

# Implant placement after autogenous block bone graft for ameloblastoma patient: A case report

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Ameloblastoma is a histologically benign tumor of the jaw, which accounts for 9-10% of all tumors, and has a high recurrence rate. The surgical approach in the literature can be divided into curative resection and conservative treatment. Surgical methods are selected according to the location, size, histological characteristics of the lesion, the general health of the patient, and the preference of the operator. Conservative methods include coarse surgery, extraction and curettage, which are said to be useful as treatments for unicystic ameloblastoma in children and young patients. Conservative treatment has been reported to have a higher recurrence rate of 75-90% compared to radical resection. However, curative treatments such as mandibular resection may lower the recurrence rate, but aesthetic and functional problems due to jawbone defects may occur and require reconstruction. Recent studies have reported that all ameloblastomas do not require the same surgical procedure, and that the treatment method can be modified according to the characteristics of each lesion to prevent unnecessary extensive surgery. We report a case of implantation of autogenous blastoma in the mandibular bone after reconstruction using autologous block bone obtained from the head, followed by conservative extraction.

**Keywords:** Block bone graft, Dental implant, Ameloblastoma, Bone graft

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## INTRODUCTION

Enamel blastoma is a relatively common benign tumor that accounts for about 1% of cysts and tumors in the oral and maxillofacial region, and 10% of dental tumors. Is called.

1) Histologically positive, but invasive growth to the periphery causes high recurrence rate and causes destruction of the surrounding bone, causing aesthetic and functional problems. 2-4) For the treatment thereof, conservative methods such as marsupialization, enucleation, curttage, etc., or radical surgical methods such as segmental resection may be applied. 5) Conservative surgery can maintain as many bones as possible, but there is a high risk of recurrence. Curative resection may reduce the risk of recurrence, but reconstruction and prosthetic treatment are required to solve the aesthetic and functional problems caused by the removal of large amounts of bone. Thereby, the author reports a case of enamel blastoma in the mandible with conservative surgery, reconstruction using the autologous block bone after implantation, with literature review.

## CASE REPORT

A 32-year-old male patient presented with swelling of the mandibular left premolar area without a specific systemic history. The extraoral findings at

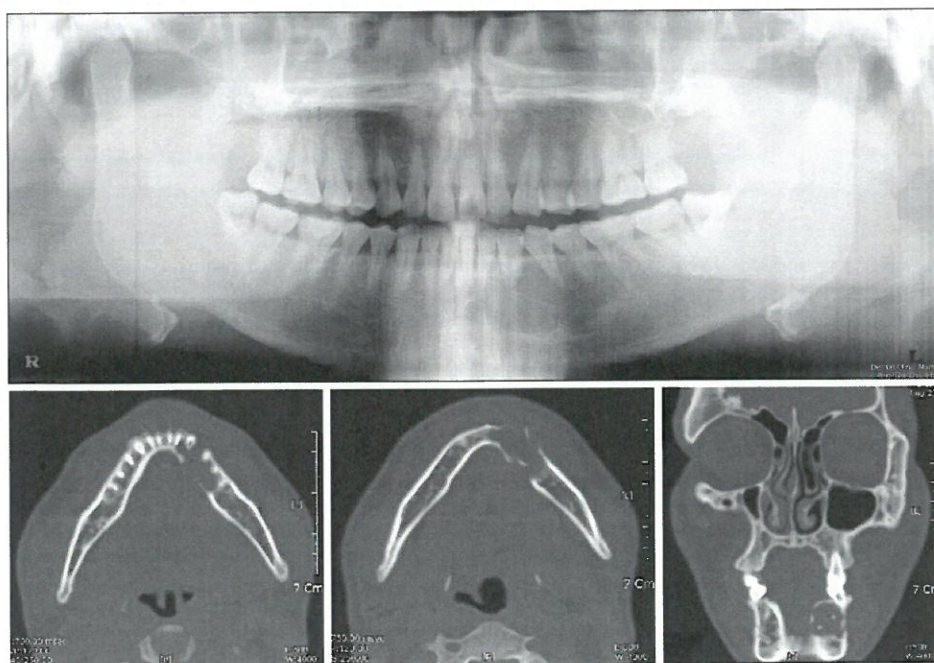
the first visit showed swelling of the mandible left anterior segment and tenderness at palpation. There were no morphological abnormalities such as paresthesia and facial asymmetry. Intraoral findings included swelling of the left anterior antrum and alveolar bone, and panoramic radiographs and CT scans showed radiographic findings with clear, multilateral boundaries at the apical region of teeth # 32 to # 35. One). The results of electrodiagnosis of the affected teeth were negative, and clinical and radiological findings were followed by biopsy after enamel blastoma and histology was diagnosed as polyfollicular enamel hematoma. The treatment plan included complete resection of the lesion and partial osteotomy

of the lesion. After general anesthesia, # 32, 33, 34, 35 teeth were extracted, and resection of the lesion and bone removal were

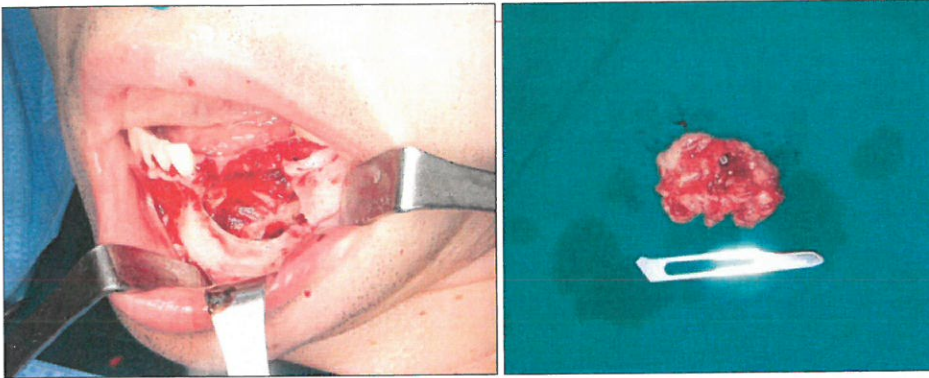
performed with minimal damage to the nerve and lower extremity nerve (Figs. 2, 3). There was no complication in the left lower part of the mandible. About three years after the operation, the lesion was completely healed without any clinical and radiological findings. Bone biopsy for recurrence

and bone graft for the defect were decided (Fig. 4). For localized anesthesia, bone resection was performed with trephine bur and histological examination was performed. After the fixation using a screw on the mandibular central autologous bone, bone graft was performed using the peripheral allograft

(Dentgene™, Cellumed Co., Ltd. Seoul, Korea / Biotem, Seongnam, Korea) (Figs. 5-7). Healed without specific complications of the donor site and transplant site after surgery. After 8 years of bone graft and reconstruction, there were no specific findings on the surgical site, and the BMD and buccal thickness of the graft and donor were good in the panoramic and CT scans (Fig. 8). Only three implants (5.0x10 mm; AR type, Biotem, Seongnam, Korea) were implanted (Fig. 9). It was then repaired using three implant-supported 4-unit full Zirconia fixed prostheses. After that, the patient was continuously observed without any unusual symptoms (Figs. 10, 11).

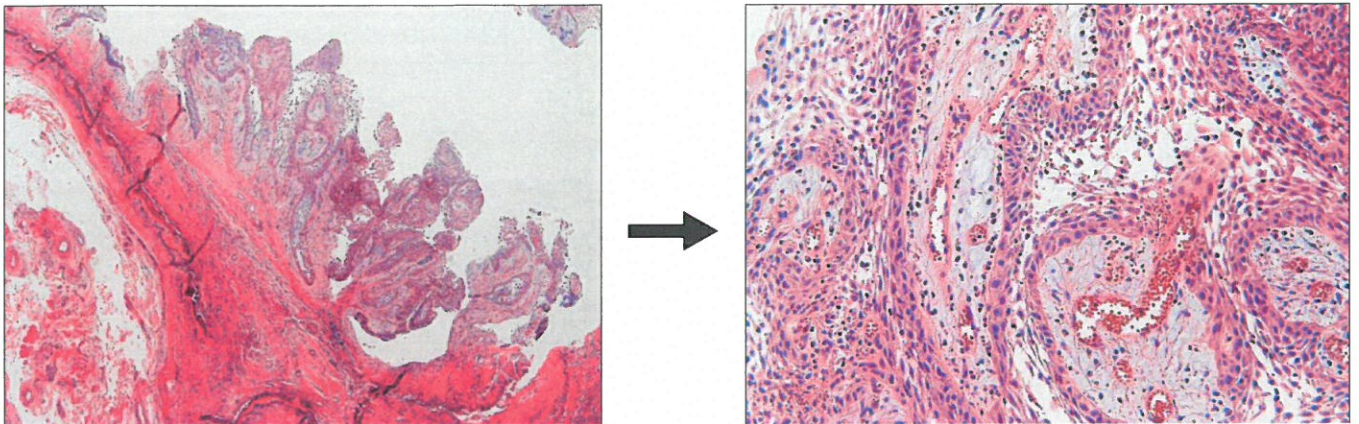


**Fig. 1.** Panoramic X-ray and CT at 1st visit show multiple bony destruction combined teeth resorption.

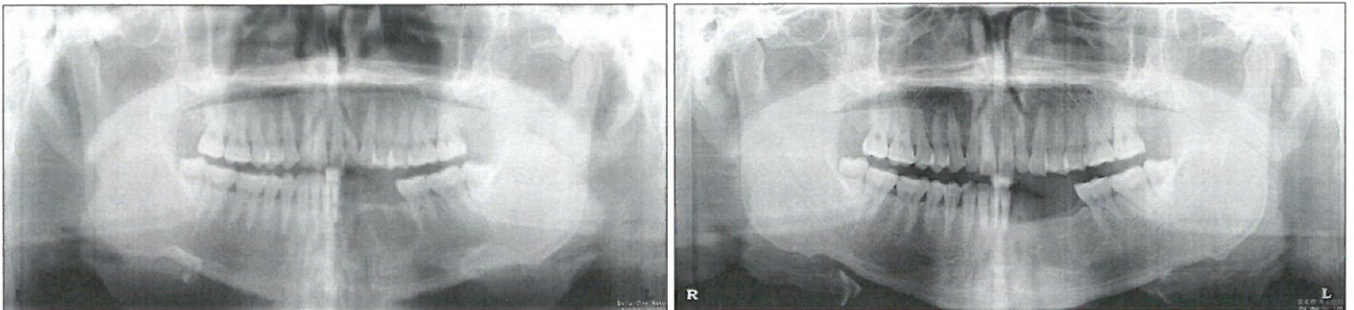


**Fig. 2.** Clinical photos with mass during surgery.

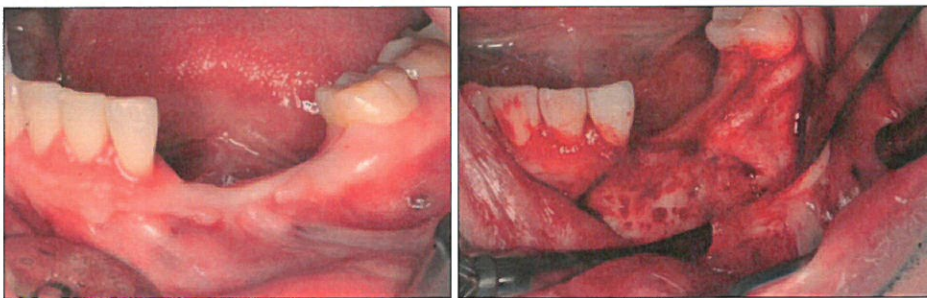




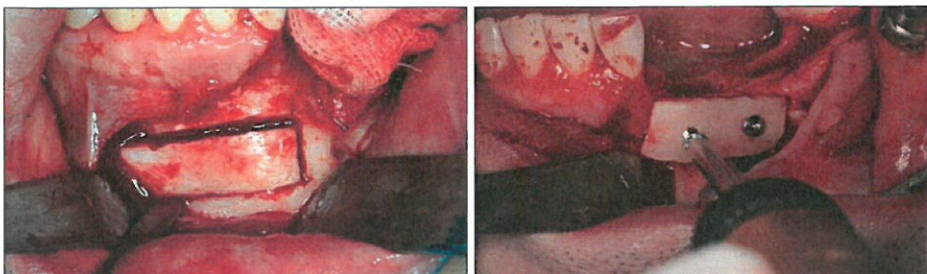
**Fig. 3.** Histopathologic features (Hematoxyline & Eosin staining x40, x100).



**Fig. 4.** Panoramic X-rays before & after 3 years.

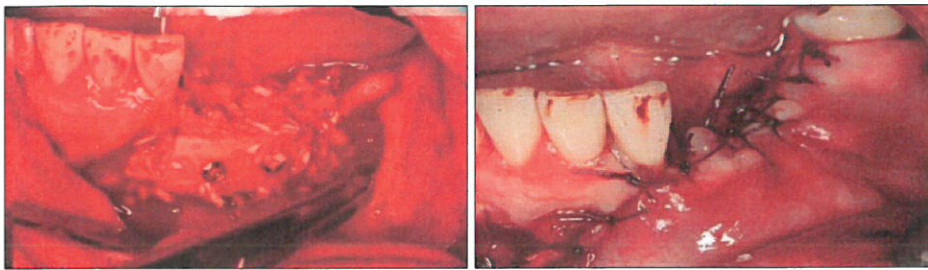


**Fig. 5.** Clinical photos after 3 years.

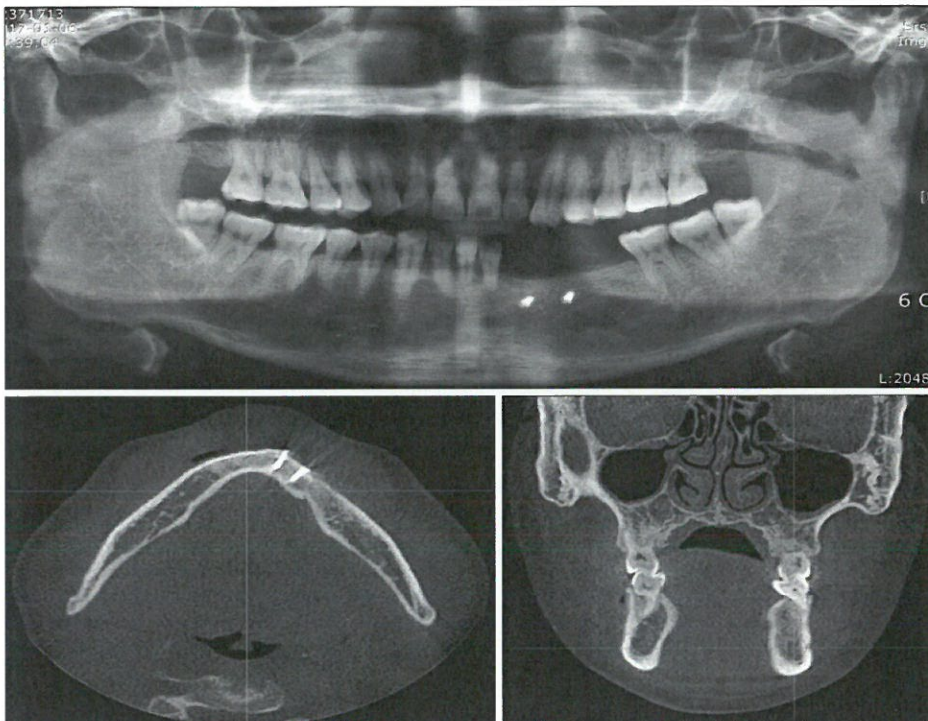


**Fig. 6.** Autogenous block bone graft from mandibular symphysis area.

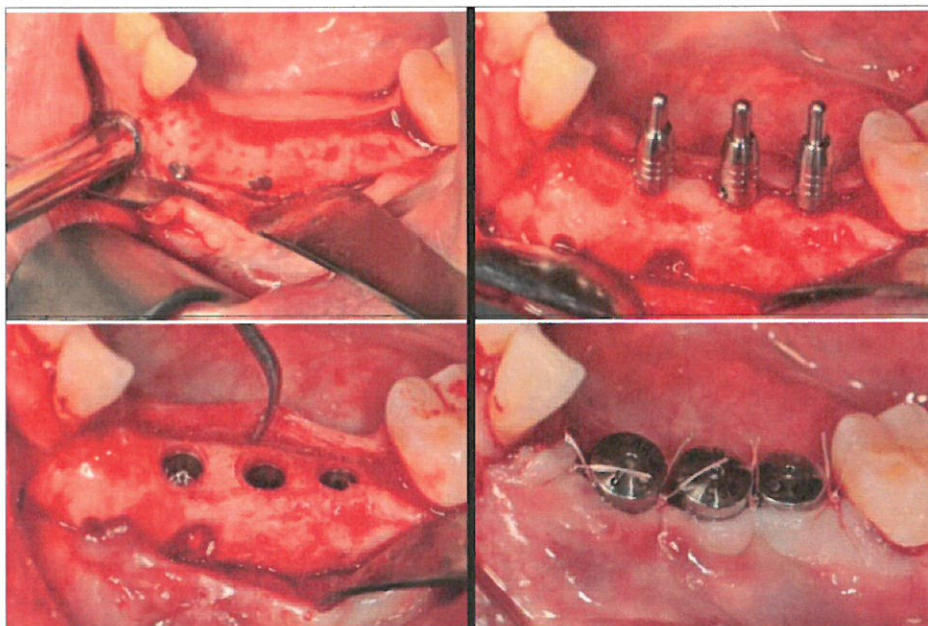




**Fig. 7.** Additional bone grafting and suture.

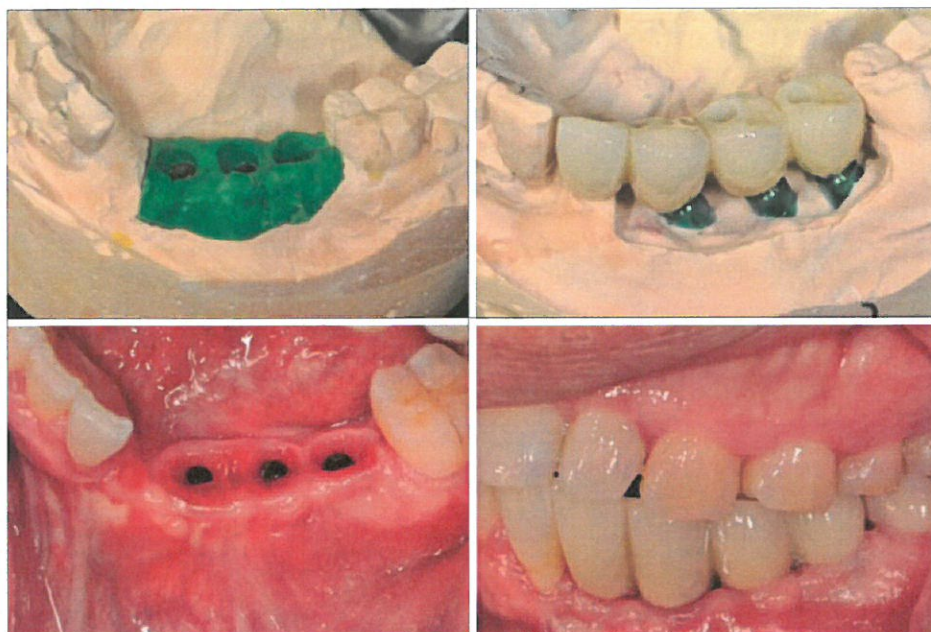


**Fig. 8.** Healing state with X-ray and CT after 8 years.

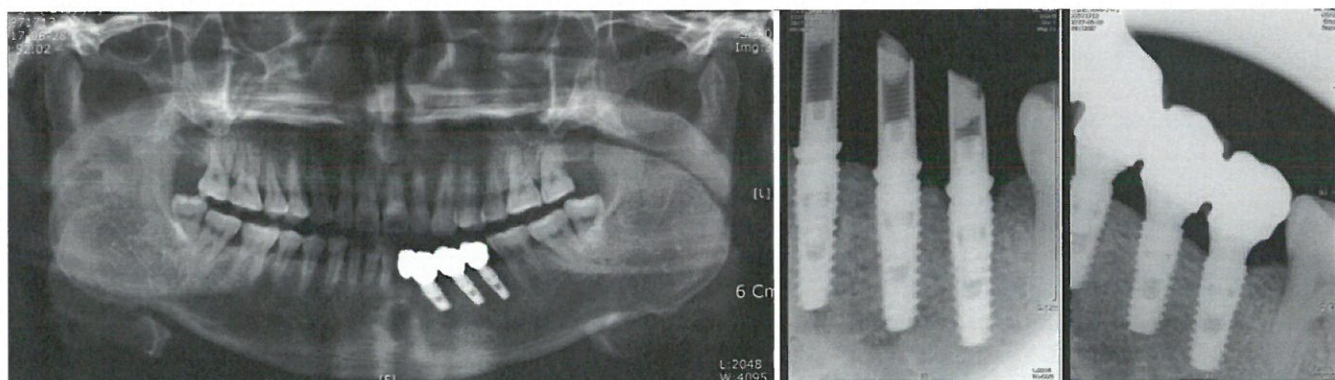


**Fig. 9.** 3 implants were installed (5.0x11.5 mm; AR type, Biotem, Seongnam, Korea)





**Fig. 10.** Final prosthesis and soft tissue healing state.



**Fig. 11.** X-ray views after final prosthesis.

## DISCUSSION

Enamel blastomas are classified as benign but show aggressive invasive growth and, in rare cases, about 2% have been reported to be malignant. 1) Clinically, neurological abnormalities such as malocclusion, pain, and paresthesia, such as swelling, tooth displacement, etc., can be seen, but in most cases, they are asymptomatic and are found by chance when radiography occurs. Ueno et al. Reported that it occurs most frequently in ascending hills. 2) About 86% of conventional solid, multicystic ameloblastoma and about 13% of ununiform ameloblastoma are peripheral and extra-osteoblastic. Peripheral, extraosseous ameloblastoma accounts for about 1%, histologically follicular type, complexiform type, acanthomatous type, granular cell type and basal cell. It is classified as basal cell type, and it is reported that the follicle type has a recurrence rate of about 56.8% and the total filamentous type about 32.3%. 3) Nakamura et al. Reported that the follicle-shaped polyhedron or lather was

more penetrating and active. 4) In addition, unilateral enamel blastoma can be considered as the first method of coarse surgery to avoid a wide range of fractures. 5) Radiological histological diagnosis of enamel blastoma may affect treatment. Schdev et al. Reported a relapse rate of approximately 93% after conservative treatment and 13% with a radical approach. 6) Shatkin and Hoffmeister reported a recurrence rate of 86% after extraction and curettage and 14% for radical treatments such as malignancy. 7) Müller et al also noted that the recurrence rate after conservative surgery is higher than that after radical resection. 8-10) Considering the rate of recurrence alone, fracture resection according to the radical approach has a good prognosis, but it can also cause functional problems such as chewing and swallowing and facial deformation due to extensive bone removal. For this purpose, proper jaw bone reconstruction and restoration are necessary. In particular, for the mandibular bone reconstruction due to a large lesion, a reconstruction metal plate or a surgical method using a long bone may be applied. Park et al reported that curative resection of the enamel blastoma was performed radically



bone. 11) In this case, we performed continuous follow-up observation to confirm recurrence after removal of enamel blastoma but sufficient removal of surrounding bone to prevent social activity deterioration due to the radical approach. To confirm the recurrence of the site, bone graft was performed using autologous block bone at the adjacent site. After that, a fixed prosthesis using the implant was manufactured to perform a functional and aesthetic treatment. In conclusion, this case confirmed the importance of continuous periphery as well as sufficient peripheral bone removal to prevent recurrence in preservative treatment of enamel blastoma. Also, if recurrence or bone abnormality does not occur, reconstruction using autologous bone is useful. It will be necessary for the patient's social, functional and aesthetic recovery.

## CONCLUSION

In this case, we did not perform segmental resection or radical resection for the treatment of enamel blastoma. Through this, the patient was able to minimize the loss of bone and increased the prognosis of autologous block bone after continuous observation for recurrence. Finally, it was possible to cure the bone enough to allow implant placement in the lesion site. The author reports a case of aesthetic, functional, and social recovery of tumorous lesions with a review of the literature through long-term follow-up and regular examination for more than 10 years.

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