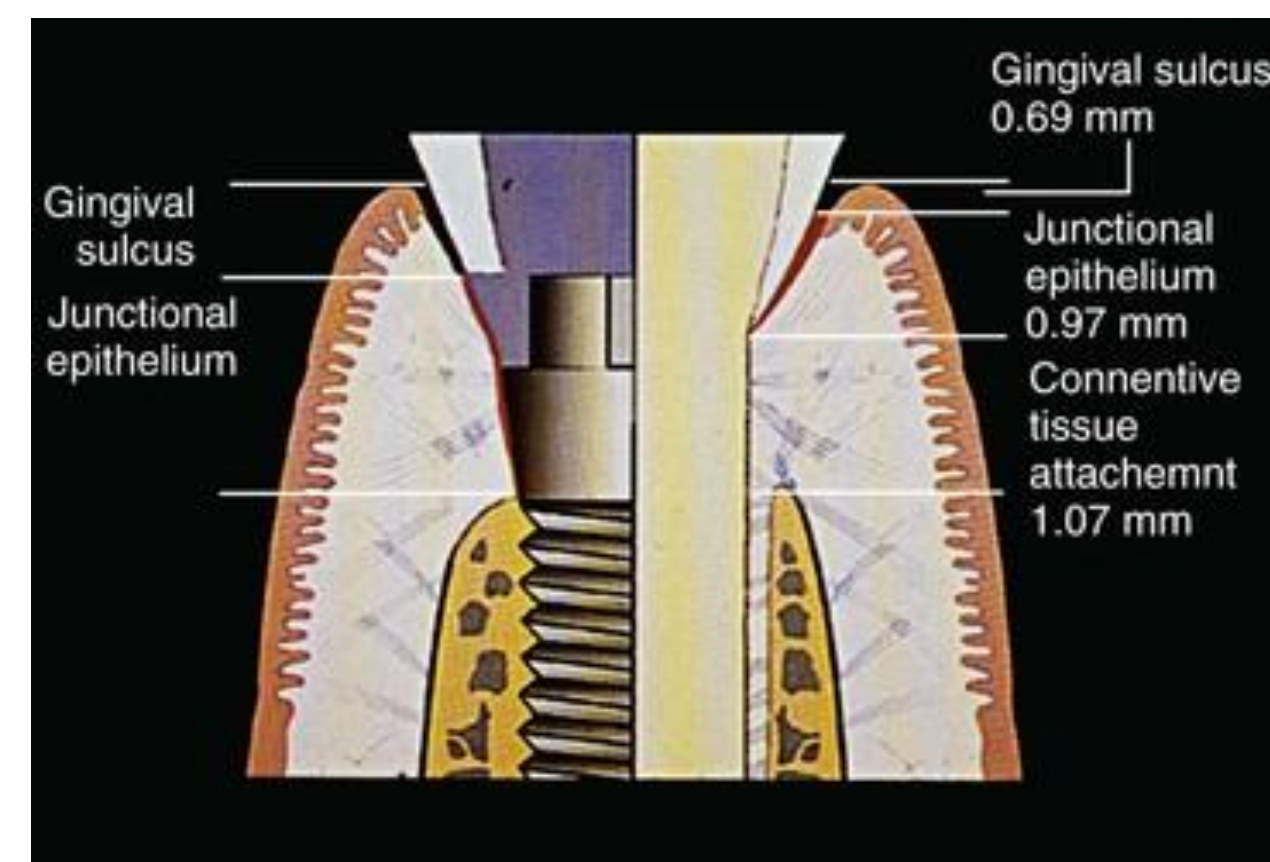


Fig. 1 Loss of interproximal contacts resulting in food trap and peri-implant bone loss.
Fig. 2 Difference between the connective tissue interface of a natural tooth and an implant.

Loss of interproximal contacts is a risk factor for peri-implantitis, food impaction, caries, and periodontal disease.⁴

- Connective tissue interface of natural teeth and implants vary. Connective tissue on natural teeth anchor to cementum using Sharpey's fibers. Conversely, collagen fibers adhere parallel or circumferentially on the transgingival region of implant abutment surfaces resulting in a weaker interface. The modest adhesion of peri-implant fibers cannot withstand mechanical forces as efficiently as the strong attachment of Sharpey's fibers of natural teeth.⁷

Prevalence

- Studies show a prevalence of proximal contact loss ranging from 30-53% between a single implant prosthesis and natural tooth.¹
- Mesial contacts > Distal contacts.¹
- Mandibular > Maxilla.¹
- No significant differences between sex or posterior and anterior regions.¹

Etiology

Open contacts in natural teeth are rare due to physiological drift. The ankylosed nature of implants combined with the Anterior Component of Force (ACF), may explain one of the main contributing factors to this frequently documented incidence.⁵ The causative factors for the appearance of interproximal contact loss can be categorized by:

- Tooth migration causes.² Occlusal forces projected towards the front of the mouth are transferred through proximal contact areas. Mesial drift helps to compensate for wear between teeth, thereby preserving intra-arch continuity. Anthropological views state there is a direct relationship between occlusal load, interproximal wear, and the mesial migration of teeth.⁵
- Crown-related causes (design of prosthetic crown and interproximal contact area).² Crowns with broad contact surfaces present less interproximal contact loss. Factors such as the location and the size of the interproximal contact and divergent roots have been cited as potential causes of open gingival embrasures, food impaction, and resultant formation of open contacts.²
- Bone formation/growth related causes.² Along with ACF, changes in the jaws and teeth occur because of continued, slow growth. Growth changes occur in the arches and result in adaptive changes in the teeth over time, both vertically and horizontally, and in alignment.²

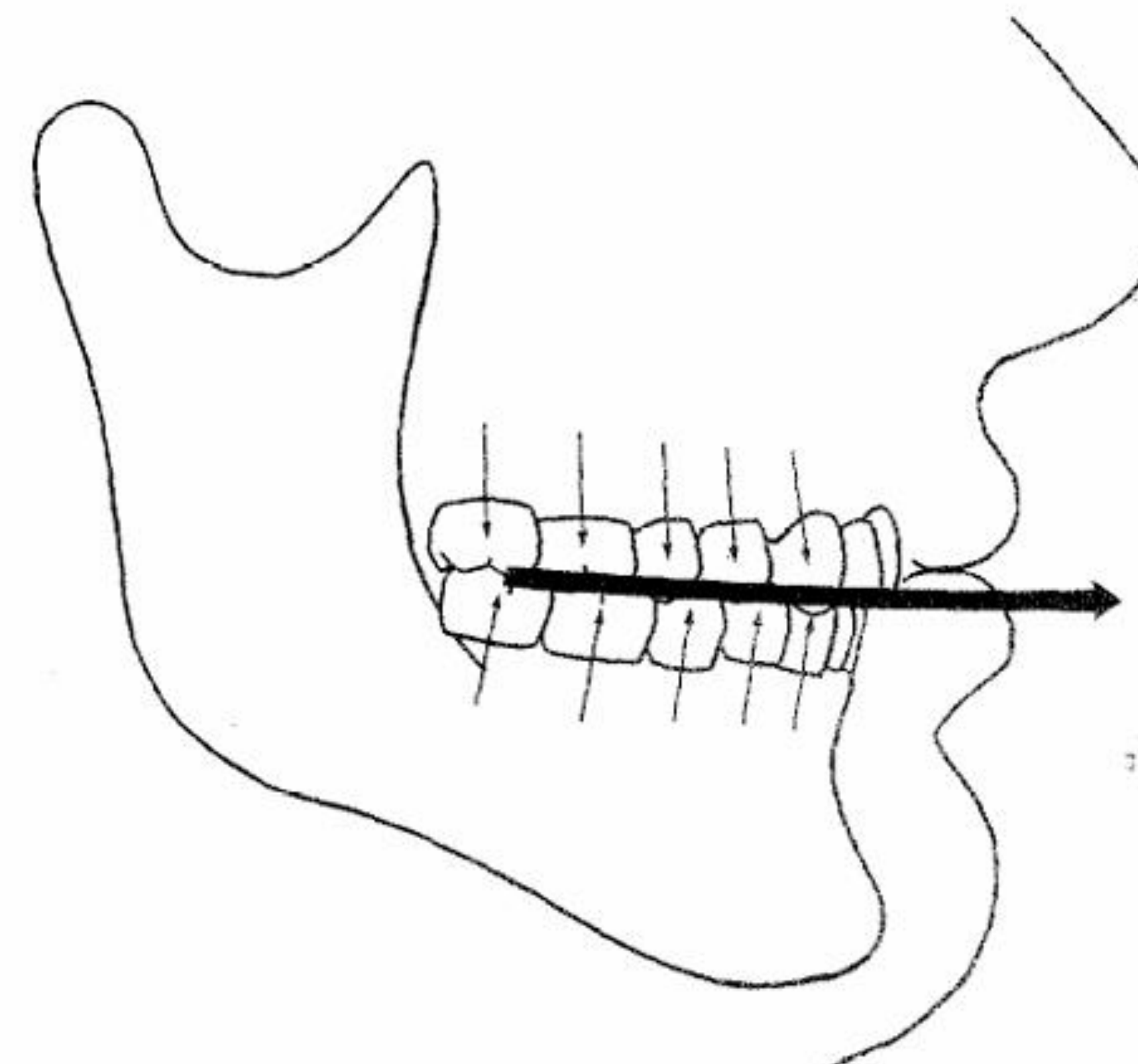


Fig. 2 The anterior component of occlusal force

Clinical Considerations

- Informed consent including the potential for open contacts and the possibility of needing prosthetic repair.¹
- Modification of adjacent teeth and prosthetic crown to create broad contact surface.²
- Utilize screw retained prostheses for retrievability to repair open contacts.³
- Fabrication of retainer/occlusal guard has not been shown to reduce open contacts from forming.²
- Modify implant restoration⁶ or adjacent tooth when food impaction is present.⁴
- Active monitoring for the development of open contacts and reexamination of occlusion.

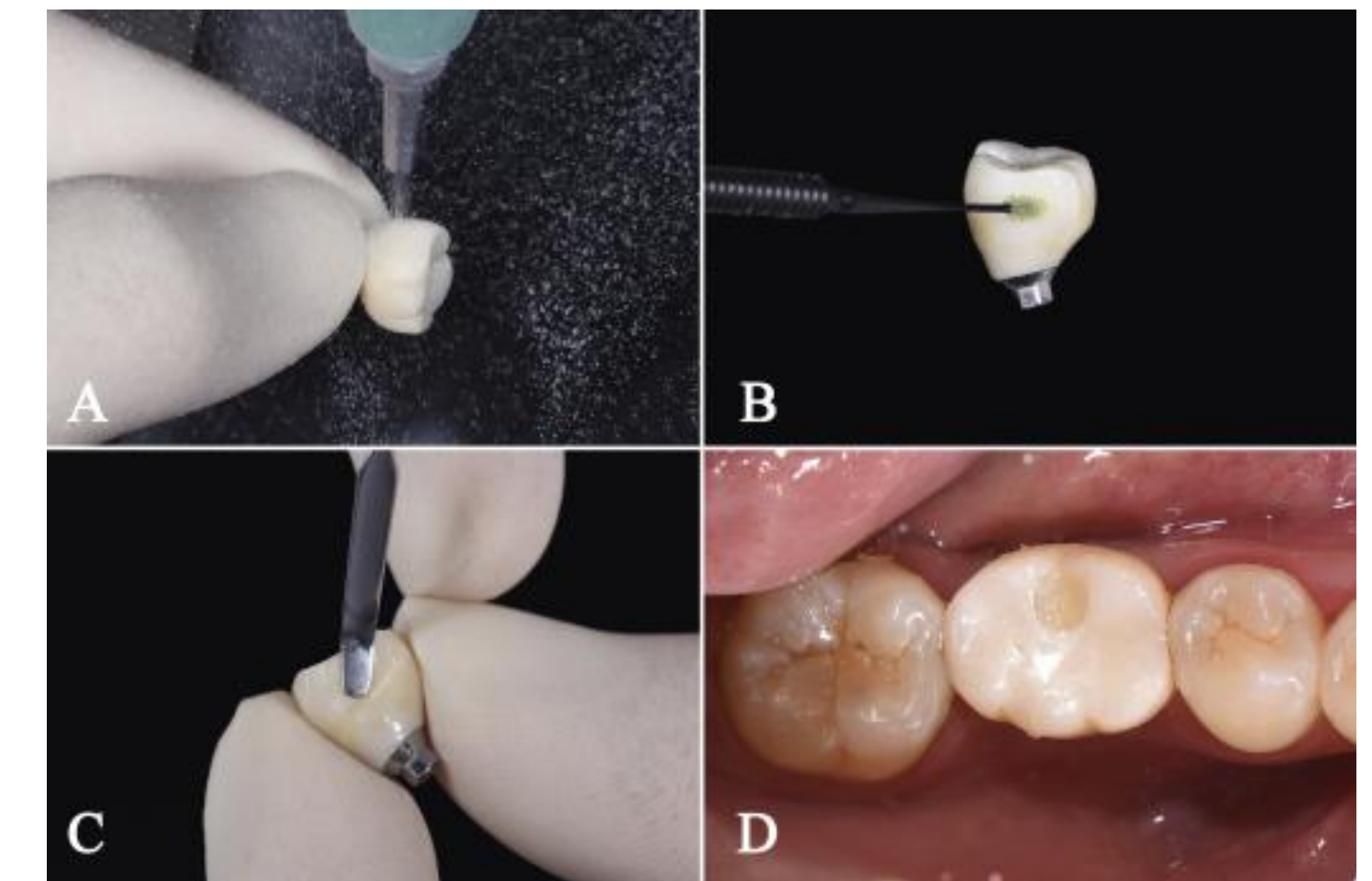


Fig. 3 Closing open contacts adjacent to an implant-supported restoration

Resources

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