

A Comparative Analysis of Peritoneal Flap and Intestinal Vaginoplasty for Management of Vaginal Stenosis

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Introduction

- Penile inversion vaginoplasty (PIV) is the gold standard of genital reconstruction in transgender and non-binary (TGNB) individuals desiring female genitalia^{1,2}
- Complication rates range from 20% to 70%, including wound healing, hair growth within the neovaginal canal, tissue necrosis, infection, and vaginal stenosis³⁻⁹
- Vaginal stenosis** may develop due to poor adherence of dilation protocols, scar contracture, and pelvic floor dysfunction, with rates as high as 15% → poor aesthetic outcomes, impaired function, and overall decrease in quality of life
- In failed PIV, **intestinal segment vaginoplasty (ISV)** and **peritoneal flap vaginoplasty (PFV)** may be employed to restore vaginal depth and function¹⁰⁻¹³

Objective

To compare the safety and efficacy of revision PFV and ISV in TGNB patients after failed PIV

Methods

- A single-institution retrospective review of TGNB patients undergoing secondary vaginoplasty procedures from December 2018 to June 2023 was conducted
- Individuals were included if: 1) they were ≥18 years of age, 2) had a failed primary PIV (defined as partial or complete vaginal stenosis necessitating revision), 3) underwent revision PFV or ISV, and 4) had follow-up duration of at least six months at the time of analysis
- Patient demographics, comorbidities, preoperative characteristics, and operative details were collected
- Primary outcomes included rates of postoperative complications, categorized into short-term (<30 days) and long-term (≥30 days)**

Results

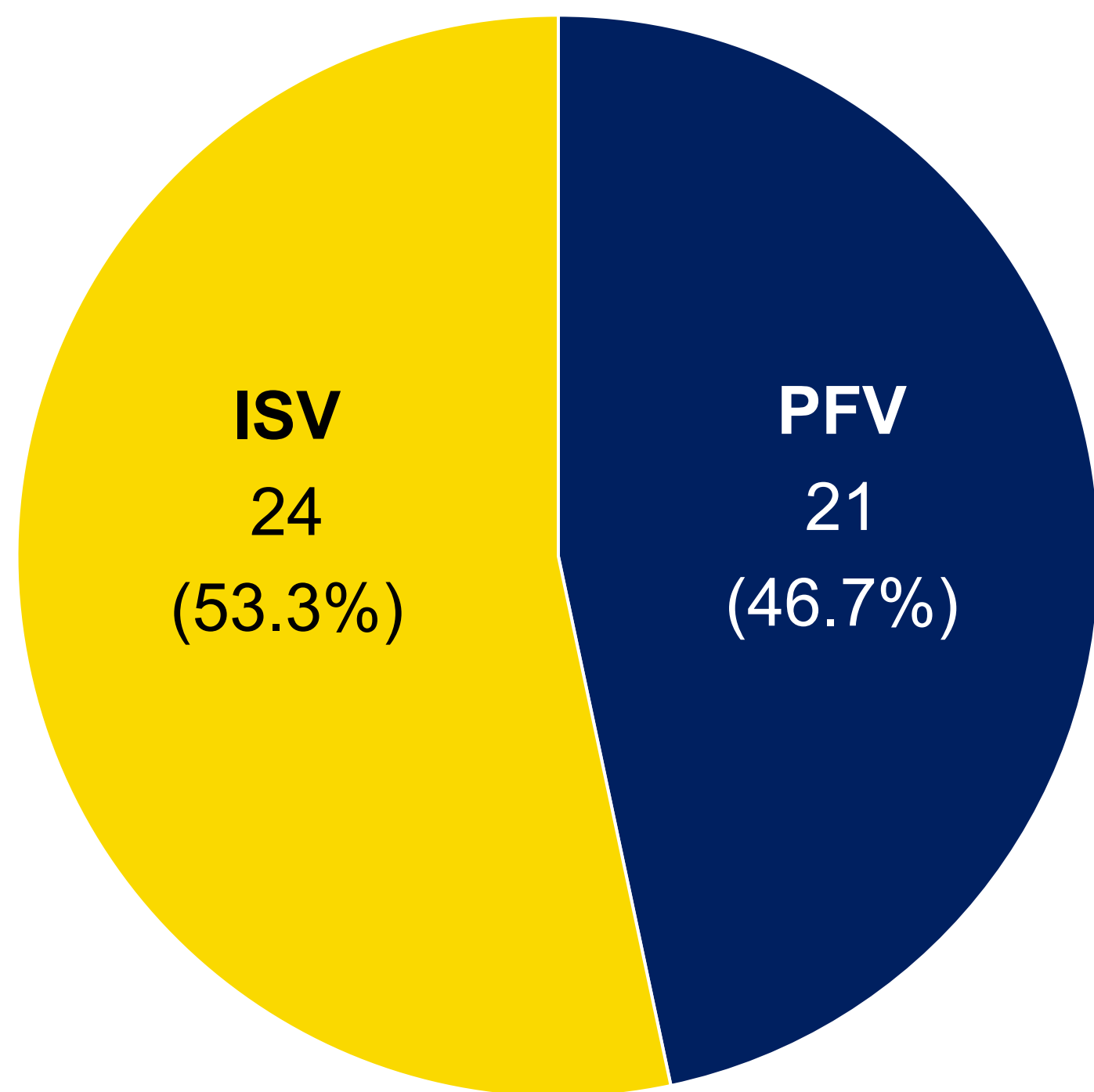


Figure 1. Type of Secondary Vaginoplasty

Table 2. Short-Term Complications (<30 Days)

	Total No. (%)	No. (%) PFV	No. (%) ISV	P
	45 (100.0)	21 (46.7)	24 (53.3)	
Short-Term (<30 Days)	17 (37.8)	7 (33.3)	10 (41.7)	0.748
Dehiscence	6 (13.3)	2 (9.5)	4 (19.0)	0.425
Ileus	2 (4.4)	0 (0.0)	2 (8.3)	0.279
UTI	1 (2.2)	1 (4.8)	0 (0.0)	0.455
Prolapse	1 (2.2)	1 (4.8)	0 (0.0)	0.455
Vaginal stenosis	2 (4.4)	2 (9.5)	0 (0.0)	0.201
Introital stenosis	2 (4.4)	0 (0.0)	2 (9.5)	0.292
Vaginal bleeding	3 (6.7)	2 (9.5)	1 (4.2)	0.449
Reoperation	4 (8.9)	2 (9.5)	2 (8.3)	0.624

Table 3. Long-Term Complications (≥30 Days)

	Total No. (%)	No. (%) PFV	No. (%) ISV	P
	45 (100.0)	21 (46.7)	24 (53.3)	
Long-Term (≥30 Days)	15 (33.3)	9 (42.9)	6 (25.0)	0.194
Dehiscence	1 (2.2)	1 (4.8)	0 (0.0)	0.455
UVF	1 (2.2)	1 (4.8)	0 (0.0)	0.455
Hypergranulation	3 (6.7)	2 (9.5)	1 (4.2)	0.446
UTI	1 (2.2)	1 (4.8)	0 (0.0)	0.477
Prolapse	1 (2.2)	1 (4.8)	0 (0.0)	0.489
Vaginal stenosis	6 (13.3)	6 (28.6)	0 (0.0)	0.003
Introital stenosis	4 (8.9)	1 (4.8)	3 (12.5)	0.359
Urethral stenosis	1 (2.2)	0 (0.0)	1 (4.2)	0.523
Reoperation	13 (28.9)	8 (38.1)	5 (20.8)	0.196

A multivariate logistic regression revealed a **higher incidence of vaginal stenosis for PFV patients compared to those who underwent ISV (p=0.009)**, controlling for age, BMI, duration of hormone use, duration of operation, and adherence to vaginal dilation regimen.

Discussion

- PFV associated with a higher rate of vaginal re-stenosis, suggesting that **ISV may offer longer-term vaginal patency** → lower rates of reoperation
- ISV offers advantages such as a use of **non-hair-bearing flap, self-lubrication, and a texture most similar to cis-vaginas**
- ISV may be preferred for patients with penile hypoplasia (<6 cm), complete vaginal stenosis, higher BMI, lower pain tolerance, and no history of intestinal surgeries or bowel conditions (e.g., inflammatory bowel disease)
- Secondary PFV and ISV achieve a **neovaginal depth comparable to that of the cisgender vagina**
- This study has several **limitations**: 1) retrospective, single-institution study design, 2) small sample size, and 3) non-randomization. Therefore, further research with larger, prospective, and multi-center studies is needed to validate and expand upon these findings.

Conclusion

Revision PFV and ISV are feasible vaginoplasty techniques for addressing complications after failed PIV. ISV demonstrates a lower incidence of recurrent vaginal stenosis, which may provide better information for operative decision making. It is crucial to carefully consider factors such as patient preference, tissue availability, comorbidities, and thorough understanding of complications when selecting the optimal revision method.

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