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Glans Resurfacing in Carcinoma *in situ* of the Penis: A Case Report

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Authors' contributions

This work was carried out in collaboration among all authors. Author RC designed the study and wrote the first draft of the manuscript. Authors AC, DP, TC and RC performed the surgery and assisted in the literature search. Authors RC and MJG assisted in data collection. Author JCP performed the pathological study. Authors CF, MC, FCR and RP revised the manuscript. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Aims: Penile cancer is an uncommon malignancy in Western countries. There are known premalignant lesions that can progress to invasive penile cancer, namely carcinoma in situ (CIS) of the glans. Treatment options for this disease include topical chemotherapy and laser ablation, but the published literature demonstrates limited efficacy for these approaches. Surgical techniques with penile-preserving approaches are performed with the goal of removing the entire tumor and preserving as much of penis as possible. There are no large, randomized studies comparing treatment options for these lesions, and reports concerning the surgical approaches are scarce.
Presentation of Case: In this study, we present a case report of a patient with CIS of the glans penis surgically treated with glans resurfacing.
Discussion and Conclusions: There were no complications during follow-up, and after 20 months, the patient has no evidence of disease recurrence, has preserved urinary and erectile functions and is currently satisfied with the cosmetic appearance.

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CIS treatment with glans resurfacing allows the maintenance penile length and function with a good aesthetic result without compromising oncologic control. This approach also allows an accurate staging of the disease and assessment of the treatment efficacy.

Keywords: CIS; penile cancer; penile-preserving surgery; glans resurfacing.

1. INTRODUCTION

Penile cancer is an uncommon disease in Western countries [1]. The incidence increases with age and most cases occur during the sixth decade of life. The recognized etiological risk factors for penile cancer include with human papilloma virus infection, multiple sexual partners, phimosis, chronic penile inflammation, smoking and low socio-economic status [2].

From all penile malignancies, carcinoma in situ (CIS) is responsible for approximately 80% of the cases at first presentation [3]. It has been reported that about one third of these lesions progress to invasive squamous cell carcinoma of the penis and it has been advocated that these lesions should all be treated as having the potential to transform into an invasive cancer [4].

Treatment of penile cancer lesions is performed with the goal of removing the entire tumor and preserving as much of penis as possible. Since local recurrence seems to have little effect on long-term survival, organ-sparing techniques have been developed, in order to preserve function and obtain a better cosmetic outcome.

There are no randomized controlled trials concerning surgical management of localized penile cancer. Moreover, the literature concerning studies comparing surgical and non-surgical approaches is scarce. Because of its rarity, there are only a few studies in the literature addressing the treatment approaches for these patients.

In this study, we report a case study of CIS of the glans treated with glans resurfacing.

2. PRESENTATION OF CASE

A 57-year-old man, circumcised as a child, with no other relevant past medical history, presented an erythematous lesion on the glans. The patient reported no risky sexual behaviours and mentioned one female sexual partner. A punch biopsy demonstrated CIS (Fig. 1) and the patient was treated with imiquimod and cryotherapy.

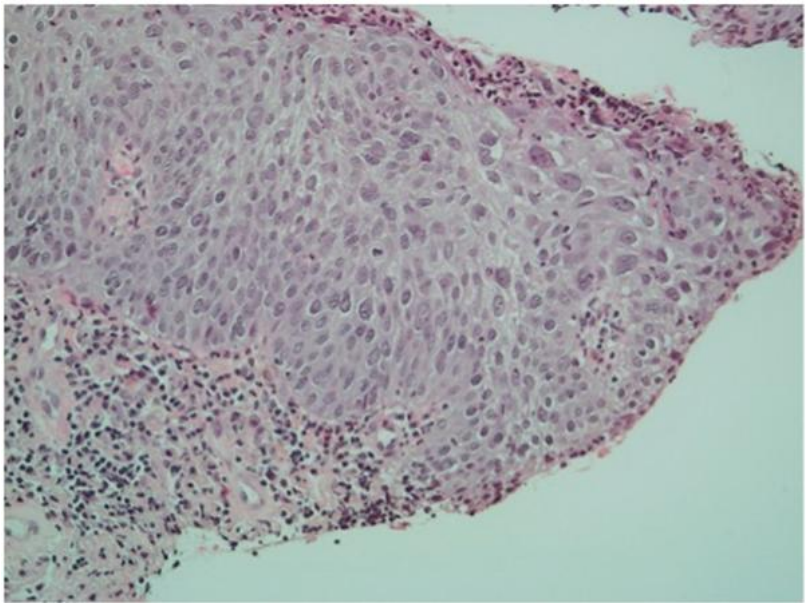

Fig. 1. Carcinoma in situ of the glans

After 2 years, the lesion recurred and a new punch biopsy demonstrated CIS of the glans, with no evidence of invasive disease (Fig. 2).

Fig. 2. Erythematous lesion of the glans penis. The biopsy demonstrated CIS of the glans

The patient was referred to our Urology department and we proposed surgical excision, with glans resurfacing.

There were no palpable inguinal nodes. The surgical technique was performed as previously described [3]. The glans was marked in quadrants and an incision was made from the urethral meatus until the coronal sulcus. The glans epithelium was excised from the corpus spongiosum in each quadrant, and the removed tissues were labeled according to their margins and positioning (Fig. 3).

Fig. 3. Surgical procedure: the glans was marked in quadrants from the urethral meatus until the coronal sulcus and the glans epithelium was excised from the corpus spongiosum. We labeled the margins and positioning of each quadrant

A split skin graft was collected from the thigh and was sutured to the penile skin at the level of the external urethral meatus and at the coronal sulcus. The graft was quilted over the glans with interrupted sutures (Fig. 4).

Fig. 4. Surgical procedure: a split skin graft collected from the right thigh was used to overlay the glans. The graft was sutured to the penile skin at the coronal sulcus and external urethral meatus and was quilted over the glans with 5-0 interrupted absorbable sutures

Finally, we placed a bladder catheter (14Fr) and the glans was covered with humid gauze. On the 7th day, the covering and the bladder catheter were removed. All surgical margins were negative and there were no post operatory complications (Fig. 5).

Fig. 5. Cosmetic outcome after 3 months of follow-up

After 20 months of follow-up, the patient has no symptoms, is satisfied with the cosmetic appearance, has preserved urinary and erectile

functions and presents no evidence of disease recurrence.

3. DISCUSSION AND CONCLUSIONS

Treatment options of CIS include topical chemotherapy with imiquimod or 5-fluorouracil, laser ablation and surgical techniques with penile-preserving approaches, as total or partial glans resurfacing [2].

Topical chemotherapy with imiquimod and 5-fluorouracil can be used as first-line treatment. However, although these agents present low toxicity and adverse effects, the efficacy seems to be limited [5,6,7]. Moreover, since these lesions have a high frequency of persistence and recurrence, a close and long-term follow-up of the patients is mandatory and repeated biopsies can be required, in order to ensure total eradication of the lesion and exclude tissue invasion. In case of topical treatment failure, it should not be repeated.

According to the 2019 European Association of Urology guidelines, glans resurfacing can be used as a primary treatment approach for CIS [3]. The surgical treatment not only removes the lesion but also allows a more accurate histopathologic staging, detailed evaluation of the surgical margins, while preserving penile length and function and permitting a good cosmetic appearance.

There are few published studies addressing the surgical procedure of glans resurfacing in these patients [3,8-12]. The largest study was published by Shabbir and co-workers who described a series of 25 CIS patients treated with partial or total glans resurfacing, reporting an overall recurrence rate of 4% and no cases of disease progression after 29 months of follow-up [3]. Another study reported 10 patients treated with total glans resurfacing with no recurrent cases after 30 months [8]. Palmienteri and co-workers published a study describing the technique for total glans resurfacing on 5 patients, also with no evidence of disease recurrence after 30 months of follow-up [9]. Chipollini and co-workers [10] evaluated recurrence rates of patients with CIS after penile-sparing surgery in a multicenter study, which included 22 patients treated with glans resurfacing, and the authors report one recurrence (4.5% of the cases) with a median follow-up of 40 months.

In our case, although with limited follow-up time, the patient has no evidence of recurrence, is satisfied with the cosmetic appearance and has preserved urinary and erectile functions.

CIS treatment with glans resurfacing allows the maintenance of the length of the penis, with function preservation and a good cosmetic outcome without compromising oncologic control. The surgery also allows an accurate staging of the disease and assessment of the treatment efficacy. In the case of positive surgical margins, further re-excision can be performed, with a very low risk of progression [2].

CONSENT

All authors declare that written and informed consent was obtained from the patient for publication of this case report and accompanying images.

ETHICAL APPROVAL

All authors hereby declare that all experiments have been examined and approved by the appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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