

Tissue Banked Cartilage Grafts As An Alternative To Autologous Harvest: A Single Center Retrospective Review

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INTRODUCTION

- Tissue-banked cartilage eliminates donor site morbidity and offers an off-the-shelf alternative.
- Autologous harvest, particularly from the rib adds operative complexity and carries well-documented donor site morbidity, including prolonged pain, hypertrophic scarring, and pneumothorax.¹
- Meta-analysis of autologous rib cartilage rhinoplasty reports a 5.45% hypertrophic chest scarring rate and pneumothorax as a consistently reportable complication.²
- Despite growing use, direct comparative outcome data are limited.³

METHODS

- Design: Retrospective single-institution review
- Period: January 2015 – December 2024
- Follow-up: Minimum 1 year post-operatively
- Outcomes: Complications, functional improvement

68	10	58
Total patients	Tissue-banked	Autologous

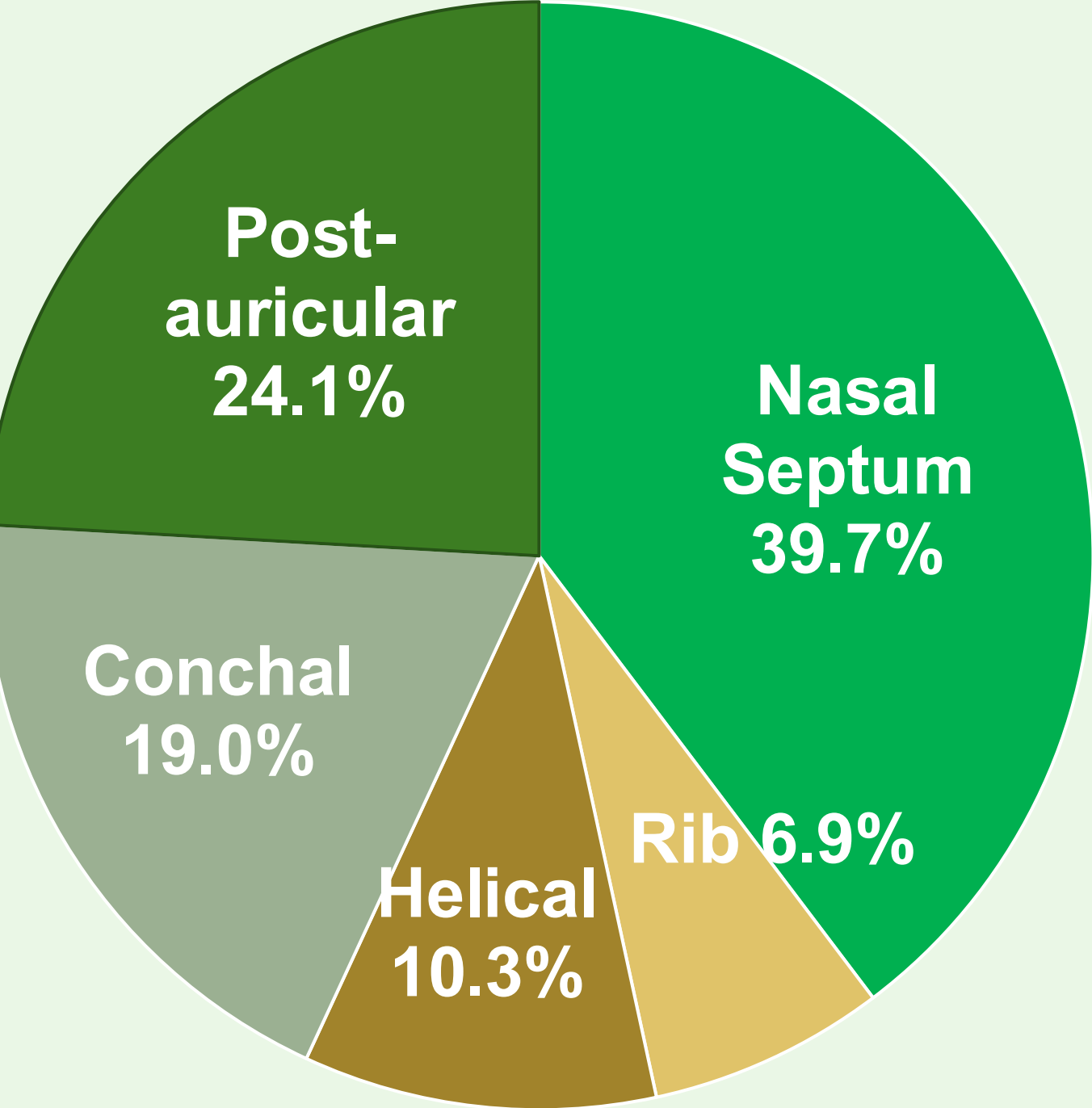
RESULTS

PATIENT DEMOGRAPHICS

Variable	Tissue-Banked (n=10)	Autologous (n=58)	p-value
Age, mean (Range)	55.5 ± 18.5 (21-85)	44.1 ± 19.0 (8-84)	0.08
BMI, mean	25.3 ± 6.2	28.2 ± 6.6	0.22
Current smoker	30%	6.9%	0.04*
Hypertension	30%	13.8%	0.35
Diabetes	0%	5.9%	1.00
Prior radiation	10%	3.4%	0.10

*Notably, tissue-banked group had significantly more current smokers (30% vs 6.9%), yet achieved equivalent outcomes

AUTOLOGOUS DONOR SITES



OPERATIVE INDICATIONS

Indication	Tissue-Banked (n=10)	Autologous (n=58)	p-value
Airway obstruction	30%	34.5%	0.82
Post skin cancer excision	20%	20.7%	
Trauma	30%	13.8%	
Revision surgery	10%	12.1%	
Congenital deformity	0%	8.6%	
Cosmetic / elective	0%	3.4%	



A 32-year-old female presented with post-traumatic nasal deformity. Reconstructed with tissue-banked costal cartilage graft. Lateral view shown at 13 months post-operatively.

GRAFT CHARACTERISTICS

Variable	Tissue-Banked (n=10)	Autologous (n=58)	p-value
Recipient Site			0.10
Spreader graft / columellar strut	8 (80%)	26 (45.6%)	
Alar rim	1 (10%)	16 (28.1%)	
Lower eyelid	0 (0%)	11 (19.3%)	
Other	1 (10%)	4 (7.0%)	
Median grafts per patient	3 (1–5)	2 (1–3)	0.005*
Graft Type			
Stacked grafts	0 (0%)	8 (13.8%)	0.59
Single grafts	10 (100%)	50 (86.2%)	0.59
Revision of prior graft	6 (60%)	23 (39.7%)	0.31

OUTCOMES

Complication	Tissue-Banked (n=10)	Autologous (n=58)	p-value
Malposition / warping	0%	12.1%	0.64
Partial resorption	0%	0%	N/A
Complete resorption	0%	0%	N/A
Infection / drainage / fever	0%	8.6%	1.00
Contour irregularities	10%	12.1%	1.00
Graft exposure / pressure necrosis	0%	1.7%	1.00
Donor site hypertrophic scar	0%	1.7%	0.09
Future revision surgery	30%	34.5%	1.00
Breathing Improvement	60%	56.9%	0.47

CONCLUSION

- Tissue-banked cartilage grafts produced equivalent complication rates, contour outcomes, revision rates, and functional results compared to autologous grafts with the added benefit of eliminating donor site morbidity.
- No statistically significant differences in any complication or functional, outcome between tissue-banked and autologous cartilage groups.
- Tissue-banked cartilage is a viable clinically equivalent alternative to donor site harvest.

REFERENCES

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