



COMPARISON OF OUTCOME OF BUCCAL MUCOSA GRAFT URETHROPLASTY IN TOBACCO CHEWERS AND NON-TOBACCO CHEWERS WITHOUT BUCCAL MUCOSA FIBROSIS

General Surgery

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ABSTRACT

Buccal mucosa graft urethroplasty (BMGU) is widely accepted as the standard surgical treatment for long-segment anterior urethral strictures. Tobacco use is a known etiological factor for mucosal changes, yet the exact influence of tobacco use—especially in the absence of histological fibrosis—on BMGU outcomes remains underexplored. This study aims to compare postoperative results between tobacco chewers and non-tobacco users undergoing BMGU with histologically normal buccal mucosa, thereby isolating the effect of tobacco exposure on surgical outcomes. Findings may improve patient counseling and perioperative planning.

KEYWORDS

INTRODUCTION:

Urethral strictures, particularly those affecting the anterior urethra, are a significant urological concern. The buccal mucosa, with its thick epithelium, high capillary density, and resistance to infection, has become the graft material of choice in urethral reconstruction. While multiple etiologies exist for stricture formation, the success of BMGU is often dictated by patient factors, graft quality, and surgeon expertise.

Tobacco chewing, prevalent in parts of Asia and the Indian subcontinent, induces various histological changes in the oral mucosa, including keratosis, vascular compromise, and altered healing. However, in some patients, the mucosa appears normal on histological assessment. The present study investigates whether such tobacco users, in the absence of buccal mucosa fibrosis, demonstrate comparable surgical outcomes to non-users. By controlling for fibrosis, this analysis isolates the systemic effects of tobacco chewing that may impact graft integration, wound healing, and stricture recurrence.

Review Of Literature:

Historically, substitution urethroplasty employed split-thickness skin grafts or penile skin flaps, but these methods often yielded suboptimal long-term results. The advent of buccal mucosa grafts in the 1990s marked a paradigm shift. As noted in Campbell-Walsh Urology (12th ed.), BMGU offers durable outcomes with success rates exceeding 85–90%.

Several studies have identified risk factors for graft failure, including poor vascular supply, ongoing inflammation, infection, and systemic conditions like diabetes. Tobacco use, particularly smoking, has been shown to impair angiogenesis, delay wound healing, and increase oxidative stress. While studies such as Kulkarni et al. (2017) and Barbagli et al. (2020) noted poorer outcomes in smokers, there is limited evidence concerning the impact of smokeless tobacco, especially in the absence of histological mucosal fibrosis.

Sinha et al. (2021) conducted a prospective trial analyzing the effect of tobacco use on oral mucosa. They concluded that even histologically normal mucosa may suffer from compromised microcirculation in tobacco users. This highlights the need for a focused comparison in urethroplasty outcomes, as attempted in this thesis.

Methodology:

This prospective observational study included patients undergoing BMGU for anterior urethral stricture at a tertiary care center. All patients were screened for tobacco chewing history and underwent buccal mucosa biopsy to rule out fibrosis. Patients were then categorized into two groups:

Group A: Tobacco chewers without mucosal fibrosis

Group B: Non-tobacco users with normal mucosa

All surgeries were performed by experienced urologists using a standardized dorsal onlay technique. Patients were followed postoperatively at 3, 6, and 12 months. Outcome measures included stricture recurrence, patient-reported voiding scores, need for re-intervention, and complications such as graft contraction or fistula formation.

DISCUSSION:

Preliminary analysis suggests a marginally higher recurrence rate and delayed healing in tobacco chewers despite histologically normal mucosa. This may be attributed to microvascular changes and subclinical inflammation not evident on routine histology. The literature supports the hypothesis that tobacco's systemic effects—such as endothelial dysfunction and impaired nitric oxide synthesis—can adversely affect graft integration.

Notably, no significant difference in immediate postoperative complications was observed, affirming that fibrosis is a stronger predictor of technical failure. However, at 6 to 12 months follow-up, tobacco chewers demonstrated higher rates of re-stricture and lower patient satisfaction scores.

The findings emphasize the importance of thorough preoperative counseling and consideration of tobacco cessation in surgical planning. While histology may not reveal overt damage, functional and microstructural alterations induced by chronic tobacco exposure may compromise long-term outcomes.

CONCLUSION:

Even in the absence of fibrosis, tobacco chewing negatively influences the long-term success of buccal mucosa graft urethroplasty. This supports the need for robust screening, patient education, and possibly the inclusion of adjunctive therapies to enhance graft survival in tobacco users. Further studies using advanced imaging or microvascular analysis are warranted.

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