

CASE REPORT

Unusual complication after augmentation genioplasty: Odontogenic infection requiring implant removal

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Abstract

Augmentation genioplasty is a common surgical procedure with extremely low infection rates. We present the case of a healthy middle-aged woman who experienced years of chronic infection after chin implantation due to an exposed mandibular canine root, which is exceedingly rare. Awareness of this potential complication may reduce patient morbidity.

KEYWORDS

dentistry, ear, nose, and throat, health maintenance, infectious diseases

1 | INTRODUCTION

Microgenia may be corrected through augmentation or osseous (sliding) genioplasty. Alloplastic implantation is often performed using solid silicone (Silastic) and high-density porous polyethylene (Medpor). Infection rates are rare, with incidences <1% reported in the literature.^{1,2} We describe a case of augmentation genioplasty complicated by chronic infection from an odontogenic source leading to implant removal several years after the initial surgery.

2 | CASE REPORT

A 54-year-old healthy woman presented in consultation for revision rhinoplasty and augmentation genioplasty (Figure 1). The surgery was performed without complication. A gingivolabial incision was used for the approach, and a medium-sized porous polyethylene implant (MEDPOR, Stryker) implant was inserted within a subperiosteal pocket using aseptic technique. No anatomic abnormality of the mandible or dentition was identified. The patient was discharged on antibiotic prophylaxis. She

was pleased with the aesthetic outcome and had a benign immediate postoperative examination (Figure 1).

Waxing and waning right-sided chin swelling and tenderness began 1 month postoperatively. With a presumed diagnosis of surgical wound infection, she was treated with multiple courses of oral antibiotics in an attempt to salvage the chin implant. She reported no dental pain or dental symptoms at the time. Ten months after the initial surgery, she experienced intraoral abscess formation requiring drainage at a local emergency room. Cultures grew mixed bacterial flora. Despite multiple antibiotic courses and chlorhexidine oral rinse, her symptoms did not resolve completely. Recommendations were made to remove the implant, but she declined.

Surgical exploration of the chin implant site was performed in the clinic 2 years later, due to concern for ongoing intermittent infections. Granulation tissue and a scant amount of purulent drainage were encountered. The granulation tissue was excised, and the area was copiously irrigated with antibiotic saline solution. She had temporary resolution of her symptoms for 5 months, when a repeat incision and drainage was required. Despite initial improvement, the infection persisted. Implant removal

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was again advised, but the patient expressed reluctance. Soon after her dentist identified an infected left mandibular molar that was drilled, but there was no concern for odontogenic disease directly adjacent to the implant. The patient did not have any relevant dental history otherwise or known history of dental trauma. CT facial bones were subsequently obtained without evidence of odontogenic infection, fluid collection, or neoplasm (Figure 2).

She ultimately agreed to proceed with surgical removal 4 years after initial implant placement. Intraoperative findings were notable for an area around tooth #27 (the right mandibular canine) that was open and exposed. Purulence was encountered and drained. Copious granulation tissue was discovered underlying the implant on removal, which was found to be originating from the root of tooth #27, which was exposed through the buccal cortex of the mandible (Figure 3). The implant was removed, and she was referred to her

dentist for further treatment. She has done well since, remaining infection-free.

3 | DISCUSSION

This case highlights a complicated course following augmentation genioplasty ultimately requiring implant removal. An exposed root of tooth #27 was found to be the culprit, but this was not evident on oral examination, dental evaluation, CT scan, and two surgical explorations. This fracture was likely present preoperatively, given the immediate onset of recurrent infections after implantation. However, the patient denied any known history of dental trauma but was followed by a dentist for dental caries.

Only two reports exist in the literature describing odontogenic infection with direct extension to an alloplastic chin implant.^{3,4} In both cases, the implant was removed.^{3,4}



FIGURE 1 Preoperative (left) and postoperative (right) comparison photographs status post revision rhinoplasty and augmentation genioplasty

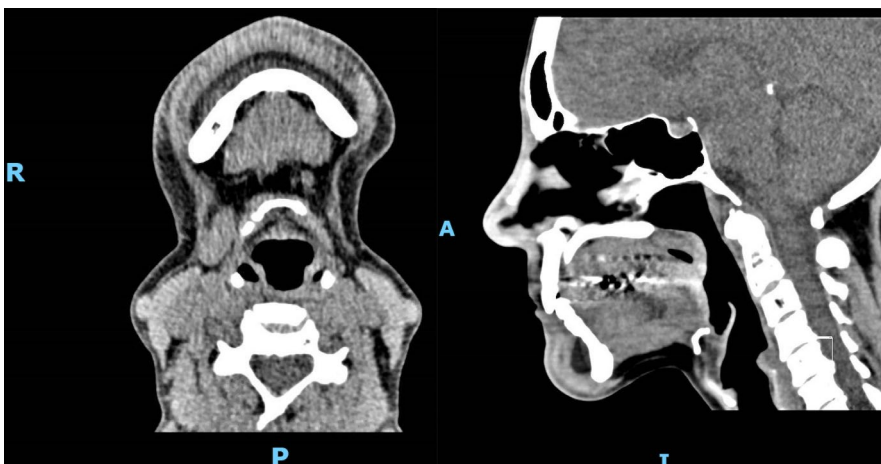


FIGURE 2 CT facial bones from July 2020 demonstrating the chin implant in position with overlying soft tissue attenuation and fat stranding, but without a discrete fluid collection, mass, or odontogenic infection



FIGURE 3 Intraoperative photograph at time of implant removal demonstrating a fracture of the root of tooth #27 (right mandibular canine) eroding through the buccal cortex of the mandible (indicated by arrow)

Although a rare problem, the associated morbidity of surgical site infection, adverse antibiotic reactions and resistance, and surgical failure are significant. We suggest comprehensive preoperative dental evaluation prior to augmentation genioplasty with an alloplastic implant. This includes a screening dental history obtained by the patient's surgeon, routine preoperative dental examination, and consideration of a dental panoramic radiograph preoperatively.

Silicone is a popular alternative to Medpor for alloplastic implantation. The available literature comparing outcomes of augmentation genioplasty with these materials has not revealed a significant difference in infection rate, which is exceedingly rare in both cases.^{2,5} However, the literature does suggest that osseous genioplasty may be considered as an alternative technique given lower reported infection rates and morbidity.¹

4 | CONCLUSION

We present an unusual case of augmentation genioplasty complicated by an odontogenic infection. The nidus was an exposed root of the right mandibular canine eroding through the cortex of the mandible, which was only discovered at the time of implant removal. Preoperative dental evaluation, including history, examination, and possible dental panoramic radiography, and consideration of osseous over augmentation genioplasty may minimize infection risk and patient morbidity in the setting of dental disease.

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AUTHOR CONTRIBUTION

Tania Hassanzadeh and Arnold Lee were involved in conception of project, preparation of manuscript, and critical revisions. *Both authors contributed equally to this project and agree to the by-line as listed.*

ETHICAL APPROVAL

The authors report no conflicts of interest. No funding was received for this project. Patient consent was obtained, and anonymity has been preserved. This project was exempt from Institutional Review Board (IRB) review, and documentation confirming this policy has been provided.

CONFLICTS OF INTEREST

The authors declare there are no conflicts of interest.

CONSENT

Informed consent was signed and collected from the patient in accordance with the journal's patient consent policy.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no datasets were generated or analyzed during the current study.

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