

Socket-shield Technique and Immediate Implant Placement for Ridge Preservation

INTRODUCTION

The socket-shield technique is a surgical approach for implant placement with the objective of preserving the thickness of buccal bone after tooth extraction by retaining the buccal portion of an extracted tooth within the socket, thereby minimizing resorption of the hard and soft tissue.

SURGICAL STEPS

- Surgically remove the crown of the tooth
- Bisect the root into a buccal and palatal half
- Removing the palatal half while preserving the buccal segment.
- Contour the buccal segment into a concaved shape, resembling a shield.
- Immediately place an implant with sequential osteotomy drilling
- Use bone grafting material to fill the remaining gaps between the implant and socket-shield.
- Let heal for 6 months

METHODS

- A PubMed database search with the following terms: dental AND implant AND socket-shield.
- Twelve studies met the inclusion and exclusion criteria.
- Inclusion: Published in English between 1990-2019
- Exclusion: animal studies, in-vitro studies, literature reviews

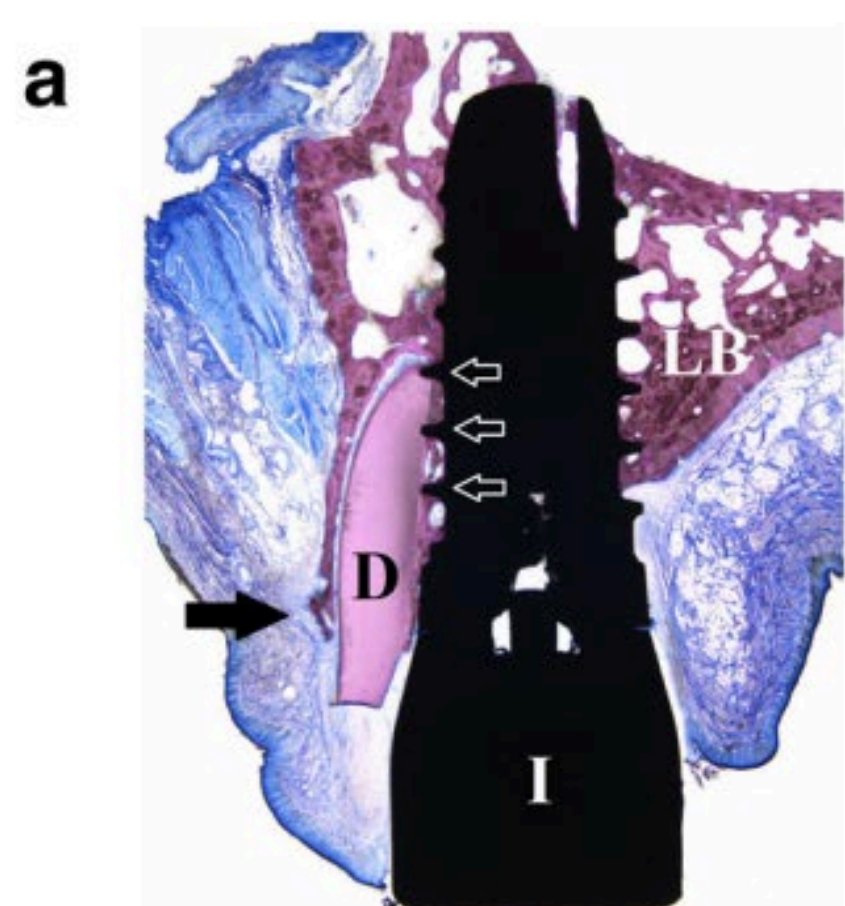


Fig 1a. histology. D. socket-shield tooth structure, I. implant, LB: local bone

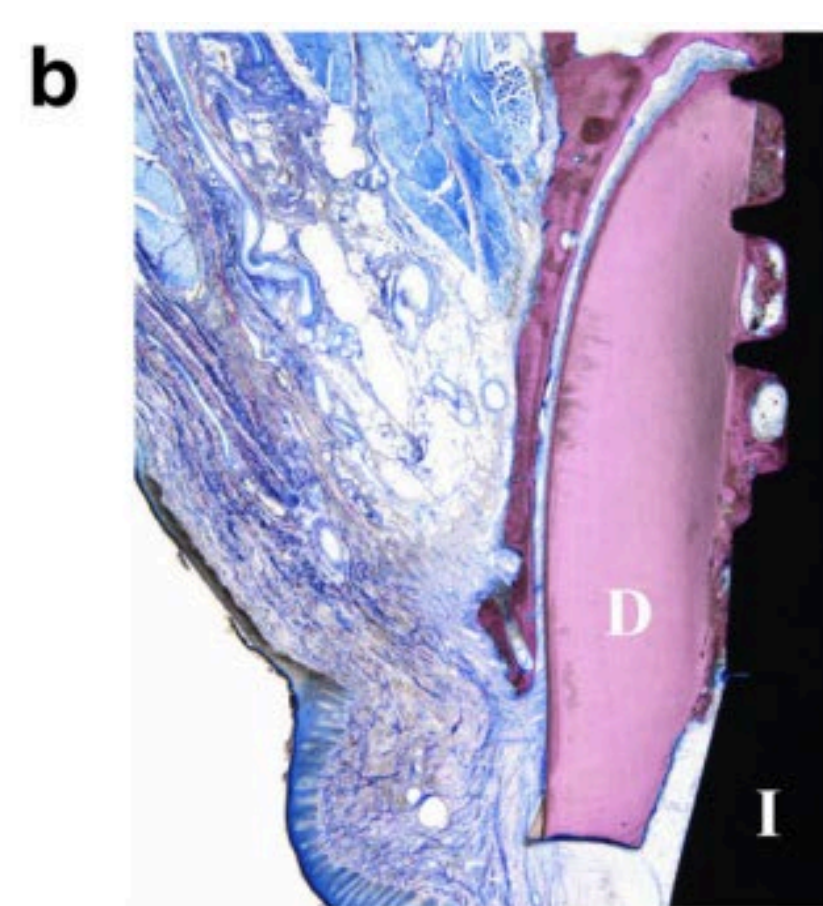


Fig 1b. histology exhibiting buccal bone shelf, socket-shield tooth structure, and implant

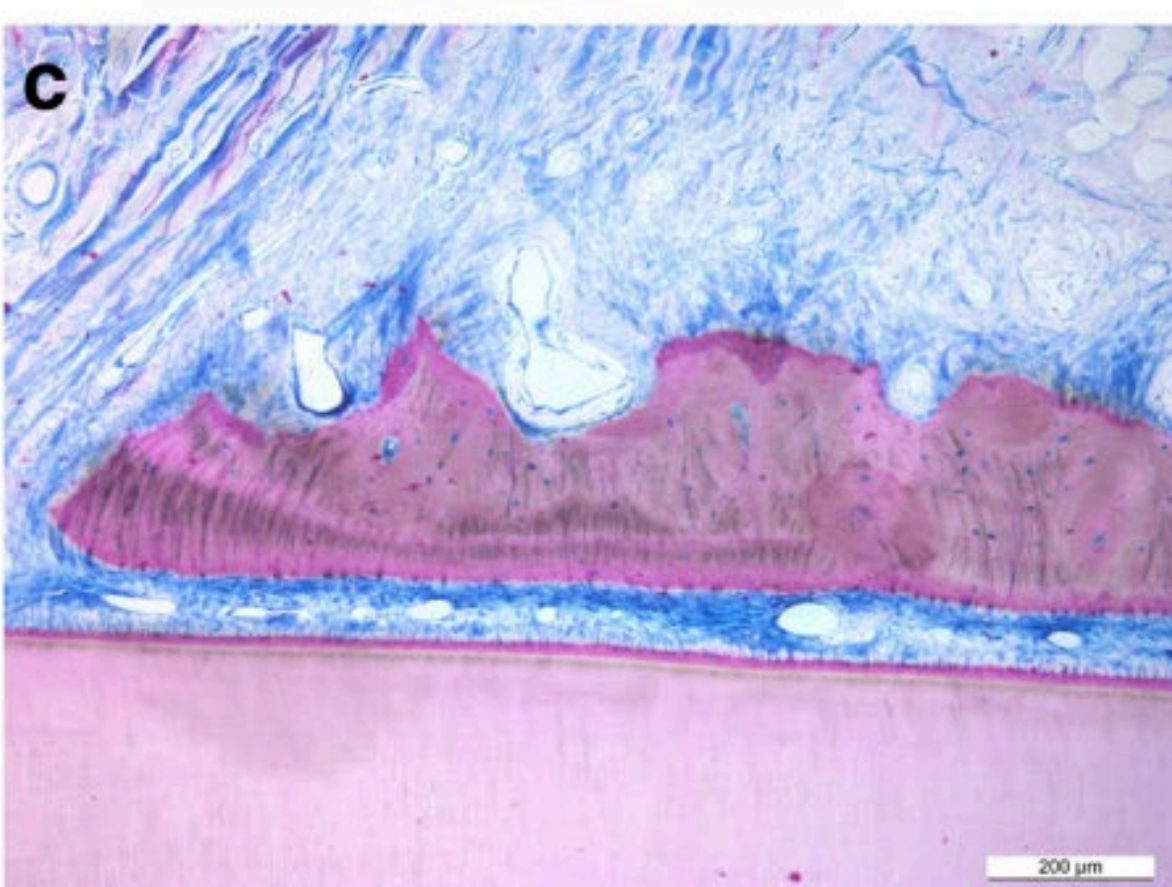


Fig 1c. magnified histology unveiling the interplay of the buccal bone shelf and socket-shield tooth structure

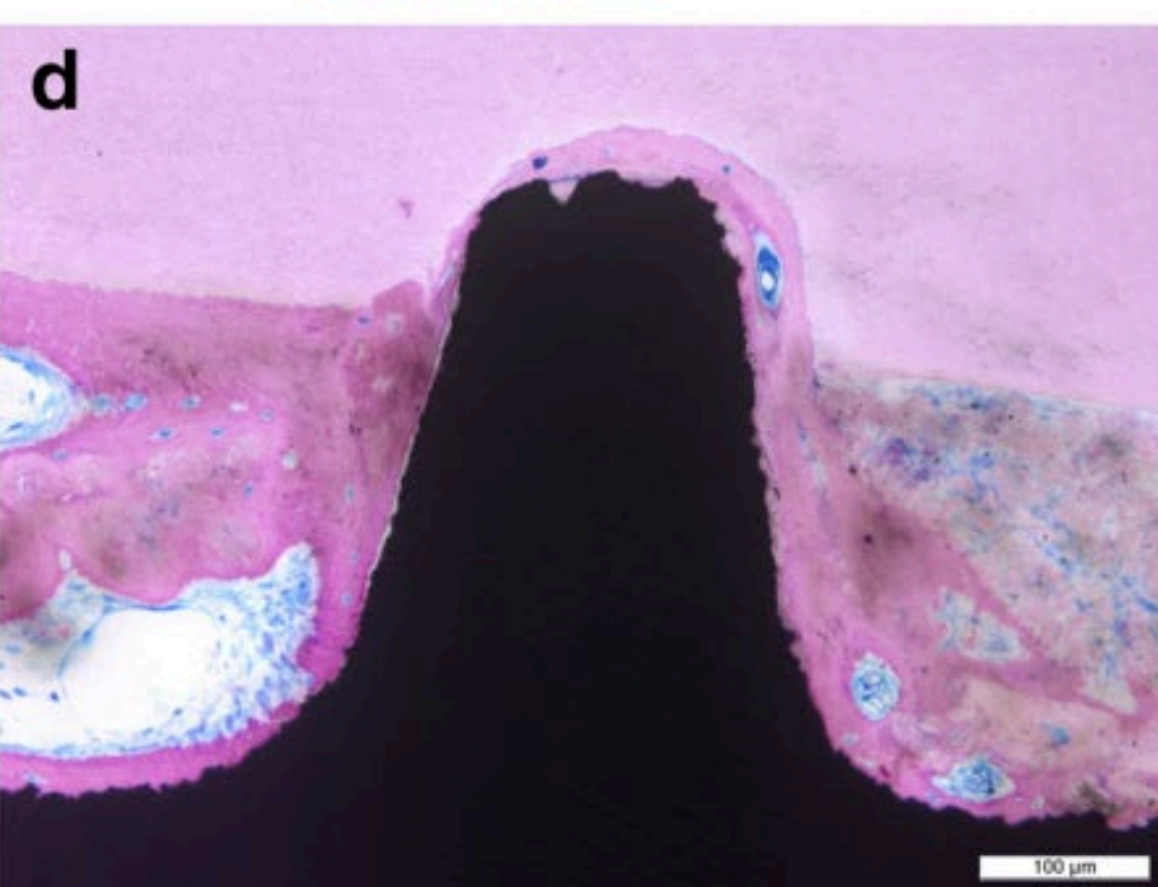


Fig 1d. histology revealing the preserved extraction socket due to retained socket-shield

RESULTS

- All studies reported osteointegration rates comparable to traditional placement protocols.
- Authors state the socket-shield technique offers a promising future in preserving peri-implant tissue and contour.
- Cost-effective technique
- Lack of long-term outcome data still unavailable
- Most common complication: internal and/or external exposure of the socket shield.

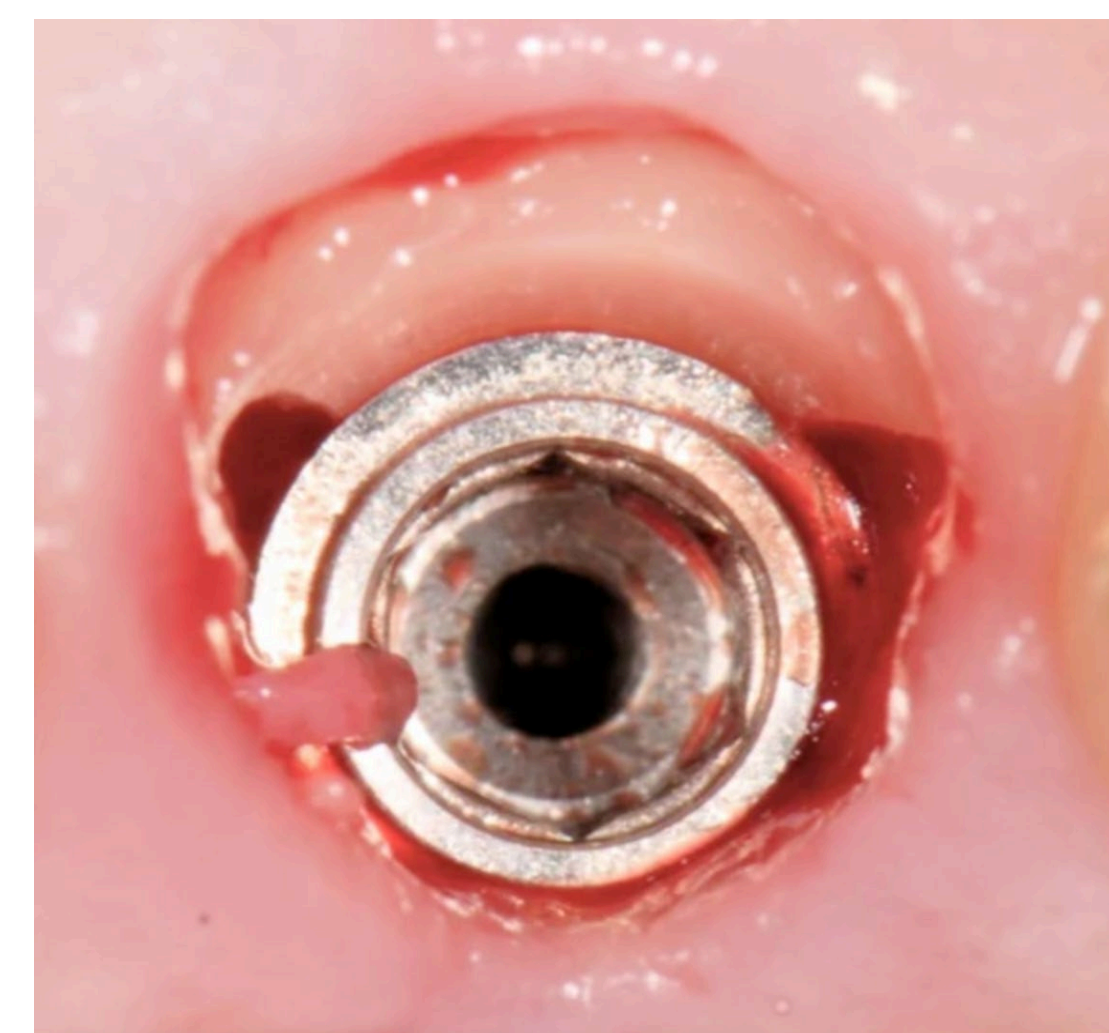


Fig 2. Implant placed palatal to socket shield

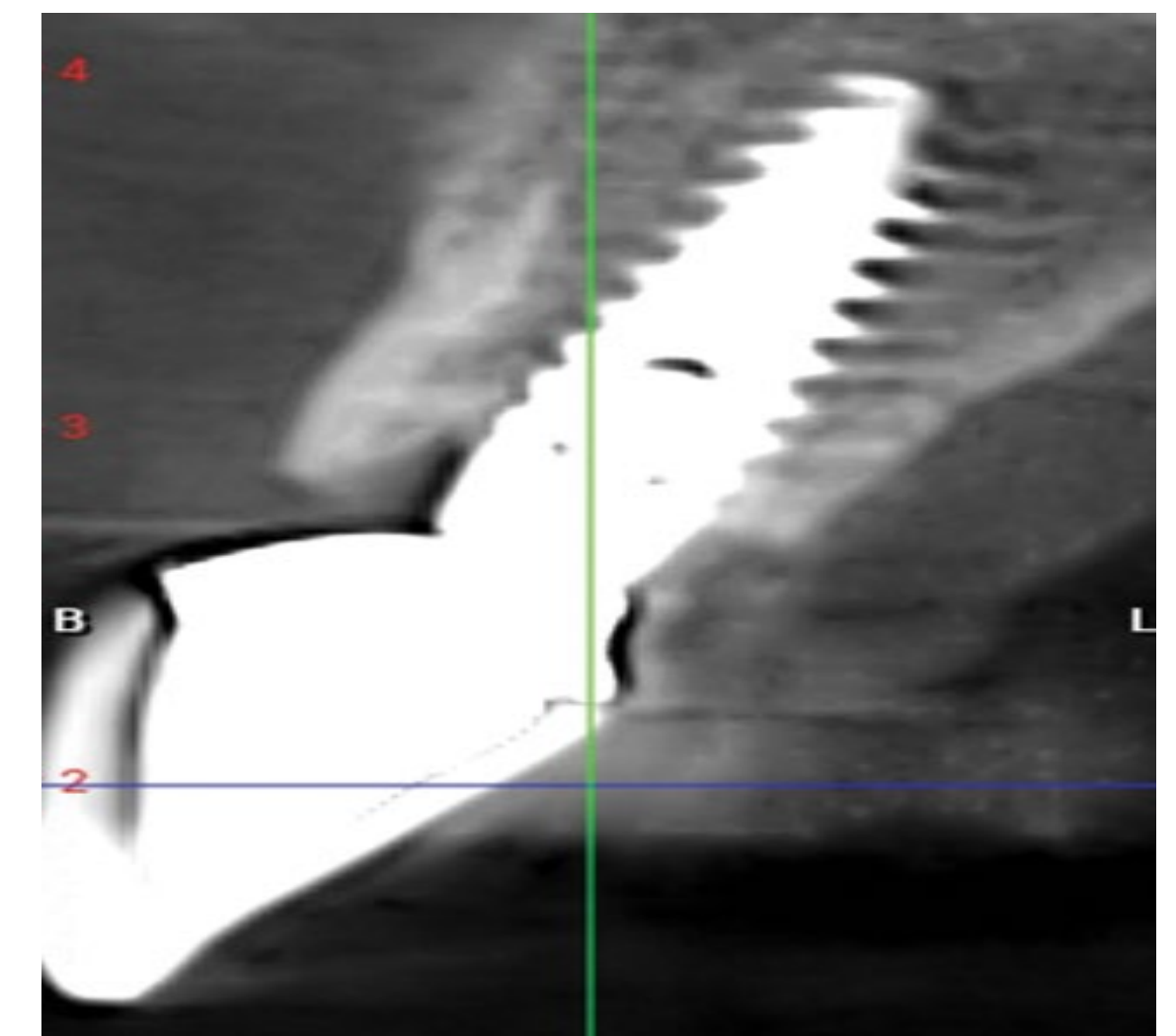


Fig 3. CBCT axial cross-section of socket-shield and fully restored implant crown



Fig 4. Implant restoration in situ (occlusal view)

CONCLUSION

Although the socket-shield technique offers promising esthetic and biomechanical outcome, it is still unclear if it will provide a stable long-term result. Therefore, caution is still advised when performing this technique during routine dental practice.

REFERENCES

Blaschke C, Schwass DR. The socket-shield technique: a critical literature review. *Int J Implant Dent.* 2020 Sep 7;6(1):52. doi: 10.1186/s40729-020-00246-2. PMID: 32893327; PMCID: PMC7475165.