بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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Evaluation of The Effectiveness of The Use of Free Diced Cartilage in Dorsal and Tip Nasal Rhinoplasty

A Thesis

Submitted for Partial Fulfillment of Master Degree in Otolaryngology

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LIST OF ABBREVIATIONS

ATG	Autologous Tissue Glue
DCF	Diced Cartilage Fascia
FDC	Free Diced Cartilage
FHL	Frankfort Horizontal Line
LLC	Lower Lateral Cartilage
NOSE	Nasal Obstruction Symptom Evaluation
ROE	Rhinoplasty Outcomes Evaluation
SMAS	Superficial Musculoaponeurotic System
ULC	Upper Lateral Cartilage

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Abstract:

Background: Rhinoplasty is considered one of the most challenging operations in the plastic surgery. Aesthetic reshaping purpose of the nose can be stressing for both surgeon and patient. Different types of graft materials have been used to perform augmentation rhinoplasty. Free diced cartilage (FDC) was established in dorsal nasal rhinoplasty for better handling of irregularities as well as contour deficits of dorsal nasal outcomes. The main purpose of the present study is to assess the effectiveness of the use of FDC in dorsal tip rhinoplastic surgery and evaluation of its advantages and disadvantages using the validated Nasal obstruction symptom evaluation (NOSE) scale and the rhinoplasty outcome evaluation (ROE) questionnaire to assess nasal obstruction and patient satisfaction.

Methods: this prospective study was conducted between March 2018 and December 2019, twenty patients were included and planned for rhinoplasty using FDC to camouflage dorsal and nasal tip deformities. All patients (11males and 9 females) underwent open rhinoplasty through inverted v columellar incision, taken FDC from nasal septum.

Results: A statistical significant difference between pre- and post-operative NOSE score was found (p<0.001). Postoperative rhinoplasty outcome evaluation scores ranged from 45 to 100 with mean± SD (83.15 ± 13.22). Excellent satisfaction was the most noted in 17 patients (85%), while 2 patients (10%) reported good satisfaction and 1 patient (5%) with acceptable satisfaction.

Conclusion: it was found that the FDC technique is an effective method for camouflaging and augmentation of dorsum and tip rhinoplastic surgery for either primary or secondary rhinoplasty.

Keywords: FDC, rhinoplasty, NOSE scale, ROE questionnaire.

INTRODUCTION

Rhinoplasty is still one of the challenging operations in plastic surgery. Reshaping the nose for functional or aesthetic purposes can be stressing for patients and surgeons ***(Daniel, 2002)***.

"Open" (external) and "closed" (endonasal) rhinoplasty procedures are always an issue of debate. From among different possible approaches, a surgeon have to select the one that provides the best aesthetic outcome ***(Gruber et al., 2008; Daniel, 2009; Gruber et al., 2011)***.

Surgeons have utilized a wide assortment of graft materials to achieve perfect rhinoplasty. The materials could be subdivided into two main categories: autologous and non-autologous materials ***(Kreymerman & Fardo, 2008)***.

Non-autologous materials can be additionally classified into synthetic and alloplastic materials. It should be noted that non-autologous grafts remain an obvious option for nasal dorsum augmentation. Its advantages are lack of donor-site morbidity, availability and fine immediate outcomes. However, significant cost to surgical procedure and sequelae such as extrusion, infections and displacement are the main disadvantages of such material ***(Araco et al., 2006)***. Whenever considerable structural

support is needed, autolgous bone grafts are of pronounced advantage in reconstructive surgical procedure ***(Lee et al., 2011)***.

Autogenous cartilage is widely utilized in nasal augmentation surgery and is presumably regarded to be the ideal autolgous grafting material because of deficit immunogenicity ***(Bateman & Jones, 2000)*** long-term survival rate ***(Ortiz-Monasterio et al., 1981)***, and malleability ***(Araco et al., 2006)***.

Diced cartilage graft method can avoid the problems of solid-cartilage graft owing to its small fragment size. The main challenge with solid cartilage graft use is the well controlled insertion of the graft and avoidance of post-operative visibility and mobility of the graft ***(Oreroglu et al., 2014)***.This type of graft obtained extensive popularity as soon as Erol has revived the application of diced cartilage grafts by "Turkish delight" technique in which the excised cartilage is finely diced then it is wrapped in oxidized regenerated cellulose, known as Surgicel. ***(Erol, 2000)***. Daniel has developed three different techniques, in 2008, of utilizing diced cartilage in rhinoplasty: diced cartilage only , diced cartilage wrapped within the fascia, as well as diced cartilage which covered with the fascia ***(Daniel, 2008)***.

In 2011 bullocks et al. introduced a new rhinoplasty technique using diced cartilage in combination with autologous tissue glue (ATG: platelet-rich plasma, fibrin glue). During fifteen

months follow-up period, lack of major complications such as infection, displacements , or rejection were reported, but some patients showed erythematous reactions lasting for about 1–4 weeks ***(Bullocks et al., 2011)***.

Recently, free diced cartilage (FDC) was established in dorsal nasal rhinoplasty aiming to better management of both irregularities and contour deficits of dorsal nasal sequelae. This technique was verified to control the dislodgment problem and it permitted proper fitness owing to its plasticity. Thus, free diced cartilage may be a promising method for decreasing any post-operative complications ***(Kreutzer et al., 2017)***.It could be utilized in association with autologous or allogenic fascia; or even diced cartilage graft fascia (DCF). Yet, it requires proper intraoperative expertise, skills and proper handling of the cartilage in order to avoid unnatural look of surgical correction ***(Erol, 2017)***. Preferences of such free diced cartilage are unlimited accessibility of grafting materials and rejection rarely was noted in comparison with other known procedures due to the use autologous material. It has low donor site morbidity. It allows surgeons to utilize a diced cartilage mass as spackling compound to fill in different abnormalities in every nasal part, especially the dorsum ***(Kreutzer et al., 2017)***.

AIM OF THE WORK

Assessment of effectiveness of the use of free diced cartilage in dorsal nasal and nasal tip rhinoplasty and evaluation of its advantages and disadvantages.