

Complication and Management of Improper Placement of Rubber Silicone Implant in the Posterior Region of the Mandible: "A Case Report"

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Received: October 22, 2019; **Published:** November 05, 2019

Abstract

Introduction: Facial skeletal augmentation is one of many surgical techniques used to enhance facial aesthetic. It is especially useful in the malar, mandibular angle and chin region. Silicone elastomer is a solid rubber consistency polymer of polymethyl siloxane and because of its relative inertness as an implant, it has been developed for many medical applications and specifically for facial skeletal augmentation. The majority of preventable complications of augmented silicone are related to incorrect choice of prosthesis size or position. Non-preventable complication is Implant-related infection that usually occur within the first 2 weeks of surgery.

Case Report: 29 years old lady, presented to oral maxillofacial surgery clinic for a consultation and looking for treatment of her chief complaint which was moderate pain at the left cheek, directly below the left malar bone. Surgical history, she underwent cosmetic operation before 3 months which was mandibular genioplasty and silicone rubber augmentation in both sides of the posterior-lateral of the mandible. In CT, the silicone at the left side which is the area of complaint apparently shows improper alignment with the lateral surface of mandible. In addition, the head of the silicone seems very close to the malar bone with some rotation towards anti-clockwise direction.

Discussion: In This report, 3D rendering CT imaging gives information about the silicone on the left side that was not keeping its correct position due to post-operative migration or maybe it was not placed and secured properly. Fixation of implant affords the best opportunity to diminish or preclude micromotion and the development of chronic inflammation.

Conclusion: Persistent pain around the augmented rubber silicone in the posterior-lateral of the mandible might indicates improper placement of the implant that can cause an interference with the normal mandible function. Choosing the suitable implant size and stabilize it carefully where can allow the normal function is highly critical to guarantee the success of rubber silicone augmentation in the posterior of the mandible. 3D CT is a good diagnostic tool for describing the rubber silicone in a case of rubber silicone augmentation in the face if it needed. One screw fixation is not recommended as it shown in this case possibility of rotation of the silicone around its axis Therefore, we recommend multiple screws fixation of the silicone in the facial region to assure the stability.

Keywords: *Facial Skeletal Augmentation; Rubber Silicone*

Introduction

Facial skeletal augmentation is one of many surgical techniques that used to enhance facial aesthetic. It is especially useful in the malar, mandibular angle, and chin region [1]. The ideal properties of a synthetic implant material have been listed as following: no physical modification by soft tissue, chemical inertness, no production of inflammatory, no allergy or foreign body reaction, no carcinogenesis, resistance to mechanical strain, availability, ease of fabrication in the desired form, and capability of sterilization [2].

The common facial implant materials that used in the face: silicone elastomer, porous polyethylene, ePTFE, and hydroxyapatite calcium phosphate [3]. In a 1999 review of five years experience with silicone implants, silicone was hailed as an extraordinary material despite its current bad publicity [4]. Silicone elastomer is a solid rubber consistency polymer of polymethyl siloxane and because of its relative inertness as an implant, it has been developed for many medical applications and specifically for facial skeletal augmentation [5].

The majority of preventable complications of augmented silicone are related to incorrect choice of prosthesis size or position [6]. Non-preventable complication is Implant-related infection that usually occur within the first 2 weeks of surgery [7,8].

Case Report

29 years old lady, presented to oral maxillofacial surgery clinic for a consultation and looking for a treatment of her chief complaint which was moderate pain at the left cheek, directly below the left malar bone. Medical history was not significant. Surgical history, she underwent cosmetic operation before 3 months which was mandibular genioplasty and silicone rubber augmentation in both sides of the posterior-lateral of the mandible for improving the facial profile.

On examination, the pain felt around the upper portion of the masseteric muscle at the left side of the face. Severity of pain was 6/10 that measured by the numeric rating scale and felt usually during opening and closing the mouth. Parotid, cervical and submandibular lymph nodes all were not palpable. No pus discharge from the surgical site. Maximum Mouth opening was 4 cm, with no clicking or tenderness at the joint.

Facial CT done for assessing the rubber silicone location. In 3D surface rendering CT scan, two silicone rubbers were seen in both sides of the mandible and secured by one screw in each one. The silicone at the left side which is the area of complaint apparently shows improper alignment with the lateral surface of the mandible. In addition, the head of the silicone seems very close to the malar bone with some rotation towards anti-clockwise direction. On the right side, the silicone looks fitting well and maintaining good space between head of the silicone and the malar bone figure 1.

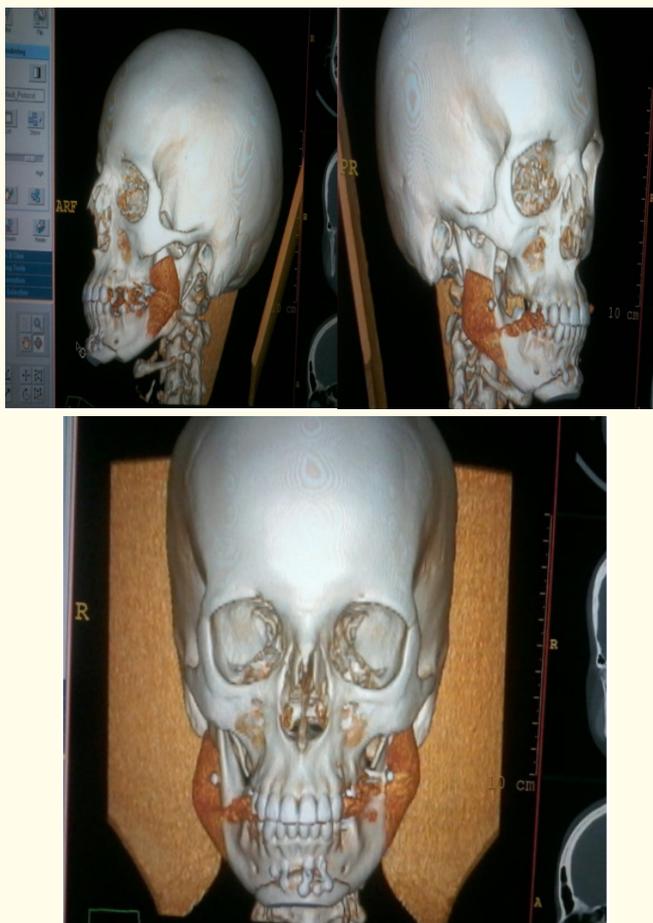


Figure 1: 3D Facial Ct. The silicone on the left side is not aligned with lateral surface of the mandibular bone and rotated around its axis. Additionally, limited space available between the silicone and left zygomatic bone that might interfere with movement of the mandible.

The situation explained to the patient as the CT shows improper positioning of the left silicone implant led to uncomfortable feeling during functioning of the mandible. She was given the option for removal both implants under general anesthesia and she went to this choice because the pain was the main concern.

Straight incision has been made over the external oblique ridge almost on the same previous incision then exposing the lateral side of the ramus. Screws that used for stabilizing the implants were removed carefully using screw driver and mosquito after that both implants have been removed figure 2. Pressure-irrigation done using large syringe filled with normal saline mixed with gentamycin. 3.0 absorbable vicryl suture used for closure. Two weeks later, patient showed absence of any kind of discomfort compared to the pain that felt before operation.



Figure 2: Rubber silicone after removal.

Discussion

The ideal facial implant should be biocompatible, resistant to infection, easy to customize, allow for easy removal and resistant to migration [9]. The rate of alloplastic implant removal due to complications has been reported to be 1.9 - 4.9% [7,10]. For characterizing a rubber silicone implant borders, 3D CT surface rendering was highly suitable radiographic view as it shows the exact location of rubber silicone [11].

In This report, 3D rendering CT imaging showed the silicone on the left side that was not maintaining its correct position due to post-operative mobility or maybe it was not placed and secured properly. Extrusion and migration one of devastating complications of the silicone [12]. It is important to achieve sufficient soft tissue relaxation to allow placement of the implant and prevent it from being moved. This goal is achieved by creating a releasing incision through the periosteum below the inferior border and using finger pressure to dissect and expand the tissue, creating a pocket for passive placement of the implant [1].

Fixation of implant affords the best opportunity to diminish or preclude micromotion and the development of chronic inflammation. Inflammation from motion can facilitate secondary bacterial seeding, particularly when the surgical approach is intraoral or the implant has physical proximity to dental structure. Dissection pockets were advocated suture fixation and then metal and plate fixation [3]. Securing the rubber silicone implant with one screw or multiple screws in the facial bones to prevent migration and rotation needs to be observed to notice whether increasing number of screws can give favorable result in order to improve the implant stability. We have seen in this report, the right implant was properly placed while the left one was not aligned well with the lateral surface of the posterior mandible and also there was a rotation around its axis towards anti-clockwise direction.

Conclusion

Persistent pain around the augmented rubber silicone in the posterior-lateral of the mandible might indicates improper placement of the implant that can cause an interference with the normal mandible function. Choosing the suitable implant size and stabilize it carefully where can allow the normal function is highly critical to guarantee the success of rubber silicone augmentation in the posterior of the

mandible. Follow-up is an essential to evaluate the mandible how is functioning and evaluating the post-operative patient satisfaction. 3D CT is a good diagnostic tool for describing the rubber silicone in a case of rubber silicone augmentation in the face if it needed. One screw fixation is not recommended as it shown in this case possibility of rotation of the silicone around its axis. Therefore, we recommend multiple screws fixation of the silicone in the facial region to assure the stability.

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Volume 18 Issue 12 December 2019

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