Harvest of Rib Graft for Rhinoplasty in Breast Implant Patients

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Summary: Combined cosmetic surgeries are advantageous to patients, requiring only 1 anesthesia administration and the loss of fewer working days. There is no previous study reporting on a submuscular implant placement with the simultaneous reconstruction of a nose deformity using a rib graft. Reconstructions of nose deformities through a rib graft, augmentation mammoplasty, and augmentation mastopexy were performed on 4 female patients (who were 19, 23, 24, and 27 years old) between 2006 and 2016. The patients were taken for operations under general anesthesia. First, the rib graft was taken and the breast implant was placed to prevent contamination. An inframammary incision was made, the skin and the subcutaneous layers were passed, and the pectoral muscle fascia was accessed for the rib graft in all 3 patients. After the perichondrium was dissected, an osteochondral graft was harvested at full thickness. The remaining sharp edges were rasped to avoid damaging the silicone. The perichondrium and the periosteum were sutured edge-to-edge, and the donor area was closed. The harvested grafts were used to produce a spreader graft, a nasal valve graft, an onlay graft, and an L-strut graft. In the early period, no seroma, hematoma, or infections were experienced. There were no ruptures, leakages, capsules, or deformities during the 2- to 10-year follow-up. Primary and secondary rhinoplasties requiring a rib graft can be safely performed simultaneously with a breast implant, provided that the rib stumps are closed with a thick protective layer. (Plast Reconstr Surg Glob Open 2020;8:e2809; doi: 10.1097/GOX.0000000000002809; Published online 14 May 2020.)

INTRODUCTION

Today, combined cosmetic surgeries can be performed safely and frequently due to advances in anesthetic technologies. Combined cosmetic surgeries are advantageous to patients, requiring only 1 anesthesia administration and the loss of fewer working days. Breast surgery is often combined with abdominoplasty, brachioplasty, liposuction, blepharoplasty, and rhinoplasty, which require no rib grafts. Nasal reconstructions using rib grafts and simultaneous submuscular implant placements are rare surgeries, and in such cases, surgeries are likely to be performed separately. There is no previous study reporting on a submuscular implant placement with the simultaneous reconstruction of a nose deformity using a rib graft. Consequently, this 4-case series is the first to be reported in literature.

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MATERIALS AND METHODS

Reconstructions of nose deformities through a rib graft, augmentation mammoplasty, and augmentation mastopexy were performed on 4 female patients aged 19, 23, 24 and 27 years between 2006 and 2016. Of the 4 patients, 3 had previously undergone 1–3 unsuccessful rhinoplasties (Fig. 1), and 1 patient had Asian nose. Furthermore, 3 patients had small breasts, 1 had both small breasts and grade 3 ptosis. The patients were taken for operations under general anesthesia. First, the rib graft was taken and the breast implant was placed to prevent contamination. After changing the glove and surgical set, nose surgery was performed last. An inframammary incision was made, the skin and the subcutaneous layers were passed, and the pectoral muscle fascia was accessed for the rib graft in all 3 patients. The pectoral muscle fascia and the muscle were transected until the fifth rib was exposed (Fig. 2A). After the perichondrium was dissected, an osteochondral graft was harvested at full thickness. The remaining sharp edges were rasped to avoid damaging the silicone. The perichondrium and the periosteum were sutured edge-to-edge, and the donor area was closed. The remaining sharp edges were rasped to avoid damaging the silicone. The perichondrium and the periosteum were sutured edge-to-edge, and the donor area was closed. The harvested grafts were used to produce a spreader graft, a nasal valve graft, an onlay graft, and an L-strut graft. In the early period, no seroma, hematoma, or infections were experienced. There were no ruptures, leakages, capsules, or deformities during the 2- to 10-year follow-up. Primary and secondary rhinoplasties requiring a rib graft can be safely performed simultaneously with a breast implant, provided that the rib stumps are closed with a thick protective layer. (Plast Reconstr Surg Glob Open 2020;8:e2809; doi: 10.1097/GOX.0000000000002809; Published online 14 May 2020.)

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For the 3 patients, a subpectoral pocket was created, and then 350, 325, and 350 mL (respectively) high-profile, microtextured, gel, anatomic implants were placed. The breast prosthesis was washed with an antibiotic solution before insertion. For the fourth patient, a superior pedicle augmentation mastopexy was performed, and a 300 mL medium-profile, microtextured, gel, round implant was placed as subpectorally. The skin and the subcutaneous layers were closed. Suction drains were used in all patients. All the drains were withdrawn the next day. For all patients, an intraoperative pectoral block was made with a slow-release marcaine for postoperative analgesia.

For rhinoplasty, the insertion was made using the open technique after infiltration with lidocaine containing 1/200,000 adrenaline. The lower lateral cartilages, nasal valve, nasal dorsum, upper lateral cartilages, and septum were exposed. The harvested grafts were used to produce a spreader graft, a nasal valve graft, an onlay graft, and an L-strut graft. The onlay graft was fixed over the nasal process of frontal bone with 0.5-mm steel wire and screw. Spreader grafts were fixed to the septum by polyglactin. After the grafts were placed, the rhinoplasty was concluded with endonasal and an external splint.

RESULTS

In the early period, no seroma, hematoma, or infections were experienced. The need for analgesia was at the same level as for patients who were undergoing only augmentation mammoplasty. There were no ruptures, leakages, capsules, or deformities during the 2- to 10-year follow-up. None of the patients needed revision.

DISCUSSION

After augmentation mammoplasty, damage may occur to the implants, from blunt traumas and accidents.¹

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**Fig. 1.** Preoperative and postoperative photographs. A, A 27-year-old female patient with a saddle nose deformity and nasal valve insufficiency. B, Nasal reconstruction using a rib graft, postoperative 3 years. Spreader, L strut, and onlay graft were used.

**Fig. 2.** Surgical procedure. A, The pectoral muscle fascia and the muscle were transected until the fifth rib was exposed. B, After the perichondrium and periosteum were dissected, an osteochondral graft was harvested at full thickness. The remaining sharp edges were rasped. C, The perichondrium, the periosteum, muscle, and soft tissue were sutured edge-to-edge, and the donor area was closed. Creation of subpectoral pocket for breast implant.
Furthermore, contact between the sharp edges of bones and the implant may damage the implant in case of congenital or acquired deformities of the ribs and the chest wall. For this reason, implants should be placed in a smooth area. Irregular bone spurs may occur, especially in the pectus carinatum. When bone spurs occur in the ribs, they should be rasped to make them blunt. Although rhinoplasty with a rib graft and mastopexy was reported, augmentation mastopexy and augmentation mammoplasty were not reported. There have been no previous studies reporting implant placement in the field from which the graft was harvested. In rhinoplasty, the rib graft was harvested from the fifth to eighth ribs. Depending on the diameter, implants were placed between the second and sixth ribs. The sixth, seventh, and eighth ribs fall outside the surgical site, and so these ribs may be preferred. That said, the seventh and eighth ribs attach to the sternum at a greater angle than the fifth rib, and so are more curved, and using the curved ribs may cause problems particularly with onlay grafts. Accordingly, the present study preferred the fifth rib in all 4 patients. Although harvesting an osteochondral rib graft, the perichondrium and the periosteum should be carefully dissected, avoiding ruptures, and should then be sutured again and the broken ends should be closed. This alone may not be sufficiently protective, and so the graft donor site was also closed with the lower part of the pectoral muscle. Thereby, damage to the implant over the rib was avoided. For all patients, a dual plane II pocket was created, meaning that both the donor site and the implant were closed with a thick protective layer. Normally, muscles do not need to be incised while harvesting a rib graft because the rib can be accessed by vertically separating the muscles. This reduces the extent to which the muscles come into contact with the rib. A second incision into the muscle may result in an impaired muscle circulation. In order not to disconnect the anterior chest wall from the muscle, the incision was made to the muscle over the fifth rib. In other words, the muscles were incised rather than split for the harvesting of the rib. No problems were observed in the implants during the 2- to 10-year follow-up of the patients. After the postoperative third month, the implant and its surroundings were checked with ultrasound in all patients, and no problems were identified.

In conclusion, primary and secondary rhinoplasties requiring a rib graft can be safely performed simultaneously with a breast implant, provided that the rib stumps are closed with a thick protective layer. In such cases, the supraperichondrium should be preferred if the breast tissue thickness of the patient is sufficient, but if there is insufficient breast tissue, the method using the fifth rib may be used as a safe alternative.

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PATIENT CONSENT STATEMENT
The patient provided written consent for the use of her image.

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