

Case report

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Mohs micrographic surgery in the treatment of penile cancer

A cirurgia micrográfica de Mohs no tratamento do câncer de pênis

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RESUMO

O câncer de pênis é um tumor raro, mas que apresenta grande impacto na qualidade de vida dos pacientes. No Brasil, a incidência é de 5,7 casos/100.000 homens/ano, representa 2% de todos os tipos de câncer que acometem homens no país e, em 2015, culminou em 402 mortes. O tratamento tradicional é a penectomia total com uretostomia perineal e consequente perda da manutenção das funções sexuais e urinárias normais. Para a preservação da função peniana, a cirurgia poupadora de órgão é preferida quando possível e a cirurgia micrográfica de Mohs conFigure-se em uma importante alternativa cirúrgica.

Palavras-chave: Carcinoma de Células Escamosas; Cirurgia de Mohs; Neoplasias Penianas

ABSTRACT

Penile cancer is a rare tumor that has a significant impact on patients' quality of life. In Brazil, the incidence is 5.7 cases/ 100,000 men/year, representing 2% of all types of cancer affecting men in the country and, in 2015, it culminated in 402 deaths. The traditional treatment is total penectomy with perineal urethrostomy and the consequent loss of normal sexual and urinary functions. For the preservation of penile function, organ-sparing surgery is preferred when possible, and Mohs micrographic surgery is an essential surgical alternative.

Keywords: Carcinoma, Squamous Cell; Mohs Surgery; Penile Neoplasms

INTRODUCTION

Penile cancer is a rare tumor worldwide, but it has a great impact on patients' quality of life. According to a Colombian study of systematic review and meta-analysis carried out in 2017, the incidence of penile cancer worldwide is 0.84 cases per 100,000 men/year, with the highest incidence rate found in Romania: 7.6 cases per 100,000 men/year. Brazil approaches the upper mark, with an incidence of 5.7 cases/100,000 men/year.¹

According to the National Cancer Institute (INCA), the malignancy corresponds to 2% of all types of cancer that affect men in the country and that, in 2015, culminated in 402 deaths.² The most common sites of involvement in decreasing order are: the glans, the foreskin, and the penile shaft³. Traditional treatment is partial or total amputation of the penis associated with urethral reconstruction and consequent loss of ability to main-

tain sexual intercourse and normal urinary functions.³

In a survey conducted by Opjordsmoen, S et al, men with penile cancer would choose the treatment with the lowest long-term survival to increase the chance of being sexually potent.⁴ Therefore, to preserve penile function, today organ-sparing surgery is preferred when this possibility exists.

We present a case of a 46-year-old patient with moderately differentiated squamous cell carcinoma in the glans, who opted for surgery with margin control by cutting and freezing intraoperative to preserve the male organ.

CLINICAL CASE

A 46-year-old male patient with phototype III attended the dermatology clinic referred by the urology team for evaluation of a hardened, ulcerated consistency plaque on the glans for 1 year. He had a history of moderately differentiated invasive squamous cell carcinoma (SCC) in the glans 10 years ago, approached with partial penectomy and inguinal and pelvic emptying by laparoscopy, with one positive lymph node. He denied risky sexual behavior. After partial penectomy, the patient got married and had three children. On physical examination, he presented hypochromic stains on the penile glans and a hardened erythematous-hypochromic plaque with central ulceration on the ventral face of the glans (Figure 1). A biopsy was performed on the lesions that showed moderately differentiated SCC with an infiltrative growth pattern, with no identified angiolymphatic invasion and penile intraepithelial neoplasia. Computed tomography of the abdomen and pelvis showed no evidence of lymph node metastasis. In view of the findings of a new malignant lesion restricted to the glans, the tumor staging was T1aN0M0, with imprecise clinical limits. To preserve sexual function, Mohs Micrographic Surgery (CMM) was chosen in a joint approach with the urology team. We marked the clinical limits of the lesion (Figure 2), antisepsis, field placement and local anesthesia with Klein's solution. Excision of the visible tumor was performed with a scalpel angled at 90°, a stage known as Debulking (Figures 3 and 4). Then, the surgical defect was enlarged by 2mm, deeply and peripherally, with resection of part of the distal urethral mucosa, configuring the 1st. CMM stage (Figure 5). In this stage, before the complete removal of the fragment, cross-sectional markings were made (Nicks), which served as a reference in the perilesional tissue for correct mapping of possible margins to be enlarged. The excised part was divided into four fragments that were placed in gauze with standardized orientation, stained and named A1, A2, A3, and A4, for making the histological slide by freezing and topographic map (Figures 5 and 6). After histopathological analysis, tumor-free margins and foci of penile intraepithelial neoplasia reaching the edges of fragments A3 and A4 (figures 6 and 7) were found. Primary closure was performed (figure 8) after defining the subsequent clinical treatment of the other lesions identified at the anatomical pathological examination.

DISCUSSION

Penile cancer affects mainly men in the sixth and seventh decades of life, and may also affect younger men.



FIGURE 1: Erythematous hypochromic plaque with inaccurate boundaries and ulceration in the center, ventral glans face, on the left



FIGURE 2: Image showing the marking of the clinical limits of the tumor lesion

The mutilating potential of therapeutic surgical approaches permanently and significantly affects the quality of life of these patients. Recent studies emphasize that the histopathological characteristics of these tumors and the absence of lymph node involvement are more significant prognostic factors than the aggressiveness of surgical treatment.⁵ The most common histological variant is SCC, which corresponds to more than 95% of cases.³ Organ preservation can be achieved through non-surgical therapies such as external radiotherapy, brachytherapy, and topical immunomodulators. However, these are limited options in more advanced cases and have several undesirable consequences.⁶ All patients must be circumcised before considering conservative non-surgical treatment.³ The option for radiotherapy involves high rates of radiation, with proportionally high rates of urethral stenosis, fibrosis, and penile necrosis, and has higher failure rates than partial penectomy.⁷ Topical immunomodulators, such



FIGURE 3: Debulking



Figure 5: 1st stage of Mohs micrographic surgery showing deep and peripheral margins enlargement



FIGURE 4: Tumor sample

as Imiquimod 5% or 5-fluorouracil, are effective for carcinomas in situ, have modest cure rates (63%), require daily application for 6–8 weeks, and can make it difficult to identify recurrent disease.⁸

Genital preservation surgeries aim to completely excise the primary tumor and perform local reconstruction, if necessary, to preserve the patient's reproductive and urinary functions.⁹ Genital preservation surgeries are indicated for tumors in situ / Ta / T1 and some well or moderately differentiated T2 tumors and selected cases of T3 stage.^{10,11} The main disadvantage of these procedures is the higher local recurrence rate, which requires quarterly monitoring in the first two years, every six months from the 3rd to the 5th year, and annual until the 10th postoperative year.³

Among the surgical options, we have laser surgery, Mohs micrographic surgery, circumcision, local wide excision, "glans resurfacing", glandectomy, partial penectomy, and total penectomy with preservation of the urethra. Mohs micrographic surgery uses intraoperative microscopic evaluation to ensure complete tumor excision with maximum preservation of normal perilesional tissue. It has excellent cure

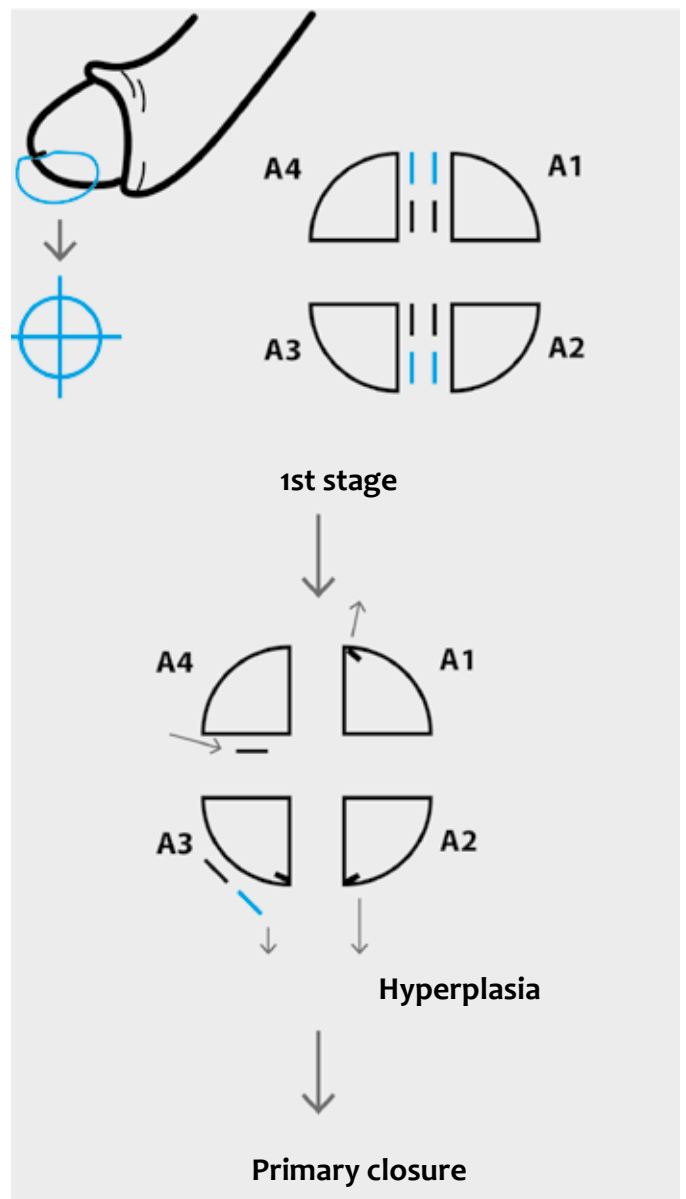


FIGURE 6: Topographic map of Mohs micrographic surgery

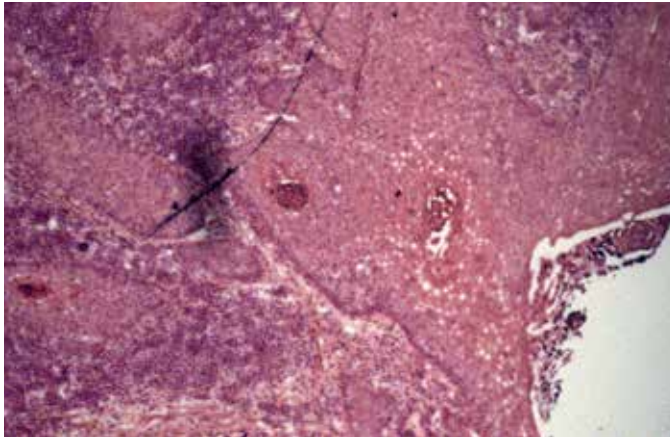


FIGURE 7: Cut and freeze blade photo: Proliferation of atypical squamous cells, with formation of projections that infiltrate the dermis, coexisting hyperkeratosis, dyskeratosis, and chronic lichenoid inflammatory activity



FIGURE 8: Primary closure of surgical defect

rates for SCC from other locations, but the literature shows recurrence rates of 26–32% when located on the penis.^{12,13,14}

However, a study shows that with the strict maintenance of oncological surveillance and consequent re-approaches when necessary, the overall survival rates are excellent and the rates of progression are low.¹⁵ The same study considers that Mohs micrographic surgery should not be limited to the approach of low-grade, small, and superficial tumors as was suggested in the older literature, but that it should be used as a treatment strategy for tumors with urethral involvement, saving patients from total or partial penectomies.¹⁵ The recurrence rate found

in this study was 11.1% and the re-approach of these patients with new Mohs micrographic surgery showed a final cure rate of 100%, both in cases of SCC in situ (mean follow-up of 72.5 months) and invasive SCC (mean follow-up of 77 months). In view of the great psychosocial impact of aggressive penile cancer treatment and the possibility of management with preservation of sexual and urinary functions associated with good overall survival rates, we believe that the best approach is one that allows the maintenance of quality of life despite the need for more frequent and prolonged follow-ups. ●

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