Total glans resurfacing for "in situ" squamous cell carcinoma of the penis

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Abstract

Introduction and objectives: The true incidence of premalignant lesions or low stage / grade penile tumors is often underestimated, these problems being treated by dermatologists. When topic treatments fail, the cases are referred to the urologist. Surgery with its mutilating consequences can be considered an overtreatment, therefore conservative techniques like glans resurfacing must be taken into account. The aim of this paper is to present the case of a 67 year old male with squamous cell carcinoma who underwent glans resurfacing.
Materials and Methods: We present the case of a 67-year-old male with superficial penile lesions and no notable co-morbidities who was diagnosed after a glans biopsy with Queyerat eritroplasia. After diagnosis, the patient underwent topical treatment with 5-fluorouracil (5-FU). Due to bleeding occurring from the lesion after sexual contact, the patient repeated the biopsy 6 months later. The result was "in situ" squamous cell carcinoma. After a full body CT scan (recommended by the dermatologist), that turned out uneventful, the patient was referred to out department. We decided to perform glans skin excision with resurfacing. After we placed the urinary catheter, the glans skin was excised and multiple biopsies were taken from the spongiosal tissue. The circumference and length of the remained defect was measured. Then we harvested a full thickness skin graft from the abdominal left flank wall using a geometric pattern. The donor site defect was closed and the harvested skin was quilted over the spongiosum using 4/0 Vicryl sutures. We used a tie over dressing at the end of the surgery.
Results: The pathological report was: "in situ" squamous cell carcinoma. The biopsies from the remaining spongiosal tissue turned out negative for cancer. The urinary catheter was suppressed the second day after surgery and the patient was discharged in the third day. The dressing was removed in the 7th day postoperatory. At the 3-month follow-up, the cosmetic penile aspect was excellent and the patient presented good functional results, having returned to a full sexual activity.
Conclusions: Primary premalignant glans lesions and "in situ" SCC can be safely treated using TGR even for patients with failed topical treatments, resulting in an optimal aesthetic, functional and psychological outcome as well as an improved quality of life. A close follow-up in necessary in order to rapidly diagnose possible recurrences.

Keywords: total glans resurfacing, squamous cell carcinoma, penis

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Introduction

Carcinoma of the penis represents a rare event, in Europe having an incidence of 0.1 - 0.9 per 100 000 males. Most lesions are represented by tumors of the glans and prepuce [1,2]. Risk factors associated with penile carcinoma are represented by a large variety of sexual partners, age, cultural, hygienic, and religious practices [3,4]. Human Papiloma Virus (HPV) is identified in most cases on intraepithelial neoplasia and in almost half the cases of patients who presented with invasive penile cancer [5]. In Europe and the United States, squamous cell carcinoma (SCC) represents only a small proportion (0.4 - 0.6 %) of all cancers in men and 2% of male genital cancers [6]. The true incidence of premalignant lesions or low stage / grade penile tumors is often underestimated, these diseases being sub optimally treated with topical procedures.

When topic treatments fail, the cases are referred to the urologic surgeon. Classic surgery for penile cancer, with its mutilating consequences, is in numerous cases considered an overtreatment. Therefore, conservative techniques like total glans resurfacing (TGR) must be taken into account. Minhas S. et. al is among the first to conclude that the traditional 2 cm excision margin is not compulsory in order to obtain good oncological control in patients who undergo surgery for SCC of the penis [7].

Objectives

The aim of this paper is to present the case of a 67 year old male with "in situ" SCC who underwent TGR.

Materials and Methods

We present the case of a 67-year-old male with multiple reddish superficial penile lesions that bled after sexual intercourse. The patient was first treated with topical corticosteroid ointment that failed to accomplish any improvement. Afterwards the dermatologist diagnosed him after a glans biopsy with Queyerat eritroplasia.

After diagnosis, the patient underwent topical treatment with 5-fluorouracil (5-FU). Due to repeated bleeding occurring from the lesions again after sexual intercourse, the patient repeated the biopsy 6 months later. The result was "in situ" SCC (see **figure No.1**).

Fig.1- "in situ" SCC

After a full body CT scan (recommended by the dermatologist) that turned out uneventful the patient was referred to our department. He was in a good biological status, with no other co-morbidities.

After a full check-up, we decided to perform glans skin excision with resurfacing. The first step of the procedure was to place a Tourniquet at the base of the penis after inserting a 16 Fr Foley catheter. Then, we made the incision of the glans, first on the ventral part starting from the external urethral meatus on the midline and ending on the coronal sulcus. The second incision was from the posterior part of the glans starting at the external urethral meatus on the midline and ending on the coronal sulcus again. The third incision was a circular incision at the coronal sulcus (See **figure No.2**).

Fig.2- Incisions in the glans

Having the incisions made, we started a careful dissection of the glans skin. The whole glans skin and a minimal underlying spongiosal tissue were excised (see **figure No. 3**).

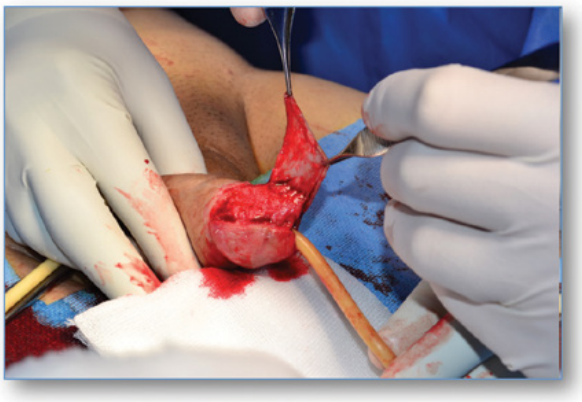

Fig. 3- glans skin removal

We took several biopsies of the corporus spongiosum from the places were the patient presented the most important glans lesions, and the frozen sections were negative for cancer. The next step was to measure the glans defect in circumference and length (see **figure No.4**).

Fig. 4 - Measuring the glans defect

Basically the truncated cone shape of the glans was transposed in plane using a mathematical pattern. This helped us to precisely harvest the skin graft optimally matching the glans defect. The obtained shape was drawn on the abdominal left flank or left iliac fossa skin and a split thickness skin graft was harvested using the scalpel. Afterwards the donor site wass closed anatomically (see **figure No.5**).

Fig. 5 - Harvesting the skin graft

Following this step of surgery we then started to prepare the graft, making small openings to allow the excess blood from the corporus spongiosum to exteriorize and not build up under it.

We then quilted the skin graft on the corporus spongiosum defect using separate 4/0 Vicryl sutures (see **figure No. 6**). At the end of surgery we used a tie over dressing.

Fig. 6 - Quilted graft, final aspect

Results

The histopathological report was: "in situ" SCC. The biopsies from the remaining spongiosal tissue turned out negative for cancer. The urinary catheter was suppressed the second day after surgery and the patient was discharged in the third day. The dressing was removed in the 7th day postoperatory. At the 3-month follow-up, the cosmetic penile aspect was excellent and the patient presented good functional results returning to a full sexual activity (see **figure No. 7**).

Fig. 7 - Aspect at 3 months

Discussions

Carcinoma of the penis is a debilitating condition. In response to a crippling procedure as partial penile amputation, which determined huge psychological and physical impact with direct consequence on sexual activity, normal urination, and overall quality of life, new organ sparing procedures have emerged.

Topical ointments, laser or radiotherapy are appealing procedures, but lack in oncological control. Studies show a recurrence rate as high as over 30% [8,9,10].

Glansectomy with the preservation of the corpora cavernosa obtains an improved quality of life due satisfactory sexual function, less psychological impact and also oncological control as concluded by different authors [11,12]. TGR represents a new surgical approach in localized SCC of the penis that in selected cases improves sexual activity compared to glansectomy due to better-conserved sensibility, overall esthetic aspect and an unaltered psychological impact. Regarding sensibility and sexual ability after surgery, Palminteri E et al. found it unaltered in their patients, as we observed it in our case [13]. Being a procedure in our opinion that must be performed only in selected cases (premalignant lesions, in situ SCC, compliant patients) the follow up must be rigorous.

When a clinical and pathological diagnosis of an "in situ" SCC of the penis is established, glans skin removal and resurfacing is a proper and safe option.

Partial glans excision and resurfacing as demonstrated by Shabbir et al. have a rate of positive surgical margins as high as 67% with the statement that 4 out of 10 patients had invasive SCC on the excised specimen [14]. A possibility is that the patients had microscopic CIS at the time of surgery. This emphasizes the requirement of a "total" glans resurfacing in these patients, as well as a good quality biopsy before surgery al least for the given moment.

Regarding oncological control, studies having the largest number of patients with "in situ SCC" who underwent TGR, report a recurrence rate that varies from 0 to 4% [14, 15]. Performing TGR for "in situ" SCC involves several safety measures. A good quality biopsy that has enough tissue depth in order to have a precise diagnosis, excluding invasive lesions that force other approaches, is mandatory. Frozen section biopsies from the underlying spongiosal tissue are also important to exclude invasive SCC. A close follow-up is imperative in order to diagnose further suspect lesions that are superficial and for which a biopsy can easily be obtained.

Conclusions

Primary premalignant glans lesions and "in situ" SCC can be safely treated using TGR even for patients with failed topical treatments.

This procedure results in an optimal aesthetic, functional and psychological outcome as well as an improved quality of life.

A close follow-up in necessary in order to rapidly detect and diagnose possible recurrences.

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