



Pudendal-thigh Fasciocutaneous Flaps for Vaginal Reconstruction in a Melanoma Patient

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Malignant melanoma of the vagina is a rare and aggressive gynecological tumor. Radical surgery, including vaginectomy, vulvectomy, bilateral inguinal lymph node dissection, and maybe total urethrectomy is usually recommended to improve the survival rate of the patients. Vaginal reconstruction is an effective method of management of the wound resulting from oncologic resections and can preserve the sexual function. The pudendal-thigh flap is a sensate and reliable fasciocutaneous flap for vaginal reconstruction. A 62-year-old patient presented with malignant melanoma over the vulva, urethra and vagina orifice. After radical surgery, she underwent vaginal reconstruction using pudendal-thigh flaps (Singapore flap). Bilateral pudendal-thigh flaps were used to resurface the defect over the perineum and sutured together to form the outer third vagina. Half a year after the surgery, the patient present effective vulva and vaginal contour without local recurrence or distant metastasis.

Key words: melanoma, pudendal-thigh flap, vaginal reconstruction

INTRODUCTION

Primary malignant melanoma of the vagina is rare and accounts for less than 0.8% of all melanomas and less than 3% of vaginal malignancies¹. It more commonly presents in the 5th to 6th decades of life and in postmenopausal patients²⁻⁴. The most common site of occurrence is the distal or lower third of the vagina. The prognosis is poor depending on tumor size, with a 5-year survival rate ranging from 5% to 25%⁵. However, radical surgery has appeared to improve the survival rate. After radical surgery, reconstruction of the vagina is required to preserve the sexual function. In 1989, the neurovascular pudendal-thigh flap (Singapore flap)⁶ was first described as a new technique for vaginal reconstruction. Because of the simplicity and reliability of this technique, it is thought superior to other flaps. We report the case of a 66-year-old woman with malignant melanoma of the vagina and its

reconstruction with pudendal-thigh flaps after extended resection.

CASE REPORT

A 62-year-old woman presented with a 3-week history of touch bleeding of the vulva. Physical examination revealed a vulva tumor about 4×3 cm² in size (Fig. 1). Malignant melanoma was the impression. She took a positron emission tomography (PET) scan that the result revealed no lymphatic or other distant metastases. She then underwent radical excision of the vulva, superficial inguinal lymph node dissection, total urethrectomy, and cutaneous vesicostomy.

After surgery, the perineogenital defect was about 10×6 cm². The pudendal-thigh flap, based on the internal pudendal artery, was designed and harvested from the bilateral groin region. The size was estimated at 15×4cm² in each side (Fig. 2). Bilateral subcutaneous tunnels were dissected, and the flaps were passed through and then placed in the defect. The donor site was closed with Vicryl and Nylon. The pathological report confirmed it was a malignant melanoma (Fig. 3)

After surgery, the patient was transferred to an ordinary ward for postoperative care. The wound healed well and the patient was discharged 10 days later. At 6 month followed-up, both donor sites and recipient sites had recov-

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Fig.1 Malignant melanoma involved labial major, minor, urethra and upper third vagina.

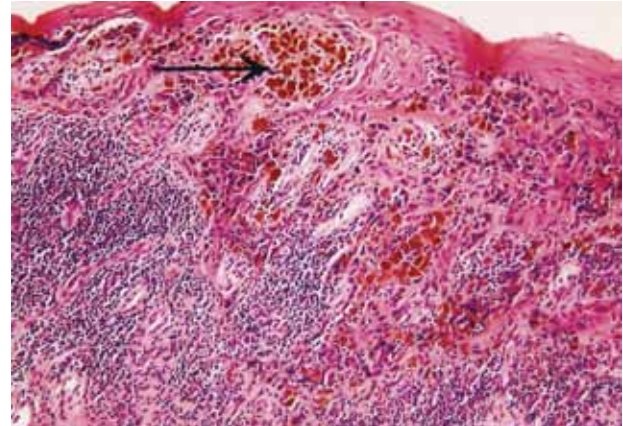


Fig.3 Histology of tumor: There are nests of anaplastic cells (black arrow) with occasional junctional activities and heavy melanin pigmentation displaying both epithelioid and spindle cell morphology (hematoxylin and eosin, $\times 100$).

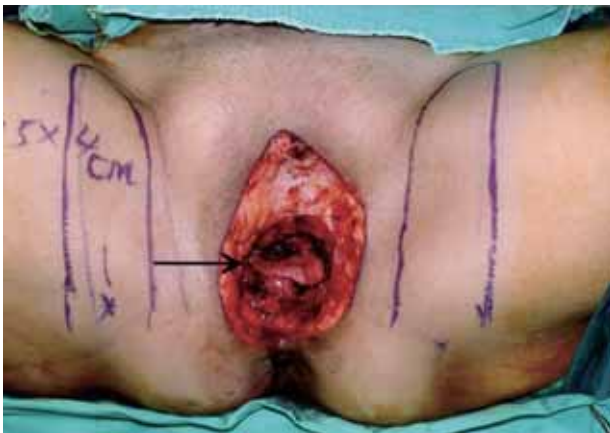


Fig.2 (1) The defect after wide excision of perineum, urethra and upper third of vagina was showed(black arrow). (2) The pudendal thigh flap based on internal pudendal artery(marked with star mark*) was designed, $15 \times 4 \text{ cm}^2$ bilaterally.



Fig.4 The flap survived well and wound healed nicely with acceptable appearance and minimal scar 6 months post operation.

ered smoothly. The anatomical and functional results were good(Fig. 4). No recurrence of melanoma was noted.

DISCUSSION

Vaginal melanoma accounts for only a few genital malignancies. The most frequent symptoms are vaginal bleeding, discharge and lump feeling over the vagina. Because of poor prognosis, the treatments of vaginal melanoma are still controversial. Previously, conservative treatment was recommended. Some studies showed that

the long-term survival rate after radical surgery is not superior to conservative surgery⁷. Radiotherapy, local excision, and chemotherapy have not shown satisfactory results⁴. Nevertheless, radical surgery has only recently been favorably used for treating aginal melanoma. When a patient has nodal and distant metastases, the potential benefits of the radical surgery are greatly reduced⁸. The vaginal mucous membrane has abundant lymphatic and vascular supplement. It had been reported that 50% of patients have tumor positive lymph node and nearly 20% of patients have distant metastases at the disease

presentation^{9,10}. To assure the benefits of the radical surgery and improve survival rate, it is necessary to exclude lymphatic and distant metastases before performing radical surgery. Our patient received a PET scan, which revealed no lymphatic or distant metastases. She thus underwent radical surgery.

After radical surgery, reconstruction is important and necessary to maintain patients' quality of life, including wound healing, body image, and sexual function. Jurado et al. proposed that reconstruction of the vagina at the time of pelvic exenteration can be done safely and the morbidity rate was low¹¹. To date, many methods of vaginal reconstruction have been described. The gracilis flap is used widely for vaginal defects^{6,12}, and vertical rectus abdominis myocutaneous flap (VRAM flap)¹³, gluteus maximus fasciocutaneous V-Y advancement flap¹⁴ have been described. These flaps needed extensive dissection, and the incidence of flap necrosis is high. Donor site morbidity is also high. In 1989, the Singapore flap was described as a new technique for vaginal reconstruction. The flap's innervation is from the posterior labial branches from the pudendal nerves and the blood supply is from the perineal artery. It was demonstrated in 3 successful cases: an adult with total pelvic exenteration for malignancy, and two children with congenital anomalies⁷.

There are many advantages of vaginal reconstruction using Singapore flap. It can provide innervation of the erogenous zones of the perineum and upper thigh that can provide a sensate sexual function. The blood supply of the flap is reliable, and can decrease the risk of flap loss. The flap technique creates a stable neovagina that is independent of stenting and dilatation to maintain its dimensions. In addition, the linear scar of the donor site is well hidden in the groin crease.

In conclusion, pudendal-thigh flap is suitable for vaginal reconstruction because of the one-stage operation, the flap is sensate and linear scar is hidden in the donor site.

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