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What is This?
Hemipelvectomy and Reconstruction in a Patient With Advanced Marjolin’s Ulcer: A Case Report

Bruno Carlesimo,1 Cristiano Monarca,1 Maria Ida Rizzo,1 Francesca Tariciotti,2 and Sabina Staccioli2

Abstract
Patients with squamous cell carcinoma of the lower limb may exhibit locally advanced or metastatic disease. Surgical resection to control the primary tumor is often extensive. The case of a 51-year-old man with squamous cell carcinoma on Marjolin’s ulcer affected, rapidly growing, and involving soft and bone tissues is described. Treatment required performing a hemipelvectomy. Immediate reconstruction was chosen as surgical procedure planning the harvest of 4 superficial muscles and 1 deep muscle of the abdomen to protect the pelvic content and to eliminate the dead spaces. The chosen technique minimized postoperative complications, and at 7 years follow-up, the patient is disease free.

Keywords
squamous cell carcinoma, malignant pelvic tumor, Marjolin’s ulcer, hemipelvectomy

Methods and Materials

The patient was a Caucasian 51-year-old man, managed at Department of Plastic and Reconstructive Surgery of “La Sapienza” University, Rome and Paraplegic Centre of Ostia, Rome in January 2004.

In 1969, following a road accident, the patient suffered serious medullary injuries that left him paraplegic. In 2001, the patient was treated for trochanter decubitis ulcer and an infection of the left femoral head. The pressure ulcer became chronic and the patient was admitted to our department for chronic wound management, and an incisional biopsy highlighted SCC in 2004. Because the pelvic bony and the soft tissues were involved, a neo-adjuvant radiotherapy was done with poor results.

At preoperative evaluation it was observed that the SCC had developed on the preexisting scar and it was ulcerated (see Figure 1). The SCC was localized on the left proximal thigh. Metastatic disease was evident on clinical evaluation,
including regional lymph nodes, subcutaneous in-transit and contiguous metastases. Bone biopsies of the pelvis showed SCC involvement. As the SCC had quickly grown toward the soft and bone tissues, hemipelvectomy with immediate reconstruction was planned (see Figures 2, 3, and 4).

The tumor needed to be removed with wide disease-free margins. This necessitated the sacrifice of a wide homolateral pelvis area and the lower limb neurovascular bundles. The patient underwent, under general anesthesia, radical extended left-hemipelvectomy with leg amputation, including the sacroiliac joint, lymph nodes dissection, and reconstructive procedure under general anesthesia.

Our surgical procedure was conducted by an anterior incision between Colles’s fascia and Scarpa’s fascia up to the left iliac anterior–superior spine; posterior incision along the left iliac crest up to the gluteus maximum muscle; disarticulation with opposite pelvic bone by amputation of the synphysis pubis; and disarticulation with the sacrum. Reconstructive procedure was performed to provide an adequate soft tissue in order to eliminate dead spaces, to suitably cover the wound, and to secure the peritoneal defect. We therefore harvested local pedicled muscle-based flaps of 4 superficial muscles and a deep muscle of the abdomen. The superficial muscles were obliquus externus abdominis, obliquus internus, transversalis, and rectus. The deep muscle was quadratus lumborum. So, we avoided dead spaces, covering the exposed tissues, and reconstructing residual wound.

Surgical specimen examination pointed out mainly undifferentiated cells with scattered foci of SCC with keratin pearls. Histological analysis of locoregional nodes confirmed metastatic spread. Both chronic wound and scar were neoplastic, describing a Marjolin’s ulcer. Tumor margins were classified as being disease free.
Postoperative time was uneventful and no additional therapy was required. Follow-up time was 84 months. At 3 years’ follow-up, patient showed a developing subcutaneous nodule in the sacral area. A biopsy excluded any local recurrence of the cancer. During this check-up, a uretheric bladder calculus was diagnosed. A bladder cutaneous fistula had also developed. Therefore, the patient had the calculus removed. The postoperative course was uneventful without flap loss, infection, local cellulites, locoregional recurrence. At 7 years’ follow-up, the patient is disease free, has a satisfactory job, and is happy with his quality of life. He has not experienced phantom limb syndrome.

Discussion

Marjolin’s ulcer describes the neoplastic changes of a chronic ulcer. Squamous cell carcinoma developing from Marjolin’s ulcers shows a more invasive biological behavior than SCC developing by itself. Chronic ulcer and scars were the main predisposing factors. This report describes a skin SCC of the left proximal thigh developed on a Marjolin’s ulcers evolved from a pressure sore and scar. The neoplasm was rapidly growing and involving the soft and bone tissues; its treatment required hemipelvectomy that has offered the patient a disease-free life.

Tumor stage is reported to influence survival: The 5-year survival rate was 100%, 50%, 48%, and 18% for stages I, II, III and IV, respectively. The margin of resection was found to be important. Patients with margins >1 mm had a 100% 5-year survival compared with 0% for patients with tumor at or within 1 mm of the margin of resection. Shiuet al27 reported that depth of invasion was important: The 5-year survival was 18% in patients with bone invasion. In these patients, the poor prognosis may justify aggressive resection, including amputation.28 Aust and Absolon reported the first successful hemipelvectomy that was carried out for the treatment of a SCC arising in a sacral decubitus.3 Unfortunately, aggressive surgical resection is associated with frequent postoperative complications (42%, frequently wound infection and flap necrosis) and mortality up to 11% with a median survival of 28.0 months (range 0-144 months).3 We consider our choice of treatment of an advanced SCC of the lower limb involving the pelvis, that is, a hemipelvectomy with wide margins resection to be the correct one not only technically but also because the patient is alive 7 years after surgery and is happy.

In summary, tumors of the proximal thigh, groin, and peracetabular region were routinely treated with hindquarter amputation, the classic hemipelvectomy. This resulted in a high complication rates and discouraging functional and psychological outcomes.3 Modifications over the past few decades have altered the surgical approach.

Declaration of Conflicting Interests

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