Case report: Penile cancer treated by Mohs micrographic surgery

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ABSTRACT
Penile cancer has a high incidence in developing countries. The gold standard treatment is penectomy, however, due to its mutilating nature, organ-preserving techniques such as Mohs micrography have been developed. This is indicated in small and low-grade invasive tumors, as well as in situ neoplasia. In this regard, we report the case of a young patient with a neoplastic injury in the glans, who had undergone Mohs micrographic surgery and who achieved satisfactory aesthetic, functional, and oncological results. Despite the recurrence, he had a new surgery by the same method with good outcomes.

Introduction
Penile neoplasia is unusual in the United States and Europe while in developing countries there is a dramatic increase. In Brazil, the incidence is around 8.3 cases per 100,000 inhabitants.1

Considering pathology profile, squamous cell carcinoma is the most prevalent, corresponding to 90–95% of all cases and the highest incidence occurs in the fifth and sixth decade of life. However, there is significant occurrence in patients under 50 years of age.1

Major risk factors are phimosis, smoking, lack of hygiene, high number of sexual partners, and infection with the Human Papilloma Virus (HPV). The tumor injuries manifested through small areas of hardening, erythema, ulcerations or infiltrative lesions.2

Biopsy is crucial to confirm suspicion and, when treated in the early stages, has a survival rate of 60–80% over five years. The gold standard treatment is partial or total penectomy. Classically, the free margins considered safe for resection were 2 cm. However, the European Society of Urology (E.U.A.) suggests reducing the lateral margins to 5 mm and 1 mm in depth.3

This change enabled the development of organ preserving techniques, among them the micrographic surgery of Mohs. The best indication is in situ or small, low-grade invasive neoplasia. The greatest benefit is the complete visualization of the injury removal, with negative margins, optimized aesthetic and functional results.3 It follows the report of a young patient with a penile cancer whose conduct was Mohs’ microsurgery. We will discuss oncologic and functional aspects related to this therapeutic approach.

Case presentation
A 32-year-old male patient, sexually active, presented with an ulcerated glandar lesion with several months of evolution, without improvement using topical corticoids self-medicated.

On clinical examination, five lesions in the glans were visualized, smaller than 2 cm, with raised edges and clean bottom (Fig. 1). Palpation of the inguinal regions was negative for lymphadenomegaly. The biopsy confirmed squamous cancer cell.

Micrographic surgery by Mohs was suggested and the procedure was performed in 2016, uneventfully and with closure of the cruciate region through flap rotation. The anatopahology confirmed low grade cancer.

The patient kept regular follow-up for approximately 48 months when he had a local recurrence with the appearance of a 1 cm lesion in the dorsal apical region of the glans, similar to those observed at the...
beginning of the condition, whose recurrence was confirmed by biopsy (Fig. 2).

Because of the excellent aesthetic and functional result of the first approach, along with the patient’s satisfaction, a new micrographic surgery of Mohs was suggested and performed.

At the moment, the patient is in regular follow-up with good oncologic control, satisfied with the procedure (Fig. 3).

**Discussion**

Because it is a stigmatizing and potentially amputative disease, clinical suspicion in penile injuries not associated with sexually transmitted infection or that are refractory to initial clinical treatment is essential. Early diagnosis aims for a curative approach with the possibility of organ sparing surgery.

Among the different techniques used for this purpose there are radiotherapy, brachytherapy, local chemotherapy with Imiquimod or 5 fluorouracil, laser ablation and micrographic surgery of Mohs. The ideal indications are low risk squamous neoplasms, in situ tumor and T1a staging. According to the guidelines of the American Association of Urology (AUA), any tumor staged from T2-weighted sequences should be submitted to total or partial penectomy, while the EAU suggests glandectomy if restricted to the glans.

Mohs et al. published a relapse rate of 26% during a 5-year follow-up in 35 patients with penile cancer. There was no recurrence in lesions smaller than 2 cm, while in those larger than 3 cm was 50%. The results found in this series reinforced the indication of the procedure performed in the patient reported in this article.

Brown et al. identified 29% recurrence in 3 years of follow-up and a 95% specific cancer survival in 20 patients monitored, 11 with invasive neoplasia and 7 in situ consistent with the literature on the same theme.

Shindel and employees found an overall local recurrence rate of 32% in approximately 5 years of follow-up. Among those with carcinoma in situ, 21% presented recurrence, compared to 30% of those with invasive carcinoma. The specific cancer survival was 92% and disease-free 96%. Most cases were reoperated by the same technique with good results, similar to what occurred with the patient in the present study.

Although the recurrence rate of Mohs’ micrography is 20–30%, in contrast to the 5% from partial penectomy with 2 cm margin, there was no difference in the specific and global cancer survival in patients treated with penis preserve surgery of those with more aggressive conduct. The data in the literature corroborate the security associated
to the procedure performed in our patient.

Baumgarten et al. performed a multicenter study with a mean follow-up of 43 years of 1188 patients treated with organ sparing surgery, without involving Mohs’ micrography. The recurrence-free survival in five years was 75% for carcinoma in situ and 71% for invasive tumor. Recurrence needed to be addressed with total or partial penectomy in 19% of the cases, which is a minority of them. Thus, recurrence rates were similar to those found in other specific series to Mohs’ micrography. Like most cases in this publication, the patient in the report was also reoperated with the same technique, with satisfactory outcomes.

Conclusion

The micrographic surgery of Mohs is an option for treatment in specific cases for patients with penile cancer. This technique gives excellent functional and aesthetic results, with satisfactory oncology. Recurrence is high when compared to partial falectomy and strict follow-up is imperative and the treatment can be performed by a new organ sparing surgery techniques.

Conflict of interest

none

Declaration of competing interest

None.

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