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# The Impact of Plastic Reconstructive Surgery in Management of Vulvar Carcinoma: A Review

Sofoudis C*

*Department of Obstetrics and Gynecology, Konstandopoulio General Hospital Athens, Greece*

***Corresponding author:** Sofoudis C, Department of Obstetrics and Gynecology, Konstandopoulio General Hospital Athens, Greece, E-mail: chrisostomos.sofoudis@gmail.com

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## Abstract

**Introduction:** Vulvar cancer represents a malignant, invasive growth in the vulva, or the outer portion of the female genitals, that typically affects older women. It comprises 5% of all female genital cancers and 1% of all female malignancies.

From histopathological point of view, classical examples are squamous cell carcinoma and intraepithelial vulvar neoplasia. Other less frequent histological types included adenocarcinomas, melanomas and carcinomas of the Bartholin glands.

The incidence of vulvar cancer is highest between 65 to 70-year age group; however, women over 70 years of age are commonly affected.

Vulvar cancer is distinguished from vulvar intraepithelial neoplasia (VIN), a superficial lesion of the epithelium that has not invaded the basement membrane.

VIN has the tendency to carcinoma-in-situ and, eventually, squamous cell cancer

The goal of surgical therapy remains radical vulvectomy with bilateral inguinal lymphadenectomy or radical local excision followed in both cases by plastic reconstruction.

**Method:** Assiduous effort concerning all new scientific information of electronic data bases such as PubMed and Cochrane data base.

**Objective:** The aim of the study reflects the presentation and implementation of the therapeutic mapping in cases of plastic reconstructive surgery of vulvar carcinoma.

**Conclusion:** The present review deals with the impact of plastic reconstructive surgery in the management of vulvar carcinoma.

**Keywords:** Vulvar Carcinoma; Plastic Reconstruction; Flaps

## Introduction

Vulvar cancer represents a rare type of gynecologic malignancy. The onset of the lesion occurs in form of precancerous cells on the vulva skin. This specific lesion type is commonly presented as vulvar intraepithelial neoplasia (VIN) [1].

By the time the lesion becomes invasive there are many ways of malignant infiltration, with most common examples, the local extension, the lymphatic and the hematogenous route [2].

Vulvar melanoma consists the second most common type among vulvar malignancies with incidence of 8-10% [3]. This type of lesion arises from melanocytes most frequently in Caucasian women. The age incidence varies from 50 to 80 years old.

Basal cell type carcinoma represents about 1-2 % among vulvar malignancies. Although these lesion types have the tendency to form gradually, they occur anywhere on the vulva [4].

The clinical status composes signs and symptoms of an ulcer formation mostly accompanied with itching, irritation, local bleeding or discharge followed by episodes of pain during sexual intercourse [5].

The etiology regarding the incidence of vulvar melanoma remains unclear. However, predisposition factors such as lichen sclerosus or chronic local itching may justify the presence of the lesion [6]. Low socioeconomic status, HPV (Human papilloma virus) infection, multiple sexual partners and smoking abuse are involved with the lesion pathogenesis [7].

According to surgical management, prognostic factors such as tumor size, staging, lymphatic infiltration and hormonal status influence the disease free survival (DSF), the overall survival (OS), the decrease of distant metastases and the patient's quality of life (QoL) [8].

The first lymphatic spread of vulvar carcinoma represents the inguinal region. Palpable uni-or bilateral inguinal lymph nodes affect the surgical mapping [9].

The surgical management is strongly associated with the histological type and the lymphatic invasion.

The review was to explore the impact of plastic reconstructive surgery in the management of vulvar carcinoma.

## Methodology

All data were collected from electronic data bases such as PubMed and Cochrane data base. The efforts were focused on the new development techniques with less radical penetration. Ultimate goal remains the increase of quality of life and overall survival in combination with cosmetic result.

## Discussion

The aim of vulvar reconstruction remains the anatomical restoration of the external female genitalia, preserving the normal body image, the sexual function, micturition and defecation [10].

Factors as local extension and location of the vulvar defect influence the management of the plastic reconstruction and the flap option [11].

Many different types of flaps have been designed over the past decades. In 1976 McCraw first introduced the gracillis myocoutaneous flap. This flap type consists of cutis, sub cutis, fascia and muscle tissue. It is well known regarding its ability to provide large tissue amounts [12]. Due to its unreliable skin island, this flap type was not often used.

On the contrary, the vertical rectus abdominis myocoutaneous flap (VRAM) is strongly recommended in cases of large vulvar defects [13]. This flap type constitutes of a vertically oriented skin island associated with the underlying rectus abdominis myocoutaneous (RAM). The main advantage concerning this management option consists of a reliable vascular pedicle and relatively few postoperative complications. The use of a VRAM flap also provides an opportunity of a neovagina construction. The flap is folded around a mould and placed into the defect region. 56% of the female patients having postoperatively a neovagina remain sexually active [14].

Another flap type concerning the vulvar plastic reconstruction is the often use the anterolateral thigh flap (ALT) [15]. This pedicle ALT flap has a reliable vascularization and therefore a low complication rate. One of the main advantages poses the provision of sensory innervation. A tensor fascia lata muscle or a vastus lateralis muscle can be added to the fasciocoutaneous flap to provide more bulk if necessary. The main disadvantage of the myocoutaneous ALT flap represents the reduction in strength regarding the knee extension [16].

With the arrival of new management options and the increase of modern technology, more promising techniques are performed. The new entrance in plastic surgery which is the commonly used is deep inferior epigastric perforator flap (DIEP) [17].

According to this technique the DIEP flap spares the underlying RAM and the vessels are dissected through the muscle. Through this technique, a tremendous reduction of a possible postoperative abdominal wall hernia is achieved. This flap type is less bulky compared a conventional pectoralis major / rectus abdominis muscle flap (PM/RAM) and could therefore be used to overlap medium sized defects [18].

Small vulvar defects are amenable to direct closure, skin grafting and local flaps. Any concomitant groin dissection should preclude the use of local flaps based on the superficial circumflex, epigastric and external pudendal arteries, as these vessels would have been ligated.

In cases of large defects, there are three substantial obligations to be fulfilled. The fill of dead space, the coverage of pubic bone and the line of the periurethral area.

Large medial thigh rotation flaps and V-Y advancement flaps can also have used with increased successful rate. The main disadvantage concerning this management option remains the tendency to pin-cushion and form hypertrophic borders [19].

The medial thigh rotation flap used to be always an alternative solution for large vulvar defects. Despite the success of the primary overlapping, in many cases the final result was a long curvilinear scar. In such cases, there is an instant need for preservation of the great saphenous vein, using an adipose tissue cuff, taking into consideration the prevention of a possible local lymphedema [20].

Additionally, the method of choice concerning the vulvar reconstruction remains the use of gluteal flap [21]. The main advantage of this procedure is the modification of the flap, situation compatible and easily to fit regarding all standard cases of vulvectomy. This procedure is effective, even in large vulvar defects, resulting in a decreased postoperatively complication rate.

The postoperatively results preserve the urine and sexual functioning. In a relation to the above mentioned techniques, the possibility of hypertrophic borders or quite well hidden scars remains minimal.

With the completion of the vulvar plastic reconstruction, there is an optimal skin caver provision, scaring minimizing and distortion, restoration of the vaginal introitus, maintenance of the urethral meatus medial position and most of all a stenosis prevention.

## Conflict of interest

The author has contributed significantly and he is in agreement with the content of the manuscript. His study does not violate the policies and/or procedures established by journal. He declares any financial support or relationships that may pose potential conflict of interest.

## Conclusion

Vulva carcinoma represents a rare type of female malignancy. The success rate and the increase of all intra-and postoperative complications depend not only on the surgical management, but also on the type of the plastic reconstruction. Necessary conditions consist of surgical skills and expertise of the surgeon, but most of all of the ability of a well trained staff.

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