

Risk Factors For Hypertrophic Scarring In Gender-affirming Chest Masculinization Surgery

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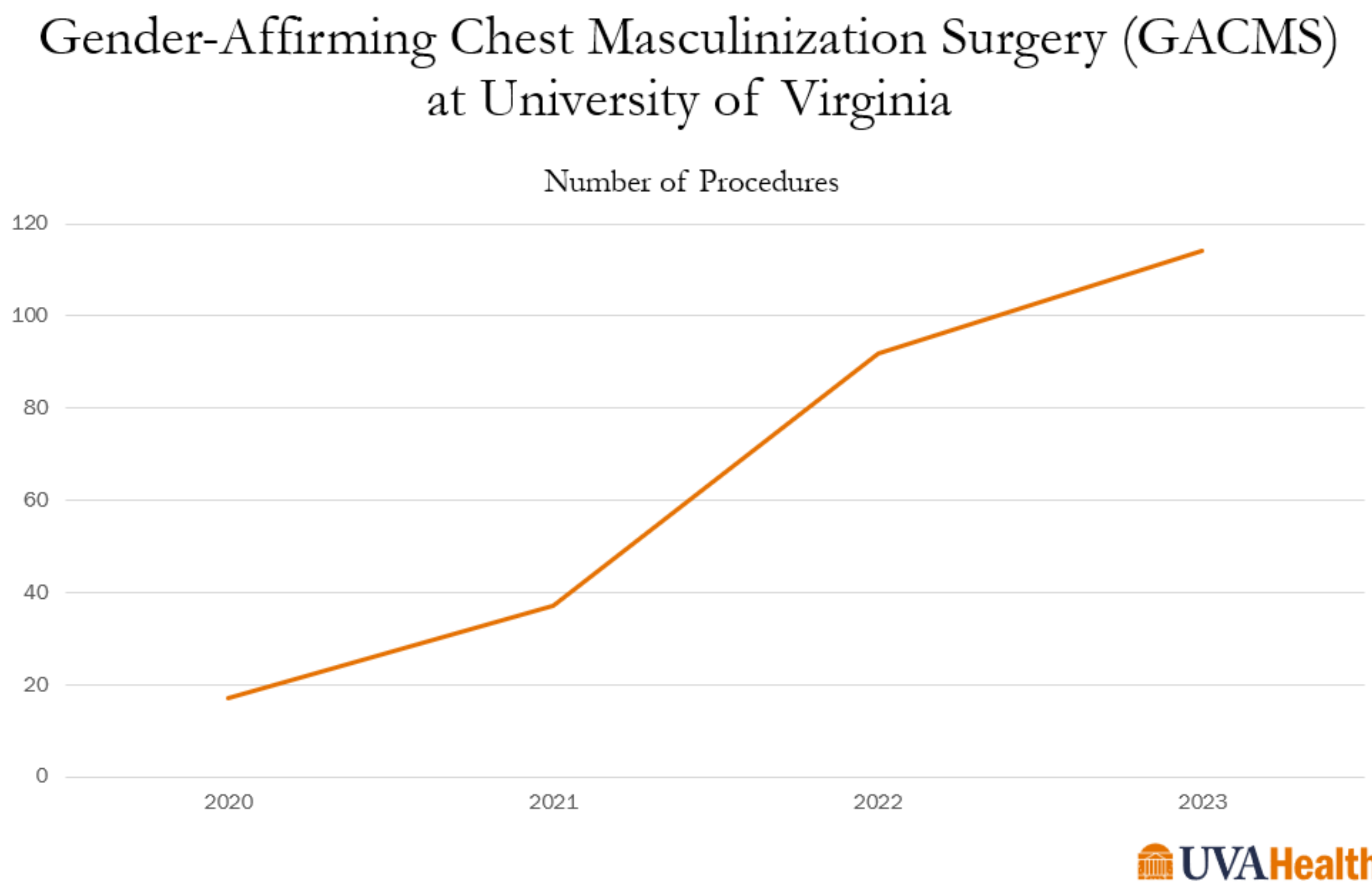


Introduction:

- Hypertrophic scarring is a significant complication of gender-affirming chest masculinization surgery (GACMS), impacting both aesthetic outcomes and patient well-being.
- Studies in the burn patient population have reported the psychological consequences of scarring, leading to a perception of disfigurement (1). These ideas can be applied to transgender and nonbinary patients who frequently measure their postoperative satisfaction with being able to not wear a shirt without obvious scarring.
- Testosterone has been hypothesized to negatively influence the wound healing repair mechanism and has been demonstrated to increase the susceptibility to developing scars (2,3).

Purpose: This study aims to identify patient-specific and procedural risk factors for hypertrophic scarring and its clinical impact in this unique context, with the goal of optimizing postoperative outcomes and quality of life for transgender and gender-diverse individuals undergoing chest masculinization.

Figure 1. Trend of GACMS at the University of Virginia from 2020-2023.



Methods:

- This study was conducted as a retrospective chart review of the electronic medical records of all patients who underwent GACMS between February 2020 and July 2023.
- Patient data were collected from electronic medical records, including demographic information, relevant comorbidities, type of chest masculinization procedure performed, and postoperative complications. Specific focus was placed on the incidence of hypertrophic scarring, along with scar management techniques, and revision rates.
- Data was analyzed using IBM's SPSS software.

Table 1. Independent T-tests for hypertrophic scarring.

Incidence of Scarring	Yes/Current	No	p-value
Wound dehiscence (%)	44.0%	29.1%	0.17
Wound infection (%)	54.5%	29.6%	0.081
Smoking status (%)	43.5%	29.3%	0.166
HRT use (%)	38.2%	29.4%	0.31

Results:

- A total of 214 patients were included with 66 cases of hypertrophic scarring or keloid formation.
- Postoperative wound infections and smoking did seem to pose a significant risk for hypertrophic scarring (54.5% v. 29.6% $p=0.081$; 43.5% v. 29.3% $p=0.17$).
- Similarly, current hormone replacement therapy (HRT) use was not found to be significantly associated with hypertrophic scarring ($p=0.31$). Patients who underwent the double incision technique had a significantly higher rate of hypertrophic scarring compared to those who had the periareolar technique ($p=0.03$).
- Multivariate analysis, controlling for smoking status, age, and BMI, revealed that patients with hypertrophic scarring were 2.2 times more likely to undergo revision than those without hypertrophic scars ($p=0.03$).

Table 2. Multivariate analysis for revision procedures.

	Odds ratio	95% CI	P-value
Age	.992	.948-1.038	0.73
BMI	1.04	.998-1.092	0.06
Smoking status	.943	.321-2.767	.914
Hypertrophic scarring	2.2	1.1-4.4	0.03

Discussion:

- This study found higher rates of scarring in patients with wound dehiscence, wound infection, and current smoking status. Although these findings are not statistically significant, other literature suggests similar findings (4).
- Based on the long-term impact hypertrophic scarring has shown to have in this study, further research is needed to confirm and better understand risk factors for hypertrophic scarring in this patient population.

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