Nasal Implant Extrusion: Case Report and Review of the Literature

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ABSTRACT

Objectives To describe a case of a nasal implant extrusion and review the related literature using PubMed. **Study Design** Level 5 – single case report.

Methods The medical records of a patient treated at a tertiary care academic facility was reviewed. A PubMed search was performed for the key words “Nasal Implant Extrusion.”

Results The case of 26-year-old Chinese woman with an extruded Gore-Tex dorsal augmentation nasal implant is reviewed. PubMed literature review yielded 16 original articles and 11 review articles.

Discussion As demonstrated by the case and extensive literature review, implant extrusion is a known complication of implantation of Gore-Tex for nasal dorsal augmentation. Yet, this practice appears to be performed worldwide, particularly in Asian countries.

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INTRODUCTION

Alloplastic implantation maintains an important role in augmentation rhinoplasty, especially in the **Asian nose**. The most common alloplastic options include Silicone, Med-Pore, and Gore-Tex.[1]

Gore-Tex (expanded polytetrafluoroethylene [ePTFE], Gore-Tex, W.L. Gore and Associates Inc., Flagstaff, Arizona, USA), invented in 1969, was FDA approved in 1993 for use in rhinoplasty. ePTFE is porous (pore size 10-30 µm, biologically inert, impervious to blood, and pliable.[2] Potential advantages include easy customization, strong bond to surrounding tissue, and minimal inflammatory response.[3] Potential disadvantages include reduced long-term volume, delayed inflammation, difficulty removing in case of infection.[4]

Multiple studies since 1989 report variable complication rates, ranging **2-21%**. Complications reported include **infection**, **seroma**, **fibrosis**, **migration**, chronic **pain**, and **extrusion**. [5,6]

Despite relatively **high complication rates** in comparison to autologous implants, Gore-Tex continues to be used in Asian countries where augmentation rhinoplasty is increasingly popular.[7]

METHODS

The medical record of a patient treated at a tertiary care academic facility was reviewed.

A PubMed search was performed using key words “Nasal Implant Extrusion.” Articles were qualitatively reviewed and selected based on focus on the key words. Only English language publications were included.

RESULTS


Fig. 1


Fig. 2


Fig. 3

A 26-year-old woman status post rhinoplasty in China two years prior presented to Head and Neck Surgery clinic with a Gore-Tex dorsal augmentation nasal implant partially extruding through the right nasal mucosa with evidence of concurrent infection. In the operating room, cultures were taken, the implant was removed, and reconstruction consisting of tip suturing was performed. Culture-directed treatment with oral Clindamycin and Ketoconazole was completed. She tolerated treatment well and returned to clinic 2 weeks post-op with satisfactory appearance and resolution of the infection.

Table 1. Salient points from select articles from the PubMed literature review

Publication	**Salient points**
Ham (2003)[2]	**Autologous implants** undoubtedly provide lower complication rates
Ferril (2013)[3]	Extrusion is rare but may by more likely if **infection** develops, if the implant is too **large,** and with **L-shaped** implants
Jin (2006)[5]	**Hyperplastic soft tissue** covering the implant may obviate the need for dorsal augmentation after removal of Gore-Tex
Lee (2011)[6]	Gore-Tex may be **combined with autologous cartilage** successfully
Romo (2006)[8]	Complication rates may be increased in **revision surgery**
Loyo (2013)[9]	Compared to silicone implants, Gore-Tex may have a **lower removal and extrusion rate** but a **similar infection rate**
Serin (2012)[10]	**Subperiosteal implantation** may provided lower complication rates compared to subcutaneous.

LEGEND

Figure 1. Pre-operative basal view demonstrating the Gore-Tex dorsal augmentation nasal implant partially extruded through right nasal mucosa. Infection was evident at the time of removal; Purulent material was collected for stains and cultures.
Figure 2. Immediate post-op frontal view. The dorsum was slightly deficient compared to pre-op. However, the tip was secured with suture and relatively unchanged.
Figure 3. The 4 cm Gore-Tex dorsal augmentation nasal implant after removal.
Table 1. Salient points from select articles from the PubMed literature review.

DISCUSSION

Studies examining Gore-Tex in dorsal augmentation are mainly retrospective series. Prospective randomized control trials or simple comparison studies are lacking.

Gore-Tex in Asian primary augmentation rhinoplasty demonstrates a 2.1% infection rate (3.1% in secondary cases) and nearly 90% of these require removal. Most infections develop 2-6 months after implantation but may occur more than 12 months after surgery.

Other complications include extrusion, fibrosis, seroma, persistent edema related to granuloma formation, and over-augmentation.

As demonstrated in our case, the extrusion in more likely to occur in the setting of infection.

Moreover, the extrusion may occur years after the initial surgery, as seen here.

The fibrotic capsule surrounding the implant allowed avoidance of immediate reconstruction of the dorsum.

Gore-Tex remains an option in augmentation rhinoplasty that should be used judiciously, after other autologous options are exhausted, and a carefully selected patient who understands the potential complications.

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