

Osseointegrated Brånemark Implants Used To Retreat a Fractured Mandibular Bone Plate Staple Implant: A Case Report

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This article describes postimplant follow-up and retreatment of a 66-year-old patient with an esthetically compromising fixed maxillary tissue-integrated prosthesis and a mobile mandibular overdenture stabilized by precision attachments with a gold clip bar cemented to the transmucosal posts of a bone plate staple implant. Following successful completion of prosthodontic treatment, the patient returned with a fracture of the left transmucosal pin in the mandibular bone plate staple implant that was retreated with Brånemark implants and a fixed prosthesis. (INT J ORAL MAXILLOFAC IMPLANTS 1992;7:256-258.)

Key words: Brånemark implant, Ceka attachment, complications, neurovascular bundle repositioning, overdenture, severe mandibular resorption, staple implant, transmucosal pin

Treatment of this patient began at age 66 with an iliac crest bone graft to the maxilla using Brånemark implants to fix the onlay grafts. Treatment ended at age 69 following the placement of specially designed 3.0-mm-diameter Brånemark fixtures between vertical posts of a failed mandibular bone plate staple implant, which involved exposing and repositioning the right inferior alveolar neurovascular bundle. The maxilla and mandible were restored with fixed prostheses.

Patient Report

Upon initial evaluation, the patient's complaints consisted of the following: poor esthetic quality of the maxillary prosthesis; lack of lip support; phonetic difficulty; nonvisible maxillary teeth; slight numbness of the upper lip; and mobility of the mandibular overdenture, which was connected to a mandibular bone plate staple implant with precision attachments on the distal of a gold bar joining transmucosal pins.

Clinical Condition and History

The patient's dental condition involved a maxillary fixed tissue-integrated prosthesis supported by five Brånemark fixtures. An iliac crest onlay bone graft, using implants for stabilization, was allowed to heal for 10 months before fixed prosthesis treatment began (Fig 1).

When the patient presented for examination, a discrepancy in the casting fit of

the maxillary prosthesis was noted (Figs 2a and 2b). The treatment plan provided for the fabrication of an accurately fitting casting to support an esthetically and phonetically acceptable fixed tissue-integrated prosthesis. In the mandible a removable overdenture was stabilized by Ceka attachments (Ceka NV, Antwerp, Belgium), and a gold clip bar was cemented to the transmucosal posts of a bone plate staple implant. The initial treatment plan provided for the readaptation of the precision attachment overdenture.

Complication and Resolution

Following completion of prosthodontic treatment in the maxilla and mandible, the patient returned with a fracture of the left transmucosal pin of the mandibular bone plate staple implant (Fig 3). A new treatment plan was designed. It involved the use of Brånemark fixtures between the vertical posts of the staple implant to support a fixed prosthesis. Specially designed narrow-diameter (3.0 mm) fixtures were used between the interior staple pins. The right inferior alveolar canal was uncovered and the neurovascular bundle was repositioned buccally, permitting the placement of two fixtures distal to the right transmucosal pin (Fig 4). Healing occurred with no loss of feeling in the lip and minimal postoperative discomfort.

After 3 months, the fixtures were exposed and the right transmucosal pin of the staple was cut at bone level. Titanium abutments were attached to the Brånemark implants, and a fixed tissue-integrated prosthesis was placed 1 week later during suture removal (Fig 5).

Summary

Implant complications such as fractured transmucosal pins can be successfully managed with appropriate surgical procedures and meticulous prosthodontic treatment following an organized treatment plan. The patient's initial complaints concerning esthetics were resolved by using a conversion prosthesis, serving as a prototype for the final maxillary tissue-integrated prosthesis.

Replacement of the mobile mandibular overdenture with a nonremovable prosthesis improved patient comfort, function, and self-esteem with limited surgical trauma. Excessive surgical trauma in the mandibular arch was avoided by allowing the failed bone plate staple implant to remain in place after the no longer needed transmucosal pins were reduced to the level of the ridge bone.

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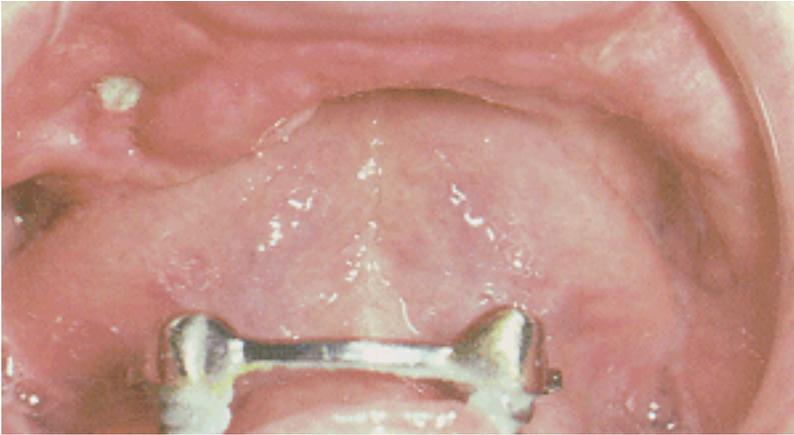


Fig. 1 Maxilla: 7 weeks following iliac crest onlay bone graft; note dehiscence in right ridge area. Mandible: Bone plate staple implant with Ceka attachments and center clipbar support for a removable overdenture.

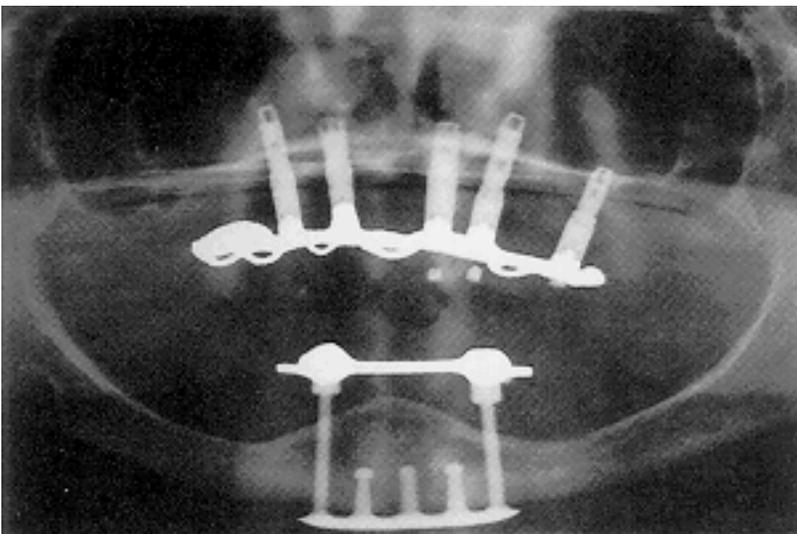


Fig. 2a Pretreatment panoramic radiograph illustrates mandibular bone plate staple implant with a gold clip bar and maxillary tissue-integrated prosthesis. Treatment completed 6 months earlier.



Fig. 2b Unacceptable esthetics and phonetic position of teeth.

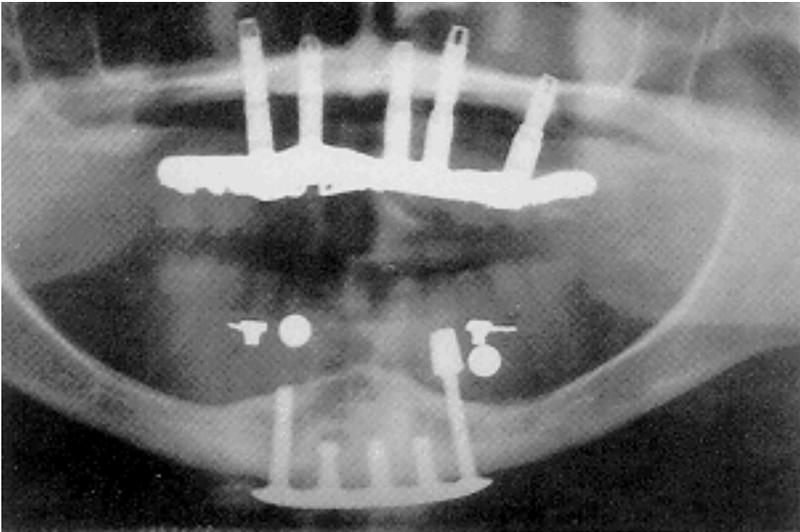


Fig. 3 Panoramic radiograph illustrating completed maxillary tissue-integrated prosthesis and fractured transmucosal pin of bone plate staple implant.

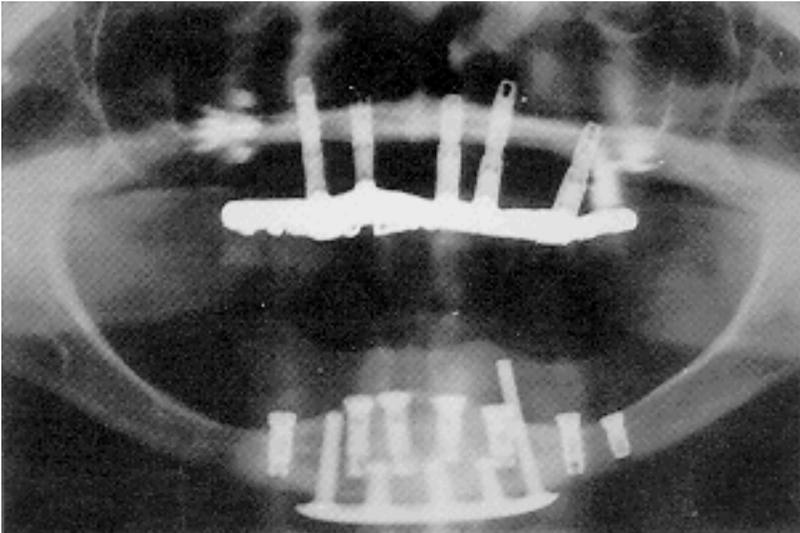


Fig. 4 Specially designed 3.0-mm-diameter fixtures placed between the interior pins of the staple implant. Note that right posterior fixtures use all available bone of the severely resorbed posterior mandible following the repositioning of the neurovascular bundle.



Fig. 5 Postoperative lateral cephalometric radiograph: Remains of failed staple implant beneath completed fixed tissue-integrated prosthesis.