Relato de Caso
Melanoma de Pênis
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Conservative Treatment of Penile Melanoma: Case Report and Literature Review

Melanoma de Pênis Tratado Conservadoramente: Relato de Caso e Revisão da Literatura

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Abstract

Melanomas of the penis are highly aggressive malignant tumors. We report on a patient with a lesion confined to the prepuce and with clinically negative inguinal lymph nodes, treated conservatively. The patient underwent wide local excision (WLE) for treatment and histological diagnosis. Treatment of the inguinal region in patients with penile melanoma remains controversial, since the incidence of metastatic disease in those with early pathological-stage disease is significantly lower. Since our patient presented penile melanoma pathological stage T2a (depth 1.9 mm, without ulceration), we chose to use pre-operative lymphoscintigraphy, intra-operative lymph node mapping, and sentinel node biopsy to evaluate inguinal metastatic involvement. Frozen sections in an excised right sentinel node were negative, and no adjuvant treatment was performed. WLE provided effective local control of the penile tumor, and the patient remains under postoperative surveillance.

Key words: Melanoma, Penis, Lymph nodes

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INTRODUCTION

Primary malignant melanoma of the penis is an aggressive neoplasm associated with poor prognosis. There are fewer than 100 cases of this cancer described in the literature, representing approximately 1.4% of all primary penile malignancies and 0.1% to 0.2% of all non-ocular melanomas[1]. The first case report of melanoma of the penis is credited to Muchison, in 1859[2]. As for other sites of male genitourinary melanomas, male urethral and scrotal melanomas are even less common, with approximately 50 and 11 documented cases, respectively [3,4,5,6,7,8,9,10] We now report an additional new case of penile melanoma referred to our institute. Tumor staging was based on the 2002 American Joint Committee on Cancer (AJCC) system for classifying cutaneous melanomas[11]. In this system, pathological tumor stage is based primarily on assessment of the primary tumor's Breslow depth and Clark level. Breslow tumor depth characterizes the vertical thickness of the primary tumor[12], and Clark level characterizes the depth of tumor penetration into the dermal layers and subcutaneous fat[13]. According to the 2002 AJCC system, melanoma pathological stage is T1 when the tumor presents 1.0 mm thickness or less (a - without ulceration; b - with ulceration), T2 1.01-2.0mm (a - without ulceration; b - with ulceration), T3 2.01-4.0mm (a - without ulceration; b - with ulceration), and T4 greater than 4mm (a - without ulceration; b - with ulceration). N0 is categorized by no regional lymph node metastasis, N1 when one lymph node is present (a - micrometastasis; b - macrometastasis), N2 2-3 lymph nodes (a - micrometastasis; b - macrometastasis), and N3 4 or more metastatic lymph nodes, or combinations of in-transit satellite metastasis(es) and metastatic lymphnodes. Similar to patients with mucosal melanoma at other sites, patients with genitourinary melanoma can also be staged by clinical presentation: Stage I, localized disease; Stage II, regional lymph node involvement; and Stage III, distant metastasis[14,15] Our patient presented with Stage I disease and was treated conservatively with wide local excision and removal of a right sentinel lymph node. We used pre-operative lymphoscintigraphy to demonstrate the inguinal sentinel lymph nodes.

CASE REPORT

A 65-year-old white male presented with a pigmented lesion on the ventral aspect of the penis measuring approximately 2.0 x 1.0 x 0.1cm (fig.1). We assessed the patient's clinical and pathological characteristics, including Breslow tumor depth, Clark tumor level, primary surgical intervention, and clinical course. Computed tomography demonstrated no evidence of metastatic pelvic nodal involvement, and chest radiography was normal. The primary lesion was initially excised, revealing a malignant T2a melanoma. Patient was staged using the 2002 AJCC criteria for T2a tumors (1.9mm Breslow tumor thickness, without ulceration). Pathological examination demonstrated a tumor consisting of epithelioid melanocytes with invasion of the reticular dermis (Fig.2). Physical examination did not identify palpable inguinal adenopathy (stage T2aN0M0). Lymphoscintigraphy was performed by intradermal injection of technetium 99m around the tumor area. A sentinel node image was visualized immediately after injection and marked on the patient's skin. Pre-operative lymphoscintigraphy demonstrated a right inguinal sentinel lymph node (fig.3). During intra-operative lymphatic mapping, patent blue dye was injected and sentinel node confirmed with gamma probe. The node was excised and submitted to frozen histological study, which revealed tumor-free lymph node. Additional S-100 and HMB45 immunohistochemistry did not reveal micrometastasis in the sentinel node. The initial tumor excision had left only

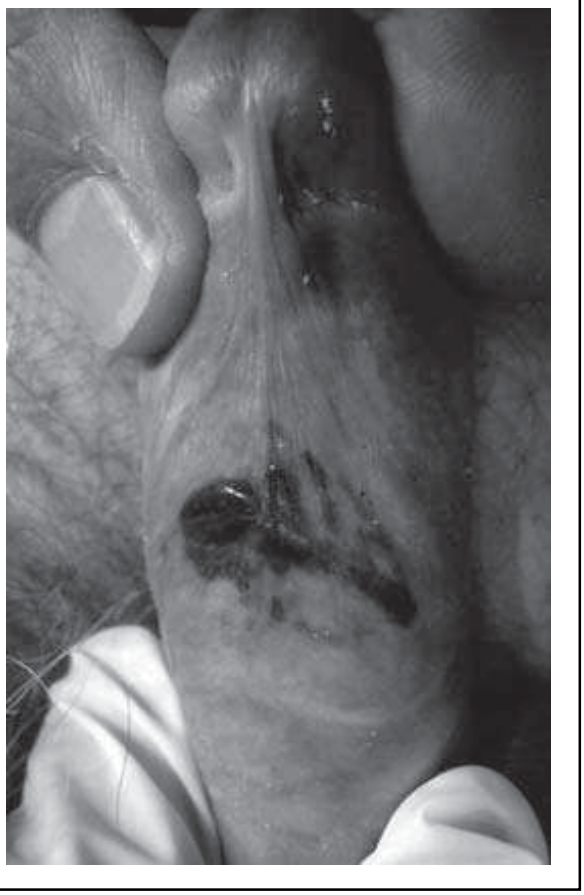

Figure 1. Melanoma of the penis characterized by a dark ventral lesion in the prepuce

a 1.0mm tumor-free margin, and we decided to perform a second, expanded local excision with removal of additional adjacent tissue. We obtained a 2.0cm tumor-free margin, and pathological examination of the new specimen revealed an *in situ* melanoma, residual (Clark level I) and focal (Breslow, not applicable). No adjuvant treatment was performed, and 5 months later the patient is alive with no recurrence or metastasis.

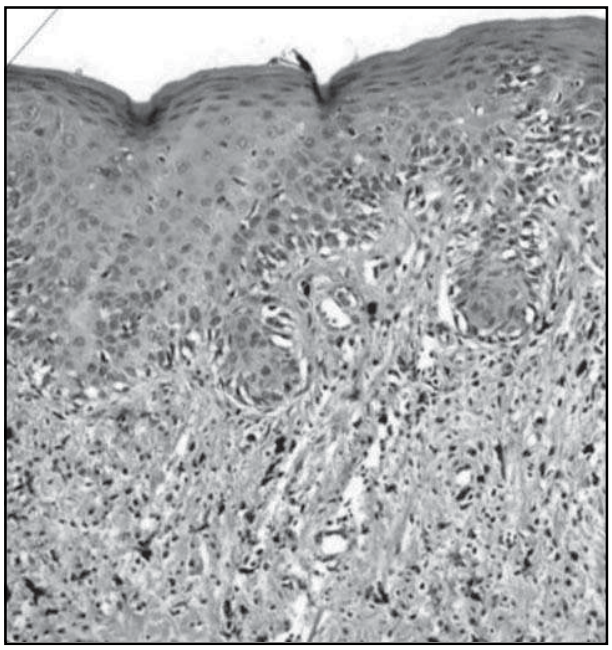

Figure 2. Malignant melanoma with a lentiginous radial growth phase and a tumorigenic but nonmitogenic desmoplastic vertical growth phase (H/E, X 200)

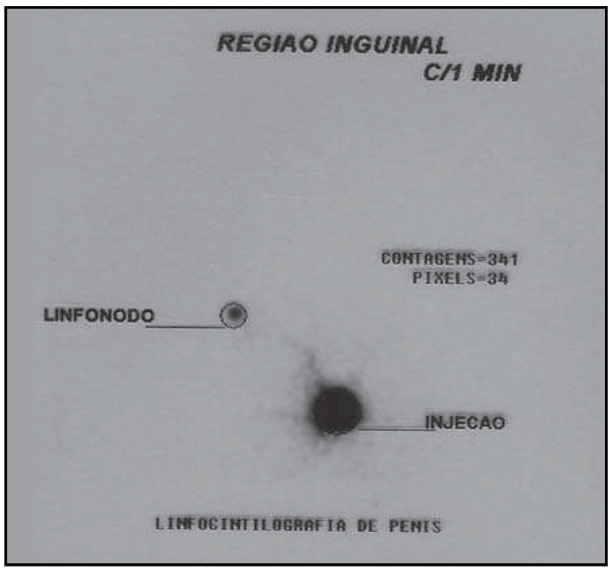

Figure 3. Pre-operative lymphoscintigraphy after injection of the primary tumor with 99technetium labeled sulfur colloid

DISCUSSION

Genitourinary melanoma is rare, and there is little published experience describing the presentation and outcome of patients with the disease. The disease is aggressive, but potentially curable if the pathological characteristics are favorable. Patients are sometimes reticent about seeking medical advice due to fear of malignancy. Since the clinical presentation of this rare lesion can be misleading and its benign versus malignant nature may not be determined accurately on the basis of clinical findings alone[16], the lesion can be misdiagnosed as inflammatory or infectious.

Local control of penile melanoma can be achieved through organ-sparing WLE or partial penectomy in patients with pathological stage T2 based on the 1997 AJCC criteria[17] for T2 tumors (0.76-1.5 mm Breslow tumor thickness and Clark level III tumor penetration) or less melanoma[9]. Partial amputation and wide local excision may not be effective for local control in patients with stage T3 (1997 AJCC criteria), because the cancer can recur in the penis and inguinal lymph nodes after these surgical treatments[17,18]. Controversy exists concerning optimal treatment of localized disease. Several authors propose complete amputation because of the tendency towards local recurrence in the penile stump following partial amputation.[19,20,21] Others maintain that partial amputation or local excision is adequate for primary disease[22,23,24,25,26]. Although penile recurrence may lead to simultaneous inguinal metastases and eventually to death, due to the small number of T3 cases in the literature it is not possible to recommend radical penectomy in all such patients[27]. In our patient, due to the lesion's particular characteristics with tumor confined to the prepuce (stage T2a according to 2002 AJCC criteria and stage T3 according to 1997 criteria), we opted for a penis-sparing strategy using wide local excision. We obtained an adequate 2.0cm tumor-free margin and believe a conservative approach is reasonable if the cancer can be removed with a sufficient margin of normal skin. Stillwell et al.[1] reported on 11 consecutive patients treated conservatively with glans amputation, local excision, and distal third penectomy in a 66-year period. Five of the 11 patients (45%) were rendered disease-free. Furthermore, all patients with lesions 2.5 cm thick or less, including some with stage T3 tumors according to 1997 criteria[17] and pathologically negative nodes were rendered disease-free with these penis-sparing strategies. Closely scheduled and regular follow-up examinations are recommended to detect potential recurrence as early as possible.

Treatment of the inguinal region in patients with

penile melanoma remains controversial. Apparently the metastatic event is intimately related to primary tumor thickness and stage. Inguinal lymphadenectomy is clearly indicated in patients with stage III penile melanoma (palpable nodes present). Recent data presented by Gershenwald et al.[28] suggest that some patients with minimal nodal metastasis who undergo surgery for cutaneous melanoma may be cured.

Although the overall incidence of inguinal lymph node metastases in all patients with penile melanoma has historically ranged from 43% to 62%[1], the incidence of metastatic disease in those with early pathological stage disease is significantly lower. Given the low incidence of metastasis at presentation, a large proportion of patients with clinically negative inguinal lymph nodes may not benefit from prophylactic inguinal lymph node dissection (ILND). In addition, the morbidity associated with traditional ILND excludes this modality for use as a staging procedure only.

Our patient with clinically negative bilateral inguinal lymph nodes underwent sentinel lymph node biopsy after lymphoscintigraphic identification of one right sentinel lymph node. In the present case, we were unable to identify any microscopic metastasis in frozen sections or in H/E stains of the excised lymph node, and the patient is alive with no evidence of disease 5 months after surgical treatment. Additional S-100 and HMB45 immunohistochemistry did not reveal micrometastasis in the sentinel node. Andonian et al.[29] reported a case of penile melanoma illustrating the low sensitivity of frozen sections in the assessment of sentinel lymph nodes. While frozen sections and H/E stains were negative, S-100 and HMB-45 immunohistochemistry revealed micrometastasis in one sentinel node. This case illustrates that any discussion with the patient about management and prognosis should be postponed until the results of immunohistochemistry. Since inguinal lymphadenectomy should be performed in all patients with positive sentinel node biopsy, we should be aware of the possible pitfalls in detecting a microscopic metastasis in a lymph node during frozen section evaluation.

The lymph node sentinel biopsy is intended to rationalize and reduce unnecessary lymph node dissection, reducing morbidity and mortality for this high malignancy. In one multivariate analysis, a negative sentinel node biopsy was shown to be the most important predictor of recurrence and survival in patients with low stage melanoma at other cutaneous sites[30]. However, experience with this technique in penile melanoma cases is limited due to the rarity of the disease. In our case, this procedure was useful for excluding local metastatic involvement. We are still studying the efficacy of this procedure for patients with other histological types of penile carcinoma.

CONCLUSIONS

The optimal treatment for penile melanoma has not been established. Radical surgery was formerly the standard treatment, but conservative surgery has been proposed more recently. Local control of penile melanoma can be achieved through organ-preserving WLE in patients with localized disease. Surgical resection with generous clear margins should be performed, although cancer can recur in the penis associated with a rate of consequent regional lymphatic tumoral propagation. Dissection of the regional lymph nodes should be considered as adjuvant surgical treatment in patients with palpable nodes. Evaluation of the lymph node basin can be achieved through sentinel node identification and biopsy subsequent to injection of the primary tumor with 99technetium labeled sulfur colloid and blue dye. Pre-operative lymphoscintigraphy and sentinel lymph node biopsy in our case was useful for excluding local metastatic involvement, but experience with this technique in penile melanoma is limited by the rarity of the disease.

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Resumo

Melanomas do pênis são tumores malignos muito agressivos. Descrevemos o caso de um paciente com uma lesão confinada ao prepúcio e com linfonodos inguinais clinicamente negativos, tratados conservadoramente. O paciente submeteu-se à ressecção alargada da lesão para tratamento e diagnóstico. O tratamento das regiões inguinais em pacientes com melanoma de pênis permanece controvertido, uma vez que a incidência de doença metastática é significativamente mais baixa nos pacientes com estádios patológicos iniciais. Como nesse paciente o estádio patológico do melanoma de pênis era T2a (profundidade 1,9 mm, sem ulceração), decidimos usar linfocintigrafia pré-operatória, mapeamento intra-operatório dos linfonodos e biópsia do linfonodo sentinela para avaliar o comprometimento metastático inguinal. Cortes de congelação do linfonodo sentinela direito retirado foram negativos para malignidade e nenhum tratamento adjuvante foi realizado. A ressecção alargada da lesão permitiu efetivo controle local do tumor peniano e o paciente é mantido em acompanhamento clínico pós-operatório.

Palavras-chave: Melanoma, Pênis, Linfonodos