Sentinel Lymph Node Biopsy in the Diagnosis and Treatment of Multicentric Malignant Melanoma of the Penis

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Malignant melanoma of the penis is a rare condition, and only about 100 cases have been reported in the literature [1,2]. Early metastatic spread, advanced age at onset and late diagnosis account for the poor prognosis [1,2].

We report a rare case of multifocal penile melanoma in a circumcised 47 year old patient. Staging was done by conservative excision, multiple biopsies and bilateral sentinel lymph node biopsy. The need for sentinel lymph node biopsy for accurate staging is emphasized, since positron emission tomography and computed tomography scans failed to diagnose metastasis to regional lymph nodes.

Patient Description

A 47 year old, otherwise healthy, circumcised man presented with a pigmented lesion on the penile glans and shaft of approximately 4 months duration. The patient had consulted with his physician only after the emergence of an ulcer in the coronal sulcus area. Incisional biopsy for the ulcerated lesion demonstrated malignant melanoma, 1.5 mm Breslow thickness. Positive S-100 and HMB-45 immunohistochemistry staining confirmed the diagnosis. The patient was further evaluated by head, chest and abdominal CT scans, with no evidence of metastasis. PET scan with 18F-fluoro-2-deoxy-D-glucose study was performed, and it detected only the superficial penile lesion, without evidence of regional or distant, clear metastases.

A staging procedure was undertaken, with excision of the ulcerated lesion and multiple punch biopsies of other pigmented lesions of the penile glans and shaft [Figure]. Lymphoscintigraphy using Tc^{99m} Re-colloid particles showed lymphatic drainage to both inguinal regions, therefore bilateral sentinel lymph node biopsies were performed. Frozen section of the right groin sentinel node revealed a lymph node with malignant micro-metastasis. The ulcerated lesion showed malignant melanoma 4 mm thick, and the deep margins were free of tumor. The thickness of the malignant melanoma in the other three lesions was 0.3–0.5 mm. Paraffin section and immunohistochemistry for the left sentinel lymph node showed no malignancy.

A wide excision of the penile pigmented lesion was performed and the wound was closed with ventral shaft local flaps and split-thickness skin graft. In addition, the patient underwent a right radical groin dissection. The tumor was completely excised and there was no evidence of further metastasis in the inguinal lymph nodes.

Multifocal penile melanoma extending to the shaft and to the glans

Comment

Malignant melanoma of the penis accounts for 0.1–0.2% of all extra-orbital melanomas, and 1% of all penile malignancies. However, it is believed to be even less frequent in circumcised men [1].

As reported in other case series, our patient's lesions had arisen *de novo* and not in a previous nevus [1,2]. However, there have been reports of malignant melanoma developing in earlier lesions [2]. The glans is the most frequent site of involvement, followed by the prepuce, meatus, shaft and coronal sulcus [1]. To the best of our knowledge, there are no previous reports on multifocal melanoma tumors in the glans and shaft area. Ulceration is seen in most cases at diagnosis [1,2]. The disease tends to appear between the fourth and seventh decades [1,2]. Up to 50% of patients have metastases at diagnosis and prognosis is generally poor [1,2]. The reasons for that may vary: patients usually delay seeking medical advice as most lesions are not symptomatic at first, and they tend to deny or ignore potentially serious diseases in an intimate location [1,2]. Most probably the multiple lesions seen in our patient were present earlier than the reported 4 months. Older age and possibly a poorer immune system might

PET = positron emission tomography

contribute to the unfavorable prognosis. Physicians may not immediately diagnose such rare conditions, and the rich lymphatics and vascularity of the area probably contribute to the acceleration of early metastatic spreading [1].

A radical surgical approach was used in the 1970s and 1980s, and total phallectomy, perineal urethrostomy and radical inguinal, iliac and obturator lymph node dissection were among the treatments recommended. Stillwell et al. [1] suggested a less aggressive surgical treatment, based on the Breslow correlation between tumor thickness, metastatic spread rate, and prognosis. Wide excision without lymph node dissection was recommended for tumor thickness of less than 1.5 mm. If tumor thickness exceeds 1.5 mm, elective superficial inguinal lymph node dissection was advised. For stage III disease, lymph node dissection was advised for diagnostic and curative reasons. For stage IV disease, lymph node dissection was indicated only for local symptoms, and systemic treatment included immunotherapy, chemotherapy or radiation [1].

The introduction of sentinel node lymphadenectomy, using radio-colloid mapping and blue dye localization, has paved the way for a less radical surgical approach. In the treatment of cutaneous melanomas, the technique has become state of the art, and is sensitive enough to locate the first lymph node on the drainage pathway of the tumor site, without the need for complete regional dissection [3].

New staging of melanoma, as recommended by the 2002 American Joint Committee on Cancer includes sentinel lymph node biopsy status as one of the staging criteria [4]. According to the new staging, our patient was staged 3BN1a. The Sydney Melanoma Unit addresses penile melanoma as a unique issue, and recommends wide excision of lesions and sentinel lymph node biopsies for local disease. If a sentinel node contains micro-metastasis, full regional lymph node dissection should be performed. Treatment of more advanced disease is similar to the Mayo Clinic recommendation [2].

In our case, the patient arrived at our medical center with multifocal penile disease, unknown staging, and recommendations for total phallectomy on the one hand, and no further treatment on the other. Our treatment rationale, as recommended by the AJCC, was first to establish proper staging by performing a conservative excision of the main ulcerated lesion, punch biopsies of the other lesions, and bilateral sentinel lymph node dissection. If the tumor was found to penetrate the corpus, we would proceed with a partial or total phallectomy. We proceeded with a penile preserving procedure since the deep margins of the main lesion were free of disease, the tumor did not reach the corpus, and the other lesions were relatively superficial.

Several options for staging and treatment were considered in the past in cases of penile melanoma. Our patient underwent the staging procedure as recommended by the AJCC, which included PET CT, wide excision and sentinel lymph node biopsy, as recommended for melanoma in other body locations. Our experience emphasizes the importance of the sentinel lymph node biopsy in proper staging, since CT and PET failed to demonstrate regional spreading of the tumor. These modalities, however, are not appropriate for the detection of micrometastatic disease. Guller and associates [5] recently reported 31 cases of breast cancer, where PET scan failed to detect axillary micro- and macro-metastases up to 13 mm in diameter, and sensitivity was 43%. We believe that also in the case of malignant melanoma, PET scan cannot replace the use of sentinel node assessment as an essential diagnostic modality.

Our patient received further interferon-alpha 2b treatment. For a period of 2 years he was free of disease. Recurrence appeared as lung and brain metastases. The patient died 3 years after the disease was diagnosed. During that time there was no evidence of local or regional recurrence, most likely due to successful local control of wide excision and appropriate lymphadenectomy.

AJCC = American Joint Committee on Cancer

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Happiness in intelligent people is the rarest thing I know

Ernest Hemingway (1899-1961), American author and journalist, whose best-known novels include *The Sun Also Rises, For Whom the Bell Tolls,* and *The Old Man and the Sea.* He won the Nobel Literature Prize in 1954. After serving in the Red Cross during World War I he joined the American expatriate community in Paris and later moved to Cuba.