

Gluteal Fold V-Y Advancement Flap for Genital Reconstruction following Radical Vulvectomy with Bilateral Inguinofemoral Lymphadenectomy in Vulvar Cancer: A Case Report

Rashid I. Arjona Bojórquez¹, Manuel A. Baas Dzul², Deysi L. Navarrete Espinosa¹, Christian A. Salazar Quijano³, Carlos D. Torres Garcia¹

¹Department General Surgery, Hospital Ignacio Garcia Tellez IMSS T-1, Merida, Yucatan, Mexico.

²Department of Plastic and Reconstructive Surgery, Hospital Ignacio Garcia Tellez IMSS T-1, Merida, Yucatan, Mexico.

³Hospital General de Especialidades de Campeche. "Javier Buenfil Osorio" General Surgery Department.

ABSTRACT

Background: Vulvar cancer is a rare malignancy representing about 4% of all genital cancers in women. Historically, the gold standard for treatment of squamous cell carcinoma of the vulva was en bloc radical vulvectomy with bilateral inguinofemoral lymphadenectomy. For the reconstruction the options are primary closure, skin grafts, or local and distant flaps. In this case we used the gluteal fold fasciocutaneous V-Y advancement flap that is sensate and thin with a reliable blood supply, can be advanced easily, and can be performed in a single-stage procedure.

Care Report: We present a clinical case of an 82-year old female patient who had an exophytic vulvar lesion, which grew progressively with the histopathologic diagnosis of invasive vulvar squamous cell carcinoma. It was decided to perform radical vulvectomy with right unilateral lymphadenectomy and reconstruction with Gluteal Fold V-Y Advancement Flap. During the post-surgical period it recurred with wound dehiscence and finally skin necrosis developed in the area of the left thigh. Surgical debridement, escharectomy, harvesting and application of skin graft, and closure of the femoral hernia with omentum patch were performed with no associated complications. Follow-up was carried out during the next 3 months after surgery. She presented adequate evolution of the flap and left thigh area.

Conclusions: The Gluteal Fold V-Y Advancement Flap is an excellent option for the reconstruction of the vulvovagino-perineal area after a radical vulvectomy. It provides us with a good prognosis and quality of life for the patient.

KEYWORDS: Gluteal Fold V-Y Advancement Flap, Squamous cell carcinoma, radical Vulvectomy.

ARTICLE DETAILS

Published On:
11 June 2022

Available on:
<https://ijmscr.org/>

INTRODUCTION

Vulvar cancer is a rare malignancy representing about 4% of all genital cancers in women.¹ Squamous cell carcinoma (SCC) accounts for nearly 90% of cases of vulvar cancer. Vulvar SCC can be broadly classified as HPV-mediated and non-HPV-mediated and is generally preceded by noninvasive vulvar intraepithelial neoplasia (VIN). Fifty nine percent of patients present with localized disease, 30% with spread to regional lymph nodes, 6% with distant metastases, and 5% unstaged.² Most vulvar cancers present as a palpable

lump or visible mass on the vulva with or without associated pruritus, discharge, dysuria, or bleeding. The lesion may be difficult to visualize secondary to labial agglutination from surrounding dystrophy. Rarely, vulvar cancers are asymptomatic. As coexistent lower genital tract neoplasia is found in 13% of cases, initial evaluation should include examination of the entire vulva for multifocal lesions as well as the rest of the lower genital tract (cervix and vagina) including cervical cytology. Any suspicious lesion should be biopsied, and multiple biopsies of multiple sites or of the

Gluteal Fold V-Y Advancement Flap for Genital Reconstruction following Radical Vulvectomy with Bilateral Inguinofemoral Lymphadenectomy in Vulvar Cancer: A Case Report

same suspicious lesions over time may be necessary to make the diagnosis.³ Primary tumor can be detected at physical examination and be staged surgically or pathologically. Imaging modalities such as CT, MRI, and PET/CT, however, are being increasingly used in the management of vulvar carcinoma.⁴

Historically, the gold standard for treatment of squamous cell carcinoma of the vulva was en bloc radical vulvectomy with bilateral inguinofemoral lymphadenectomy. Given the significant morbidity of this procedure, current practice involves wide local excision and sentinel lymph node biopsy with possible lymphadenectomy, which has comparable efficacy with decreased morbidity.⁵ In a Stage IA squamous cell carcinoma of the vulva wide local excision is adequate therapy.⁶ For stage II disease, the most conservative excision technique should be used that results in at least a 1-cm tumor-free margin. Depending on the size, location, and depth of invasion of the lesion, this may necessitate radical local excision, or modified radical vulvectomy, and the separate incision technique of an inguinofemoral lymphadenectomy.⁷ Radical vulvectomy can be accomplished using two bilateral longitudinal incisions, repaired by primary closure, skin grafts, or local and distant flaps.⁸ However, primary closure is advisable only when the defect is minimal and tissue replacement is always needed in radical excisions. Primary closure under tension is frequently associated with wound breakdown and prolonged healing; therefore reconstruction should always be performed. Local flaps are always considered the first choice because of their characteristics of similarity to the resected area. The V-Y island flaps from the medial side of thigh constitute one of the numerous options.⁹ The V-Y advancement flap is nourished by perforators of the perineal artery or the internal pudendal artery.¹⁰ In this case we used the gluteal fold fasciocutaneous V-Y advancement flap that is sensate and thin with a reliable blood supply, can be advanced easily, presents a concealed scar on the gluteal fold and groin area, and can be performed in a single-stage procedure.¹¹

CASE REPORT

We present a clinical case of a 82-year old female patient, with medical history of hypertension of 30 years long in treatment with losartan, cesarean section 50 years ago and wall hernioplasty 20 years ago. The current illness began two years ago with the presence of an exophytic, pearly lesion of approximately 4x5cm in the labia majora on the left side, which grew progressively and with associated symptoms of pruritus and erythema (Figure 1). She went to a family doctor who indicated clindamycin without improvement, so she was referred to the surgical oncology service where the study protocol was started, a biopsy of the region was performed, integrating the diagnosis of invasive vulvar squamous cell carcinoma. It was decided to perform radical vulvectomy with right unilateral lymphadenectomy and reconstruction

with Gluteal Fold V-Y Advancement Flap in conjunction with the plastic and reconstructive surgery service (Figure 2 and 3). Surgery was performed without complications, such as findings: left inguinal region with superficial adenopathies, tumor of approximately 3 cm in diameter on the inner face of the left labia majora of the vulva. 3 days after surgery, he presented infection in the area of the left inguinal lymphadenectomy approach, with the presence of fibrin-serous exudate in moderate quantity, erythema, pain and dehiscence in the middle third of the wound. Subsequently, 8 days after surgery, she developed fistulization towards the flap area on the left side, spreading erythema, pain, exudate and partial dehiscence in the cephalic third of the flap. She remained hospitalized for dressings, antimicrobial management and taking cultures. However, due to persistence of the infection, lack of response to antimicrobial treatment adjusted according to the culture report, and purulent discharge due to drenovac drainage, surgical cleaning, debridement, and re-advancement of flaps on the left thigh and flap on the left side were performed. The surgery was performed without complications, however, during the post-surgical period it recurred with wound dehiscence and the presence of fibrinous and non-fetid exudate in moderate quantity, congestion of the skin edges but without data of erythema or skin pain, healing continued, and finally skin necrosis developed in the area of the left thigh. 15 days after surgery, surgical cleansing, debridement, escharectomy, harvesting and application of skin graft, and closure of the femoral hernia with omentum patch were performed. The skin graft was assessed after 5 days and 90% of the graft was found to be integrated, for this reason it was decided to be discharged and followed up in the outpatient clinic. During follow-up in the outpatient clinic, healing of a residual bloody area of approximately 1x3 cm with adequate granulation tissue in moderate quantity and presence of serous fibrin exudate continued. Healing was maintained for 2 weeks until the conditions of the wound bed improved. When an adequate bed was obtained, a tangential excision was performed, harvesting and application of a skin graft. It was revised after 5 days with total integration of the graft. Follow-up was carried out during the next 3 months after surgery (Figure 4 and 5). She presented adequate evolution of the flap and left thigh area, in this last assessment she was discharged from the plastic surgery service.

DISCUSSION

Radical vulvectomy can result in significant loss of tissue. In these instances, flaps and skin grafts are a feasible solution to reduce tension, avoid wound breakdown and infection, and as a means to improve cosmetic and functional outcome. It is worth mentioning why to use flaps instead of grafts, and why to use local flaps instead of free flaps. In case of grafts due to cosmetic superiority, absence of retraction in the surrounding tissues and morbidity of the donor area in the surrounding

Gluteal Fold V-Y Advancement Flap for Genital Reconstruction following Radical Vulvectomy with Bilateral Inguinofemoral Lymphadenectomy in Vulvar Cancer: A Case Report

area without having to compromise other regions. And in the case of free flaps, because a distant donor area does not have to be compromised, microsurgical experience is not necessary, a minimal learning curve, less surgical time, post-surgical care that does not require trained personnel, and a quick recovery. Flaps should be pliable, mobile and with a stable blood supply. Deficits in any one of these features can lead to tension, wound breakdown, and necrosis.¹² The gluteal fold V-Y advancement flap is a good option for the reconstruction of a vulvovaginal defect. It has the advantages of the medial thigh flap in a thinness and local skin quality, and it leaves concealed scars on the gluteal fold. Additionally, this flap can be easily advanced further by a deep fascial incision around the flap only, without excessive skeletonization of the pedicle.¹³ The most frequent complications of this flap are wound dehiscence, necrosis and seroma. Other not so frequent complications are ureteral stenosis, urinary incontinence and deep vein thrombosis. Disadvantages could be the postoperative temporary discomfort and pain in sitting position.¹⁴ In terms of esthetics, the result of this procedure could offer certain benefits: the similarity between the skin of the donor site and the recipient areas in terms of color, hair and texture and the minimal donor site scar, linear and hidden by the thick gluteal fold. The ideal flaps for vulvar defects should not be bulky, allow stable blood flow, not cause severe functional or esthetic changes into the donor area, and require only a one-stage operation.¹⁵

CONCLUSION

The Gluteal Fold V-Y Advancement Flap is an excellent option for the reconstruction of the vulvovagino-perineal area after a radical vulvectomy due to an invasive vulvar squamous cell carcinoma. In this case, the management of the defect after a radical vulvectomy is managed with this flap, which brought us good results in terms of aesthetics and sensibility with no superficial pain.

We had minor post-surgical complications such as wound dehiscence and small areas of necrosis due to an undiagnosed femoral hernia, which was an unusual finding that we were able to resolve quickly and adequately.

We recommend this flap as a very good option for this type of reconstruction in large defects, since it provides us with a good prognosis and quality of life for the patient.

ACKNOWLEDGEMENTS

We thank the Hospital Ignacio Garcia Tellez IMSS T-1 for financial support in carrying out the surgery.

DECLARATIONS

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

REFERENCES

- I. Faber MT, Sand FL, Albiéri V, Norrild B, Kjaer SK, Verdoodt F. Prevalence and type distribution of human papillomavirus in squamous cell carcinoma and intraepithelial neoplasia of the vulva. *Int J Cancer*. 2017 Sep 15;141(6):1161-1169. doi: 10.1002/ijc.30821. Epub 2017 Jun 21. PMID: 28577297.
- II. Weinberg D, Gomez-Martinez RA. Vulvar Cancer. *Obstet Gynecol Clin North Am*. 2019 Mar;46(1):125-135. doi: 10.1016/j.ogc.2018.09.008. PMID: 30683259.
- III. Zweizig S, Korets S, Cain JM. Key concepts in management of vulvar cancer. *Best Pract Res Clin Obstet Gynaecol* 2014;28(7):959–66.
- IV. Kim KW, Shinagare AB, Krajewski KM, Howard SA, Jagannathan JP, Zukotynski K, et al. Update on imaging of vulvar squamous cell carcinoma. *AJR Am J Roentgenol*. 2013 Jul;201(1):W147-57. doi: 10.2214/AJR.12.9594. PMID: 23789687.
- V. Tan A, Bieber AK, Stein JA, Pomeranz MK. Diagnosis and management of vulvar cancer: A review. *J Am Acad Dermatol*. 2019 Dec;81(6):1387-1396. doi: 10.1016/j.jaad.2019.07.055. Epub 2019 Jul 23. PMID: 31349045.
- VI. Javier F. Magrina, Jesus Gonzalez-Bosquet, Amy L. Weaver, Thomas A. Gaffey, Kevin O. Leslie, Maurice J. Webb, et al. Squamous Cell Carcinoma of the Vulva Stage IA: Long-Term Results, *Gynecologic Oncology*, 2000, Volume 76, Issue 1, Pages 24-27, ISSN 0090-8258, <https://doi.org/10.1006/gyno.1999.5638>.
- VII. Fuh KC, Berek JS. Current management of vulvar cancer. *Hematol Oncol Clin North Am*. 2012 Feb;26(1):45-62. doi: 10.1016/j.hoc.2011.10.006. PMID: 22244661.
- VIII. Carramaschi F, Ramos ML, Nisida AC, Ferreira MC, Pinotti JA. V--Y flap for perineal reconstruction following modified approach to vulvectomy in vulvar cancer. *Int J Gynaecol Obstet*. 1999 May;65(2):157-63. doi: 10.1016/s0020-7292(99)00016-8. PMID: 10405060.
- IX. Tateo A, Tateo S, Bernasconi C, Zara C. Use of V-Y flap for vulvar reconstruction. *Gynecol Oncol*. 1996 Aug;62(2):203-7. doi: 10.1006/gyno.1996.0216. PMID: 8751550.
- X. Hashimoto I, Nakanishi H, Nagae H, Harada H, Sedo H. The gluteal-fold flap for vulvar and buttock reconstruction: anatomic study and adjustment of flap volume. *Plast Reconstr Surg*. 2001 Dec;108(7):1998-2005.

Gluteal Fold V-Y Advancement Flap for Genital Reconstruction following Radical Vulvectomy with Bilateral Inguofemoral Lymphadenectomy in Vulvar Cancer: A Case Report

doi: 10.1097/00006534-200112000-00025.
PMID: 11743391.

- XI. Lee PK, Choi MS, Ahn ST, Oh DY, Rhie JW, Han KT. Gluteal fold V-Y advancement flap for vulvar and vaginal reconstruction: a new flap. *Plast Reconstr Surg*. 2006 Aug;118(2):401-6.
doi:10.1097/01.prs.0000227683.47836.28.
PMID: 16874210.
- XII. Wills A, Obermair A. A review of complications associated with the surgical treatment of vulvar cancer. *Gynecol Oncol*. 2013 Nov;131(2):467-79.
doi: 10.1016/j.ygyno.2013.07.082. Epub 2013 Jul 14. PMID: 23863358
- XIII. Lee J, Shin J, Kim S, Oh D, Park J, Hur S, et al. Modified gluteal fold V-Y advancement flap for vulvovaginal reconstruction. *Ann Plast Surg*. 2013 Nov;71(5):571-4.
doi: 10.1097/SAP.0b013e31824f23e4.

PMID: 23027035.

- XIV. Di Donato V, Bracchi C, Cigna E, Domenici L, Musella A, Giannini A, et al. Vulvo-vaginal reconstruction after radical excision for treatment of vulvar cancer: Evaluation of feasibility and morbidity of different surgical techniques. *Surg Oncol*. 2017 Dec;26(4):511-521.
doi: 10.1016/j.suronc.2017.10.002. Epub 2017 Oct 5. PMID: 29113672.
- XV. Benedetti Panici P, Di Donato V, Bracchi C, Marchetti C, Tomao F, Palaia I, et al. Modified gluteal fold advancement V-Y flap for vulvar reconstruction after surgery for vulvar malignancies. *Gynecol Oncol*. 2014 Jan; 132(1): 125-9.
doi: 10.1016/j.ygyno.2013.10.037. Epub 2013 Nov 9. PMID: 24216049.

FIGURES



Figure 1: Exophytic vulvar lesion.

Gluteal Fold V-Y Advancement Flap for Genital Reconstruction following Radical Vulvectomy with Bilateral Inguinofemoral Lymphadenectomy in Vulvar Cancer: A Case Report



Figure 2: Radical vulvectomy with right unilateral lymphadenectomy.

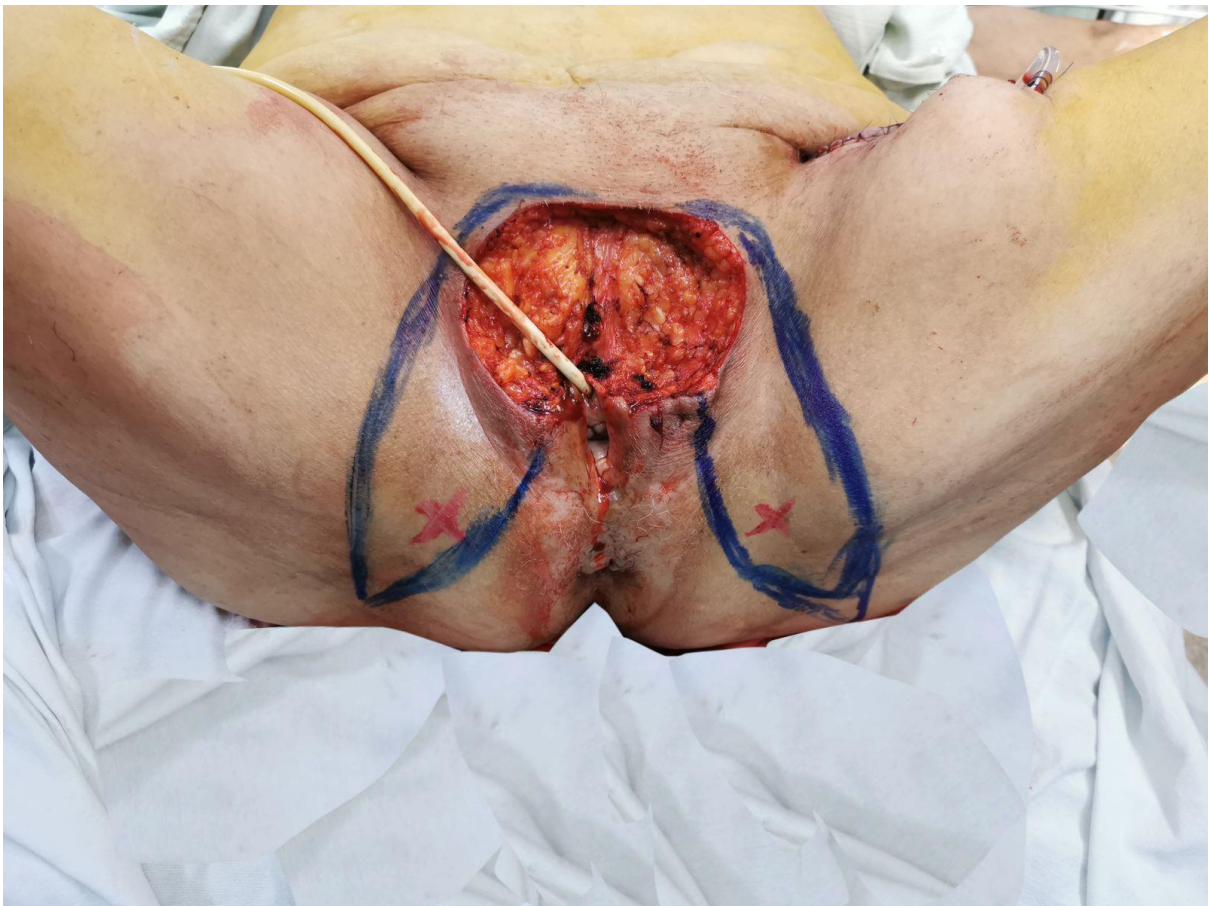


Figure 3: Design of Gluteal Fold V-Y Advancement Flap.

Gluteal Fold V-Y Advancement Flap for Genital Reconstruction following Radical Vulvectomy with Bilateral Inguinofemoral Lymphadenectomy in Vulvar Cancer: A Case Report



Figure 4: Gluteal Fold V-Y Advancement Flap 1 month after surgery.



Figure 5: Gluteal Fold V-Y Advancement Flap 3 months after surgery.