AUTOLOGUS FAT INJECTION INTO POSTERIOR PHARYNGEAL WALL FOR VELOPHARYNGEAL INSUFFICIENCY MANAGEMENT AFTER REPAIR OF CLEFT PALATE AND POST-ADENOIDECTOMY

Ahmed Salah El-Deen El-Daly, Rania Mohamed Abdou, Mostafa Mohamed Abd El-Naby, Aya Ahmed Baioumy Shehata ELkala

Department of Otorhinolaryngology, Faculty of Medicine, Alexandria University

Introduction

Velopharyngeal insufficiency (VPI) disrupts the valve separating nasal and oral cavities, impairing speech and swallowing. Understanding normal and abnormal closure mechanisms is vital for surgical interventions. The velopharyngeal (VP) valve involves the soft palate, lateral, and posterior pharyngeal wall, adjusting during speech and swallowing to prevent nasal regurgitation.

VPI stems from various factors like cleft palate or neurological conditions. Diagnosis combines history, physical exam, and speech assessments. Surgical options include Furlow Z-Palatoplasty, pharyngeal flap, and sphincter pharyngoplasty. Augmentation surgeries use materials like autologous fat. Careful technique and patient selection are crucial due to associated complications.

Aim of the Work

The aim of this article was to describe the assessment of speech outcomes after fat augmentation of the posterior pharyngeal wall in cases of both persistent velopharyngeal insufficiency (VPI) following adenoidectomy and VPI after repair of cleft palate. A prospective study was conducted to evaluate the efficacy of this procedure.

Patients and Methods

This prospective observational study spanned six months, involving 30 patients with persistent velopharyngeal insufficiency (VPI) post-adenoidectomy and cleft palate repair. Candidates were selected and followed up using Flexible Nasoendoscopy FNE, nasometer, perceptual speech analysis.

The procedure entailed fat augmentation of the posterior pharyngeal wall (PPW) opposite the soft palate. Fat was harvested from the anterior abdominal wall opposite the McBurney point through a small incision. Using retractors and a nasal catheter, the palatopharyngeus folds and PPW were exposed. A transverse incision was made at the posterior pharyngeal wall, followed by dissection and pocket formation superficial to the prevertebral fascia. The harvested fat was directly implanted into the pocket, and the wound was closed with absorbable sutures.

Results

Table 1: Comparison between pre and post according to hypernasality (n=30)

	Pre		Post		MH	p
	No.	%	No.	%		
Hypernasality						
No	0	0.0	27	90.0	39.000*	<0.001*
Slight	0	0.0	3	10.0		
Mild	15	50.0	0	0.0		
Moderate	15	50.0	0	0.0		

Table 2: Comparison between pre and post according to regurgitation of food (n = 30)

	Pre		Post		χ^2	^{McN}p
	No.	%	No.	%		
Regurgitation of food						
No	13	43.3	30	100.0	23.721	<0.001*
Yes	17	56.7	0	0.0		

Table 3: Comparison between pre-op and post-operative (post-op) according to FNE (n = 30)

	Pre		Post		MH	P
	No.	%	No.	%		
FNE						
Minimal gap	12	40.0	0	0.0	79.000*	<0.001*
Small gap	18	60.0	0	0.0		
Residual gap	0	0.0	10	33.3		
Complete closure	0	0.0	20	66.7		

Conclusion

Autologous fat grafting (AFG) offers a less invasive option for treating velopharyngeal insufficiency (VPI) with promising results in speech improvement and reduced nasal regurgitation. Compared to traditional surgeries, AFG boasts quicker recovery and comparable outcomes for mild to moderate VPI.

However, standardization in patient selection, injection techniques, and long-term efficacy assessment is essential. Challenges remain regarding fat graft durability and potential complications like reabsorption, underscoring the need for further research to optimize AFG's effectiveness and safety.