ORIGINAL ARTICLE

Complications in transgender patients undergoing vaginoplasty procedure

Complicaciones en pacientes transgénero sometidas a procedimiento de vaginoplastia

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Abstract

Objective: *To report the statistics of complications in gender reassignment surgery (vaginoplasty) observed in the first surgical center in Mexico for public transgender surgery.* **Method:** *We conducted a descriptive, observational study of patients treated and postoperatively underwent vaginoplasty surgery in the period 2019 to 2022. Intraoperative, immediate and late complications were evaluated. Intraoperative complications were taken as: rectal perforation and bleeding. Immediate complications: wound dehiscence, hematoma, and necrosis of the vaginal segment. Late complications: urethrovaginal fistula, rectovaginal fistula, and stenosis of the vaginal introitus.* **Results:** *Twenty-two patients who underwent vaginoplasty with inversion of the foreskin were evaluated. Regarding immediate complications, the most frequent were alterations in scarring and tissue integration, being necrosis of the vaginal segment the most frequent. As for late complications, only vaginal prolapse and urethral stricture were found.* **Conclusion:** *Foreskin inversion vaginoplasty is the most widely used and safest technique worldwide, above colovaginoplasty and peritoneal vaginoplasty techniques, and fortunately serious complications are rare. In our report, tissue alterations were the common ones and that is secondary alteration of vascular integration and devascularization factors during the dissection.*

Keywords: *Transgender health. Post-operative complications. Reconstructive surgical procedure.*

Resumen

Objetivo: *Reportar la estadística de complicaciones en cirugía de reasignación de genero (vaginoplastia) observadas, en el primer centro quirúrgico en México de cirugía transgénero público.* **Método:** *Realizamos un estudio descriptivo y observacional de las pacientes tratadas y post-operadas de cirugía de vaginoplastia en el periodo de 2019 a 2022. Se evaluaron las complicaciones: intraoperatorias, inmediatas y tardías. Se consideraron complicaciones intraoperatorias la perforación rectal y el sangrado. Complicaciones inmediatas: dehiscencia de herida, hematoma y necrosis del segmento vagina. Complicaciones tardías: fístula uretrovaginal, fístula rectovaginal y estenosis del introito vaginal.* **Resultados:** *Se evaluaron 22 pacientes a las que se les realizó vaginoplastia con inversión del prepucio. En cuanto a las complicaciones inmediatas, las más frecuentes fueron las alteraciones en la cicatrización y la integración tisular, siendo la necrosis del segmento vaginal la más frecuente. En cuanto a las complicaciones tardías, solo se encontraron prolapso vaginal y estenosis uretral.* **Conclusión:** *La vaginoplastia con inversión de prepucio es la técnica más usada mundialmente y la más segura, por arriba de las técnicas de colovaginoplastia y vaginoplastia peritoneal, y las complicaciones graves son pocos comunes, afortunadamente. En nuestro reporte las alteraciones tisulares fueron las comunes y eso es secundario a la alteración de la integración vascular y los factores de desvascularización durante la disección.*

Palabras clave: *Salud transgénero. Complicaciones postoperatorias. Procedimiento quirúrgico reconstructivo.*

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Date of reception: 25-07-2023
Date of acceptance: 25-10-2023
DOI: 10.24875/CIRU.23000380

Cir Cir. 2025;93(2):177-180
Contents available at PubMed
www.cirugiaycirujanos.com

Introduction

The performance of gender-affirming procedures has become increasingly common, reflecting a changing social and political climate of equality for gender identity. Although many transgender patients do not choose to undergo the surgical transition process, gender-affirming procedures remain an option for those who wish to further align physical appearances with their identified gender. Vaginoplasty with foreskin inversion is commonly performed for female transgender patients in which the foreskin and scrotum are used to create a natural-appearing vulva and vaginal canal.

Despite these positive results, penile inversion for vaginoplasty is associated with a high rate of functional and cosmetic complications, most of which are self-limited or treated on an outpatient basis without the need for surgical procedures. Large series report that 70% of patients experience some type of postoperative complications such as altered skin tissue flap integration (26%) and less commonly but more consistently neo vaginal stenosis (4%) and rectovaginal fistula (2%). In addition, up to 33.7% of patients undergo procedures for secondary correction of esthetic conditions and function[1-3].

In this article, we present our experience and management of patients with post-surgical complications in patients undergoing vaginoplasty procedure.

Method

A descriptive and observational study was performed, of patients attended and post-operated of vaginoplasty in the period from 2019 to 2022, patients with complete surgical protocol and previous assessments by endocrinology and psychiatry, of clínica Condesa, in addition to hormonal interruption 2 months before surgical procedure, all patients with strict compliance with the criteria of World Professional Association for Transgender Health, such as: majority of age, hormonal treatment for at least 2 years, assessment by 2 mental health professionals (psychiatry), 24/7 life experience with chosen sex.

The technique performed was the penis-scrotal inversion technique, which consists of a series of procedures such as: penectomy, orchiectomy, clitoroplasty, and vaginoplasty. The creation of vaginoplasty involves inversion of the penile skin and is perhaps the most studied and used today. For most surgeons, it is the technique of choice. It uses the inverted penile skin that functions as a tube that becomes the neovagina. It has been described that the average vaginal depth ranges from 10 to 13.5 cm; the average width of the neovagina is 3 to 4 cm.

Table 1. Characteristics of the patients who underwent vaginoplasty

Variable	p
Total patients (n)	22
Age (years)	36.2 (19-55)
Diabetes Mellitus	2
Arterial hypertension	1
Years of hormonal treatment	7 (2-18)
Previous orchiectomy	2
Body mass index	28.0 kg/m^2
History of circumcision.	2
Smoking	3

An evaluation of the complications in the patients operated in the period from 2019 to 2022, with vaginoplasty technique with inversion of the foreskin was carried out, three groups were divided: intraoperative, immediate, and late. The immediate complications were: rectal perforation, bleeding with necessity, and transfusion. As for immediate complications: wound dehiscence, hematoma, vaginal segment necrosis, vaginal edema, abscess, urethral necrosis, clitoral necrosis, and urinary tract infection. Late complications were taken as: urethrovaginal fistula, rectovaginal fistula, vaginal introitus stenosis, vaginal prolapse, urethral meatus stenosis, and urethral prolapse.

Results

The total number of patients studied were 22 postoperative patients of vaginoplasty procedure with foreskin inversion, performed by a single surgeon in our institution, the mean age was 36 years, 2 patients with a history of previous orchiectomy, mean body mass index 28.0 kg/m² (range, 20.2-39.4 kg/m²), mean use of hormonal treatment of 6 years, with follow-up during each month for 6 months (Tables 1 and 2).

Of the 22 patients operated on, intra-operative complications were found as intraoperative bleeding in only one patient, secondary to a sacral bleeding >500cc, indication for transfusion by the anesthesiology service. As for immediate complications, the most common was alterations in healing and tissue integration, being necrosis of the vaginal segment, the others were: hematoma, wound dehiscence, abscess, wound infection, and edema (Figs. 1 and 2). Finally, the late

Table 2. Complications percentage intraoperative

Time complication	%
Intraoperative	
Rectal perforation.	-
Bleeding	1 (4.5)
Immediate	
Wound dehiscence	2 (9.0)
Hematoma	2 (9.0)
Vaginal segment necrosis	4 (18)
Abscess	1 (4.5)
Urethral necrosis	-
Wound infection	1 (4.5)
Edema.	2 (9.0)
Necrosis of the clitoris	-
Late	
Urethrovaginal fistula	-
Rectovaginal fistula.	-
Introitovaginal stenosis	-
Vaginal prolapse	1 (0.45)
Meatourethral stenosis	1 (0.45)
Urethral prolapse	-

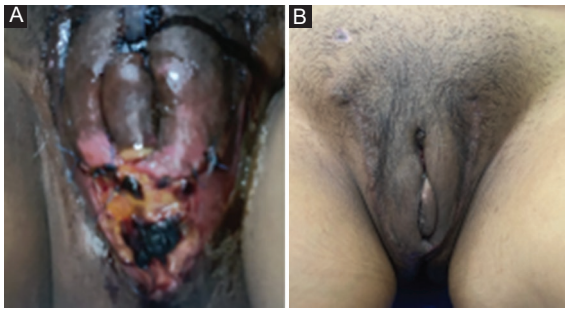

Figure 1. A*: severe edema after vaginoplasty surgery.* **B***: vaginal fundal prolapse.*

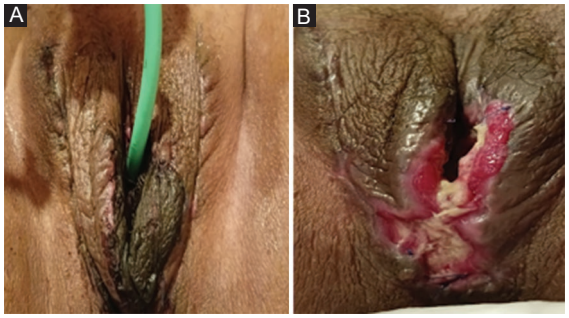

Figure 2. A*: vaginal border necrosis.* **B***: vaginal border granulation.*

complications presented were: vaginal prolapse secondary to severe edema and partial stenosis of meatal urethral stenosis.

Discussion

Minor wound healing problems are commonly reported after vaginoplasty (range 3.3%-33%), and many resolve without surgical intervention. Wound dehiscence, especially in areas of increased tissue tension (i.e., introitus and labia majora), most commonly occurs within the 1st month after surgery[4,5]. In the observed results, most of the complications observed were of the immediate type the most common, with impaired healing as well as the presence of partial necrosis of vaginal tissue, Ferrando reported that of the 17% of her patients (n = 76 patients) who experienced complications, more than 50% of these complications involved wound dehiscence or wound separation. Most studies consistently report that post-operative wound dehiscence is treated with local wound care and does not require surgical intervention[6,7].

Tissue loss may be associated with wound dehiscence and occurs most frequently at points of maximal tissue tension, such as the vaginal introitus. Minor tissue necrosis (i.e., resolved without reoperation under general anesthesia) representing the highest incidence reported in some studies[8,9]. Minor cases of tissue necrosis can often be treated with local wound care, whereas more significant tissue loss may require surgical debridement. The most common major complication (17%) was tissue necrosis along the lower edge of the wound. García MM et al. reported that of the patients requiring reoperation, 25% were related to tissue necrosis[10,11].

Pre-operative patient optimization (smoking cessation, control of diabetes, and cardiopulmonary status) is important, as these concomitant conditions may be independent predictors of post-operative tissue necrosis.

Conclusion

Complications arising from surgery are defined as an unexpected or undesired outcome of surgical treatment that causes, in addition to a difficult situation for the surgeon, a lengthening of the hospital stay, vary in severity and some can be easily treated with conservative management strategies and/or small revision surgeries, whereas other events are considered true complications and require and/or surgery to treat the problem.

Foreskin inversion vaginoplasty is the most widely used and safest technique worldwide, above

colovaginoplasty and peritoneal vaginoplasty techniques, and fortunately serious complications are rare. In our report, tissue alterations were the common ones and that is secondary alteration of vascular integration and devascularization factors during the dissection.

Funding

The authors declare that they have not received funding.

Conflicts of interest

The authors declare no conflicts of interest.

Ethical considerations

Protection of humans and animals. The authors declare that the procedures followed complied with the ethical standards of the responsible human experimentation committee and adhered to the World Medical Association and the Declaration of Helsinki. The procedures were approved by the institutional Ethics Committee.

Confidentiality, informed consent, and ethical approval. The authors have obtained approval from the Ethics Committee for the analysis of routinely obtained and anonymized clinical data, so informed consent was not necessary. Relevant guidelines were followed.

Declaration on the use of artificial intelligence. The authors declare that no generative artificial intelligence was used in the writing of this manuscript.

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