Valley International Journals
Open Access Journal
International Journal Of Medical Science And Clinical Inventions
Volume 2 issue 06 2015 page no. 969-980 ISSN: 2348-991X
Available Online At: http://valleyinternational.net/index.php/our-jou/ijmsci

Secondary Rhinoplasty In The Asian Patient

George L. Murrell, MD
FACS, CAPT(US Navy Retired). Bayview ENT, Facial Plastic Surgery, Chesapeake, Virginia, USA

Correspondence:
George L. Murrell, MD
553 virginia Dare Dr. Virginia Beach, VA 23451
glmurrellmd@gmail.com

ABSTRACT
Objective: To present the author's technique and discuss the special considerations in the Asian patient requiring secondary rhinoplasty with removal of an alloplastic implant coupled with autogenous reconstruction.

Design: Case presentation.

Results: A 53 year old Asian female is 20 years status post alloplastic implant augmentation rhinoplasty by another provider. She subsequently suffered recurrent infection and chronic pain in the nose. The implant was removed and the nose reconstructed using autogenous auricular cartilage.

Conclusion: Secondary rhinoplasty in the Asian patient who has previously undergone alloplastic implant presents a special set of challenges. While removal of a problem implant is therapeutic, the aesthetic bar is high and reconstruction requires large, stable, and well fashioned cartilage grafts. Attention to detail is critical in achieving a favorable result.

INTRODUCTION

The debate over the use of alloplastic graft material in nasal surgery has occurred for decades.[1] No one can deny the advantages of a graft material that is available in an unlimited supply and myriad of contours. Alloplastic grafts are a popular choice in the Asian rhinoplasty patient. Unfortunately, some patients will not tolerate the implant, i.e. inflammation, infection, pain. These patients require removal of the implant and most of these patients wish reconstruction. The author prefers autogenous cartilage for this reconstruction. When autogenous septal cartilage is available, it is the author's preferred source for autograft. Unfortunately many Asian patients do not have sufficient amounts of septal cartilage to supply the patient's graft needs. Most Asian patients require dorsal augmentation and increased tip

projection/refinement. In these cases, auricular cartilage is the author's next choice.

CASE PRESENTATION

A 53 year old Asian female presents 20 years status post rhinoplasty with an alloplastic material. She has suffered recurring bouts of inflammation/infection and chronic pain in the area of the implant. The patient overall is pleased with her aesthetic appearance and nasal airway, but wishes to have the implant removed and the nose reconstructed with her own tissue (see Figure 1 series). The patient was judged to have no useful septal donor cartilage. The patient is taken to the operating room. Prior to induction the patient receives IV antibiotics (cefazolin 1 gram) and IV steroids (Dexamethasone 10 mg). The patient is placed under general endotracheal anesthesia. A throat pack is placed. The outline for the dorsal nasal subunit is indicated on the nose with a skin marker. The graft design, both in outline and thickness, is dictated by the specific needs of the case. The final augmented result, however, should yield a dorsal subunit as described by Burget and Menick[2], a gentle highlighted ridge extending from the radix to the supratip blending naturally with the sidewalls of the nose. Placing a single light source oriented 45 degrees above the nose aids in visualizing the proper outline. The author favors using a Devon skin marker (The Ludlow Company Chicopee, MA 01022, #160-R) which has been sharpened to a finer point using a #15 blade. After the outline for the graft has been made, the marking is sealed on the skin by applying pressure with a dry surgical sponge. This insures that the mark does not rub off or "bleed" during the case. Cottonoid pledgets soaked in 4cc of 4% cocaine are placed in the nose prior to nasal injection with 1% lidocaine with 1 to100,000 epinephrine. The donor ear is also injected with local anesthetic. An anterior approach, as previously described by the author, [3] is used to harvest cymba and cavum concha from the donor ear. A telfa ear bolster is placed and secured with a mattress suture of 3-0 prolene on FS2 needle (Ethicon, Somerville, NJ 08876-0151, #8665), which is left for 3 days. An external approach rhinoplasty is performed and a large "L" shaped implant is removed. The harvested ear cartilage is used to fashion a double layered dorsal onlay graft, columellar strut, alar rim grafts, and tip

graft. Concerning the dorsal onlay graft, two layers of ear cartilage are coapted with two simple mattress sutures using a 6-0 PDS on a P1 needle (Ethicon, #Z489). This fine needle minimizes trauma to the graft cartilage. Cutting, shaving, and beveling of the cartilage are performed with a fresh #15 blade under magnification. Beveling of the margins of the dorsal graft is important as sharp edges will result in a noticeable artificial appearance. This is especially important in thin skinned patients. Since the patient was pleased with her preoperative nasal appearance, the removed implant is used as a guide for designing the dimensions of the dorsal augmentation graft. The cartilage dorsal onlay graft is placed in the soft tissue pocket previously occupied by the alloplastic implant. The graft is inserted with bayonet forceps (Boss Instruments #93-1010). Pressure is applied to the lateral borders of the graft with one's thumb and index finger; tension on the graft is released from the bayonet forceps; and the bayonet forceps are withdrawn. After the dorsal cartilage graft has been placed and its position and stability confirmed, no one is allowed to touch the patient's nose except the surgeon. This is a safeguard against the graft being moved. Mastisol adhesive (Ferndale Laboratories Ferndale MI 48220, #0523) is applied. Steri-Strips (3M Health Care St Paul MN 551444, #R1547) are applied followed by an Aquaplast nasal cast (WFR/Aquaplast Corporation Wyckoff NJ 07481, #PS1693). Care is taken when applying the Steri-Strips and the nasal cast to use even pressure so as not to move the graft. The nasal cast is left in place for one week. The patient is discharged with oral antibiotics (one week of amoxicillin-clavulanic acid) and oral pain medication (usually oxycodone and acetaminophine). When removing the nasal cast, no force should be applied which could result in moving the dorsal graft. Gently passing a Billeau ear loop (Boss Instruments #90-1122) between the nasal skin and the Steri-Strips is the favored method for nasal cast removal.

At one year after surgery, the patient has had no further bouts of nasal infection/inflammation or pain. She is pleased with her reconstructed nasal appearance.

COMMENT

Secondary rhinoplasty in a patient who has previously undergone alloplastic implant certainly

presents special issues for consideration. On the one hand, removal of the problem implant is a therapeutic rather than cosmetic procedure; however, these patients have a high aesthetic standard for autogenous reconstruction, because the alloplastic implant has set the aesthetic bar very high.

When the alloplastic implant is removed a well defined fibrous pocket is often present (at least with smooth implants versus meshed implants). This fibrous pocket can aid in camouflaging the replacement cartilage implant; however the pocket may be larger than is ideal for the replacement cartilage implant. In these situations, extra maneuvers may be necessary to position and/or secure the graft. The author has used 2 methods: guide sutures, and transcutaneous sutures. With guide sutures, a chromic on an atraumatic needle is secured to each end of the graft (see Figure 2). The graft is placed in the dorsal pocket as the needles are passed from the inside of the pocket thru the skin and taped in place under the external splint. When the external splint is removed the absorbable sutures are cut flush with the skin. Transcutaneous sutures can be placed in two ways. In one method, the suture starts external and passes thru the skin, to the cartilage of the dorsal graft and then, back out thru the skin. The author favors a 6-0 prolene on a P-1 needle (Ethicon # 8697). The P-1 needle is strong enough to perform the maneuver, but relatively atraumatic to the cartilage graft. In the second method, the suture starts external and passes thru the skin to deeper nasal structures on the borders of the skin pocket. The author favors a 5-0 prolene on a P-3 needle (Ethicon # 8698). A stronger P-3 needle is used for this maneuver as the suture is placed deeper through the tissues. In both types of transcutaneous sutures it is important to stabilize the graft in proper position with digital pressure while placing the sutures. Also in both types of transcutaneous suture, the Prolene may be secured at the skin around a small piece of telfa. This protects the skin against maceration. In the majority of cases, where a truly “precise pocket” can and has been created, neither guide sutures nor transcutaneous sutures are usually necessary.

In addition to dorsal augmentation, reconstruction after removal of an “L” shaped alloplastic implant requires reconstruction of nasal tip projection.

Columellar strut, and tip graft are two common techniques for this. Other maneuvers such as rebuilding the lower lateral cartilages[4] and large columellar grafts[5] are also valuable techniques.

The ideal approach for placing a dorsal graft is a small unilateral intercartilaginous incision. A precise pocket can then be sharply created as close to the boney cartilaginous dorsum as possible. This insures maximum soft tissue coverage for the dorsal graft. Local anesthetic hydro dissection can help in establishing this favorable plane. When an isolated dorsal alloplastic graft needs to be removed, an intercartilaginous incision may be sufficient. If an "L" shaped alloplastic graft needs to be removed greater access for nasal tip reconstruction makes the external approach a better option. In these cases alar rim grafts, which consist of small slivers of cartilage placed in a subcutaneous pocket which parallels the alar margin, are helpful in preventing unwanted nasal retraction with long term healing. [6] The grafts usually measure 10mm in length and 1.5mm in diameter.

Noses containing an alloplastic graft which are acutely infected should be treated with antibiotics preoperatively and have the infection resolved prior to surgery. Inflammation around an exposed graft should be minimized with antibiotic therapy prior to surgery.

As previously stated, alloplastic implants are often used in Asian rhinoplasty. Unfortunately some of these implants will require removal. In a review of the author's auricular cartilage graft experience over an eight year period involving 101 patients, 4 of the 101 cases were Asian rhinoplasty alloplastic implant replacement cases.[3] The removed alloplastic material included Gore-Tex, silicon, supramid, and unidentified. Alloplastic material has been shown to be tolerated quite well long term in many internal body sites: cardiac, blood vessel, abdominal… The nose, however, with its thin skin cover and vulnerable exposed position is uniquely at risk with alloplastic implants. Alloplastic implants are at risk for the life of the patient. The author has seen one patient who had no problems until 25 years after receiving an alloplastic implant (see Figure 3). Mild nasal trauma resulted in infection that was refractory to aggressive antibiotic therapy. The alloplast had to be removed and autogenous cartilage

reconstruction performed. Alternatively an alloplastic implant may become troublesome shortly after it is placed (see Figure 4). This patient also underwent successful removal of the alloplastic graft and replacement with autogenous ear cartilage.

These challenging secondary cases can be particularly rewarding for both the surgeon and the patient. Because dorsal augmentation is the most common requirement in the Asian rhinoplasty patient, and because the author has had good success with the technique, the focus of this paper has been on auricular cartilage graft reconstruction in the alloplastic implant failure cases. These secondary cases can be extremely rewarding for the surgeon and the patient. Success, however, requires great attention to detail in the fashioning and placement of cartilage grafts.

Captions:

Figure 1a-c: A 53 year Asian female with alloplastic graft in place.

REFERENCES

1. Blair VP. Total and subtotal restoration of the nose. JAMA 1925,Vol85, No 25,1931-1935.

2. Burget, GC, Menick FJ. Subunit principle in nasal reconstruction. Plast Reconstr Surg 1985,76,239.

3. Murrell, GL. Auricular Cartilage Grafts and Nasal Surgery. Laryngoscope 2004,114, 2092-2102.

4. Burget GC. Reconstruction of the alar cartilage arches. Op Tech Plast Reconstr Surg 1995,Vol 2, No 1,55-66.

5. Hoefflin, S. Geometric sculpturing of the thick nasal tip. Aesthetic Plastic Surgery 1994,18(3),247-251.

Gunter J. Frequently used grafts in rhinoplasty: nomenclature and analysis. *Plast Reconstr Surg* 2006,118(1),14e-29e.

Figure 1d-f: Patient 1 year after removal of the alloplastic implant and reconstruction with ear cartilage.

Figure 1g: Alloplastic implant after removal.

Figure 1h: Double layered ear cartilage graft for dorsal onlay.

Figure 1i: External approach performed and tip graft pictured in place.

Figure 1j: Graphic representation of surgical reconstruction: dorsal onlay, strut, tip graft and alar rim grafts.

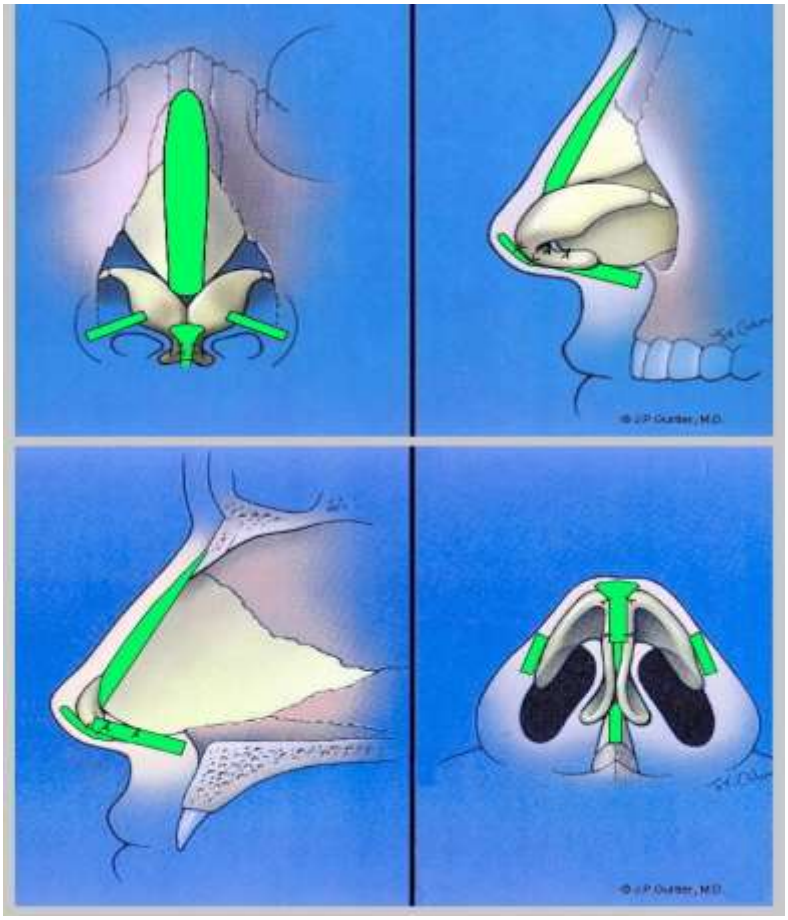

Figure 2a: 3-0 chromic sutures on atraumatic needles have been secured at the superior and inferior ends of double layered onlay graft. The needles remain on the suture.

Figure 2b: The onlay graft is in place and the needles have been passed from the precise pocket thru the skin superiorly and inferiorly. The sutures will be taped in place for 1 week.

Figure 3a: A 50 year old Asian female had a nasal alloplastic implant placed 25 year previously with no prior problems developed infection and extrusion of the implant after mild nasal trauma.

Figure 3b: The unidentified alloplastic implant has been removed.

Figure 4a: 46 year old Asian female had recurring infections beginning shortly after nasal implant was placed 2 years previously. Note drainage site at nasofrontal area.

Figure 4b: The silicon implant has been removed.