P19

Autologous Costal Cartilage Warping

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INTRODUCTION

Autologous costal cartilage graft for rhinoplasty was first introduced by Von Mongoldt for syphilitic nose in 1900[1]. It is one of the most versatile autologous graft used for rhinoplasty to address many concerns of the nasal aspect. With versatility, comes along warping which becomes a main concern for the surgeon and patient. Warping is a bent or twist of the cartilage to resume to its original shape.[2,3]There are many reasons attributing to the cartilage warping. Many techniques have been introduced and refinements has been made to enhance the outcome and reduce complications.

CASE PRESENTATION

A 23 year old woman presented with complains of nasal congestion and snoring since childhood which was worsening the last few years. Clinically there is anterior deviation of nasal septum to the left. Proceeded with CT of the paranasal sinuses which revealed nasal septum deviation (Mladina classification type 3). She underwent septoplasty and left inferior turbinate reduction under Otorhinolaryngology team followed by rhinoplasty by the Plastic & Reconstructive team.

L- shaped cartilage was harvested from the left 7th rib. It was carved and inserted to the subperiosteal pocket over the bony dorsum at the midline of the nose. D14 post operation, noted that there is warping at the base of the nose. Revision rhinoplasty was done. Post operatively her recovery was uneventful till the recent follow up.

Preoperative pictures

1 month post septorhinoplasty complicated with costal cartilage warping

6 months post revision rhinoplasty

DISCUSSION

In creating L – strut for this patient, owing to the limited space at the dorsum, excessive thinning of the caudal part of the cartilage resulted in an imbalance between the tension and the ions of the cartilage. Imbalance of inner and outer ion concentration, causes a rise of osmotic pressure within the cartilage. This is due to highly negative charged glycosaminoglycan associated with the proteoglycan molecules of the extracellular solid matrix.[1] Rising of pressure causes the tissue to swell and subsequently leads to the change dimension.[4]The narrower the dimension (dorsal - ventral or 'side to side'), warping tend to occur in that direction, but clinically 'side to side' is more apparent as there is less resistance provided by the soft tissue envelope. This is a young patient which has a higher tendency to warp most probably owing to the plasticity of the cartilage compared to the older patients who tend to have a rigid cartilage due to the presence of calcifications. [1]

CONCLUSION

Warping of autologous costal cartilage graft is an unsightly complication of rhinoplasty. Excessive sculpting and thinning of the cartilage can distort the tension between the layers of the cartilage. Keeping in mind that younger patient is at higher risk of developing this complication, technique of carving should be more prudent.

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