

Cases Of Jaw Reconstruction That Was Performed Using The Camlog Implant System

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Jawbone defects frequently occur in the lesion area following surgery for tumors and cysts, often making implantation therapy difficult. We herein report on 6 cases we experienced in which implant surgery was conducted following bone grafting and/or GBR after tumor resection and cyst extraction.

1 retinoblastoma

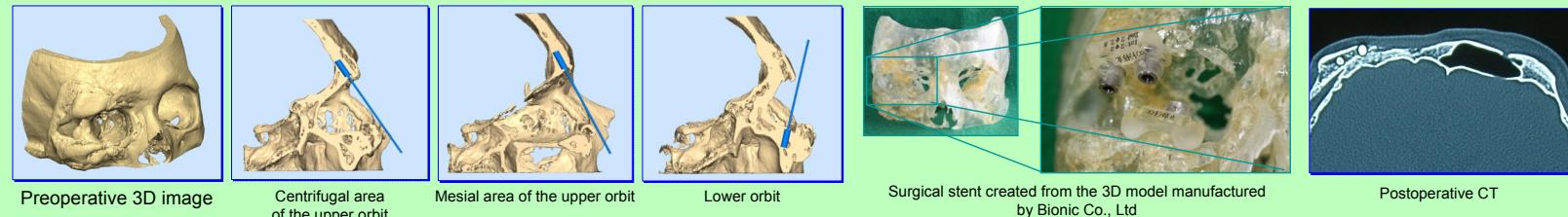
Facies at the initial visit



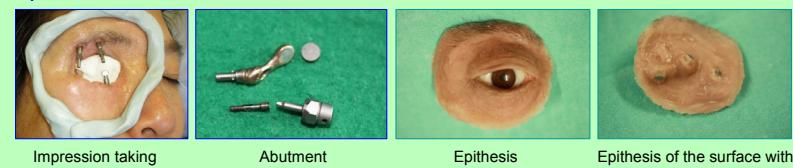
Patient: A 50-year-old male
Initial visit: April 2008
Chief complaint: Incompatibility of his artificial eye
History of present illness: The patient went under resection of the orbital tumor and postoperative radiotherapy due to retinoblastoma at 1 year of age. In 1980, orbital reconstruction was conducted by iliac bone grafting. Although an artificial eye was subsequently inserted, the patient consulted our department through referral from the department of plastic surgery of our institute due to incompatibility.

Treatment and course: In November 2008, dental implants (camlog diameter: 3.3 mm, length: 11.0 mm) were implanted under local anesthesia; 2 in the lower orbit and 1 in the upper orbit, respectively. The implants were implanted using the surgical guide created from a three-dimensional model of a simulated jawbone. Implant fenestration was conducted in December 2009, and an orbital epiphysis was inserted in April 2010.

Simulation surgery

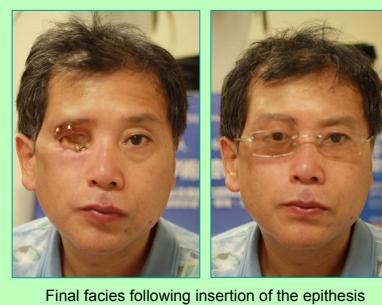


Epiphysis



Surgical stent created from the 3D model manufactured by Bionic Co., Ltd

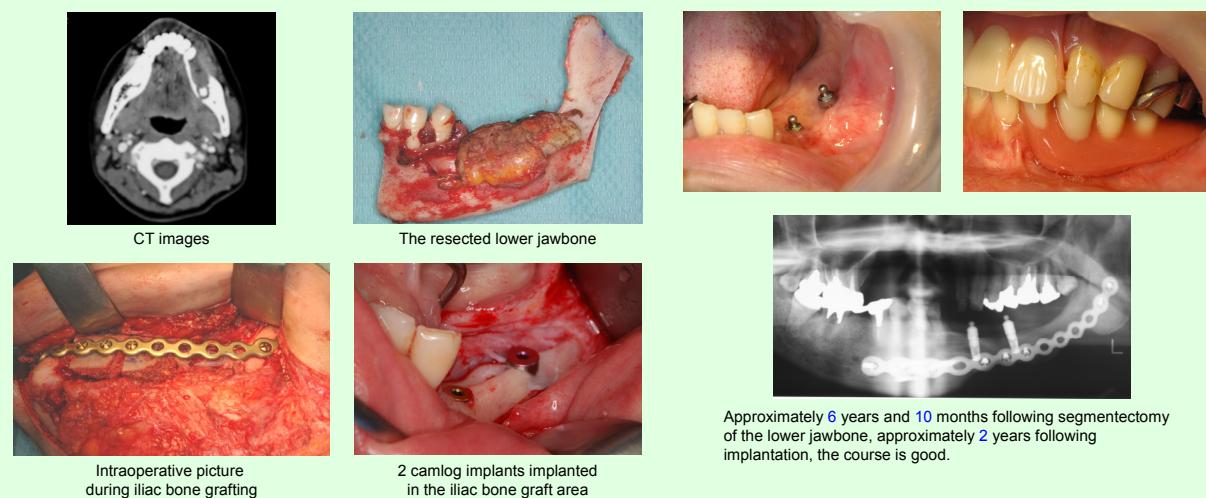
Postoperative CT



Regarding orbital reconstruction by implant support, by using a long implant (11mm) and a thin, small disk-type magnetic attachment having strong absorbing power, creating an epiphysis along the facial line of expression that aesthetically excelled was possible. High patient satisfaction was obtained while reducing the weight of the silicone.

2 massive osteolysis

Patient: A 25-year-old female
Initial visit: January 2005
Chief complaint: Swelling and acute pain of the left mandibular gingiva, as well as mental nerve paralysis
History of present illness: Swelling of the gums was observed in '06 in 2003, thus leading the patient to consult a nearby dentist. Prominent bone resorption was observed in the same area in December 2004, and mobility was significant, so '06 was extracted in the department of dentistry at a hospital. However, the transmission image was found to be rapidly expanding upon X-ray, and therefore the patient consulted our institute through referral.
Treatment and course: As a result of a biopsy, a diagnosis of massive osteolysis was made. In March 2005, segmentectomy of the lower jawbone and plate reconstruction were conducted. In March 2007 (approximately 2 years following surgery), iliac bone graft surgery was conducted. Osteolysis stopped, so 2 camlog implants (3.8 × 11 mm, 4.3 × 11 mm) were implanted in November 2009, without removing the plate. Vestibuloplasty was conducted in March 2010. The superstructure was attached in March 2011.

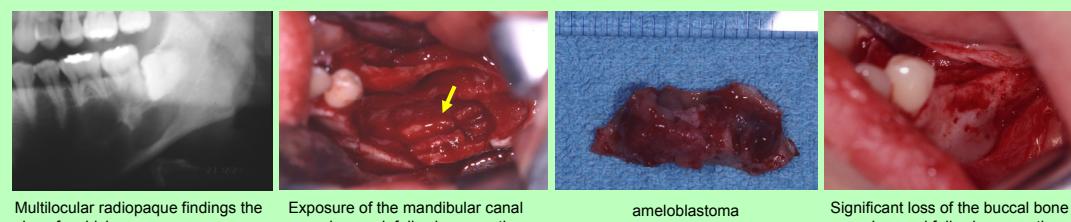


Approximately 6 years and 10 months following segmentectomy of the lower jawbone, approximately 2 years following implantation, the course is good.

Massive osteolysis is a very rare disease that progressively causes osteolysis. Regarding the treatment of this disease, bone grafting due to osteolysis was not sufficient, thus resulting in a poor prognosis; it was believed to have a good prognosis if bone grafting is conducted following resection of the jawbone. In this case as well, iliac bone grafting was conducted following segmentectomy of the lower jawbone, and an implantation was made. This was the first case in which implantation treatment was carried out regarding this disease.

3 ameloblastoma

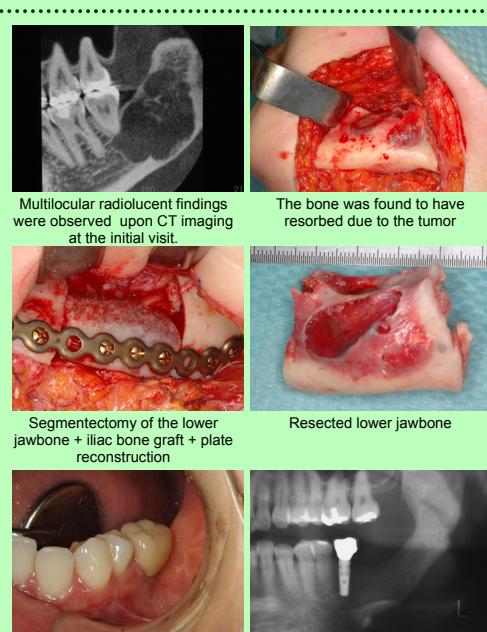
Patient: A 35-year-old female
Initial visit: September 2002
Chief complaint: Close investigation into the radiolucent findings of the left lower jawbone
History of present illness: The patient consulted our institute through referral with an indication of a multilocular transmission image of the left mandibular molar region at a local dentist.
Treatment and course: In November 2002, she was diagnosed with ameloblastoma as a result of biopsy. Tumor resection was conducted under general anesthesia. Relapse was observed in 2003; because the prognosis was good following re-surgery, the bone of the tubular region of lingual bone was sampled in February 2006, and bone transplantation was conducted on the defective part. In July of the same year, 3 camlog implants (one 3.8 × 13 mm and two 5.0 × 11 mm) were implanted in area [567], and the superstructure was attached in March 2007.



Approximately 9 years following the tumor resection, and at approximately 5 years following the implantation of the implant, the patient's course is good.

4 ameloblastoma

Patient: A 31-year-old female
Initial visit: October 2006
Chief complaint: Gingival swelling in area [8]
History of present illness: [8] was extracted and ameloblastoma was resected in the department of oral surgery at a dental university. The patient consulted our institute after observing swelling in the same area approximately 9 years following surgery.
Treatment and course: As a result of biopsy, it was diagnosed as a relapse of ameloblastoma. In January 2007, segmentectomy of the lower jawbone and iliac bone graft surgery were conducted. Plate removal surgery was conducted in October of the same year. A 4.3 × 13 mm camlog implant was implanted in December 2008. Secondary surgery was conducted in April 2009, and the superstructure was subsequently attached in June.



Approximately 4 years and 9 months following segmentectomy of the lower jawbone, currently approximately 2 years and 10 months following implantation of the implant, the course is good with no tumor relapse.

5 odontogenic fibroma

Patient: A 31-year-old female
Initial visit: October 2006
Chief complaint: Close inspection of radiolucent findings in [21]
History of present illness: The patient consulted our institute after radiolucent findings accompanying root resorption of [21] were observed by a local dentist.
Treatment and course: Tumor resection and extraction of [21] were conducted under local anesthesia in December 2006. It was diagnosed as odontogenic fibroma upon histopathologic examination. There was no relapse of the tumor and callus distraction was conducted under general anesthesia in June 2010. The apparatus for distraction osteogenesis was removed in October 2010, and a camlog implant (3.3 × 16 mm) was implanted.



Following extraction of the benign tumor, bone grafting was possible at a relatively early period at the same time as the resection or approximately 6 months following surgery; however, following ameloblastoma and/or the removal of the odontogenic fibroma, in which a relapse is prone to occur, bone grafting must be conducted upon sufficiently confirming the presence of a relapse. As the grafting bone, ilium-block bone grafting excels the most in terms of recovery of the shape and mechanical support, allowing shaping of a stable implanting floor; however, a large burden is applied on patients such as gait disorder following sampling, etc. Meanwhile, callus distraction does not require bone sampling from other areas and soft tissues may be increased; on the other hand, the treatment period in order to create bones becomes elongated.

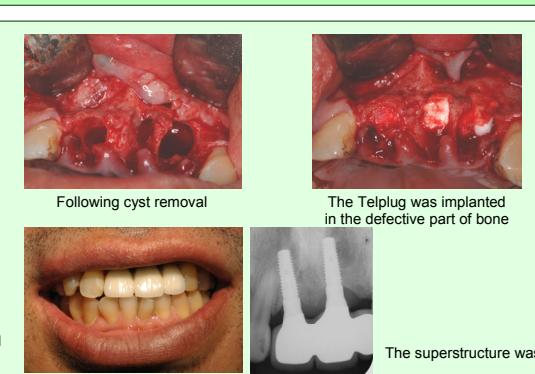
6 radicular cyst

Patient: A 44-year-old male
Initial visit: November 2009
Chief complaint: Close investigation of radiolucent findings in areas 1|12
History of present illness: The patient consulted our institute through referral due to an indication of thumb-sized radiolucent findings by a nearby dentist.
Treatment and course: 1|12 were extracted and radicular cyst removal was conducted under general anesthesia in December 2009. Following extraction, Atelocollagen sponge supplement (Telplugs) was inserted and socket preservation was conducted at the nonresorbable membrane. 2 camlog implants (3.8 × 13 mm) were implanted in July 2010. The superstructure was attached in 2011.

At the initial visit



Thumb-sized radiolucent findings were observed in the end of the root upon dental X-ray imaging



A nonresorbable membrane was used due to a significant buccal osseous defect in area 12.

Approximately 7 months later, the membrane was removed

With the cyst as the socket preservation following extraction, GBR in the Telplugs and a nonresorbable membrane was effective in implantation treatment.

Conclusion

If the osseous defect of the jawbone is large following tumor resection and cyst removal, a satisfactory implantation treatment outcome with a good function and aesthetics with long-term stability may be obtained; therefore, the creation of the bone becomes necessary. In this study, by conducting bone transplantation and callus distraction on large osseous defects of the jawbone following surgery and subsequently using the camlog implant system, good results were obtained in all cases with a high degree of patient satisfaction.