SKIN

BRIEF ARTICLE

Atypical Presentation of Merkel Cell Carcinoma: A Case Report

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ABSTRACT

Merkel cell carcinoma (MCC) is a rare neuroendocrine tumor that usually presents as a pink to violaceous nodule or plaque on sun exposed skin. We report a case of MCC in a 75 year old male with an asymptomatic skin-colored nodule over his right thigh. Histopathology of a punch biopsy showed basophilic cells with a high nuclear to cytoplasmic ratio. The biopsy stained positive for CK20, chromogranin, and synaptophysin with a negative TTF1 stain. The patient underwent wide-local excision with two-centimeter margins, and subsequent adjuvant radiation for positive sentinel lymph node disease. This case highlights an atypical presentation of MCC while underscoring the importance of a comprehensive diagnostic evaluation.

INTRODUCTION

Merkel cell carcinoma (MCC) is a rare, aggressive cutaneous neuroendocrine carcinoma that demonstrates both neuroendocrine and epithelial differentiation.[1,2] MCC most commonly affects elderly Caucasian males and has a predilection for sun-exposed sites[3]. The current incidence of MCC in the United States is estimated at roughly 0.7 per 100,000 person-years.[4] MCC has a proclivity for metastasis and accounts for the second-highest rate of skin cancer-related deaths, second only to melanoma.[4]

The exact pathogenesis of MCC is not fully understood and involves genetic, molecular, and environmental factors.[1] The presence of Merkel cell polyomavirus (MCPyV) has been detected in 80% of MCC cases and remains the most significant risk factor for the development of MCC.[1] The remaining 20% of cases are hypothesized to be secondary to extensive ultraviolet (UV)-mediated damage.[1] Clinically, MCC presents as a rapidly growing, solitary, pink to violaceous papule, nodule, or plaque. Given this tumor's predilection for sun-exposed sites, lesions present commonly on the head and neck. Our case highlights a unique presentation of MCC as a subcutaneous nodule without any overlying surface change.

CASE REPORT

A 75-year-old male presented with a nodule located on his right thigh for four months. The patient reported that the lesion had been slowly enlarging over the past month, but

denied any associated pain or pruritus. The patient denied any history of immunosuppression. Physical examination revealed a 2.5 cm by 2.5 cm well-circumscribed, skin-colored, firm, subcutaneous nodule on the right distal lateral thigh (**Figure 1**). No overlying surface change was noted. A complete lymph node exam was negative for lymphadenopathy.

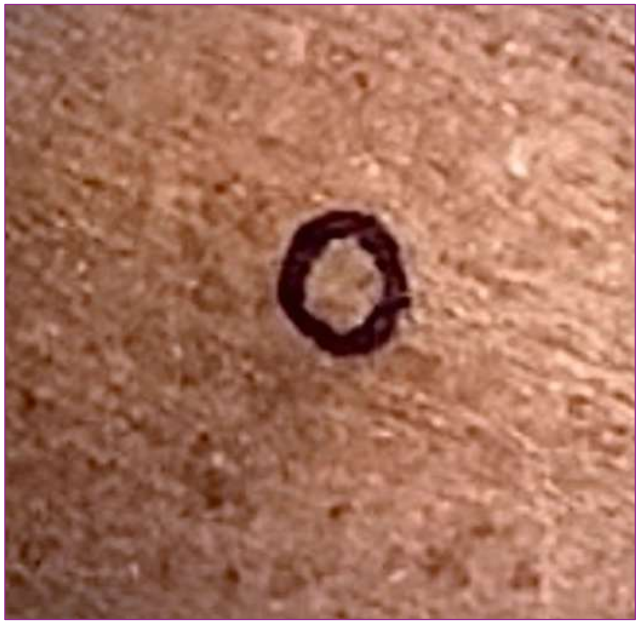

Figure 1. A 2.5 cm by 2.5 cm well-circumscribed, skin-colored, firm, subcutaneous nodule on the right distal lateral thigh

A punch biopsy revealed a well-circumscribed dermal nodule composed of small round basophilic cells with a high nuclear-to-cytoplasmic ratio and inconspicuous cytoplasm (Figure 2). The nuclei had finely dispersed chromatin and numerous mitotic figures were present. The tumor's Breslow depth was 5.5 mm and no ulceration or lymphovascular invasion was observed. The tumor demonstrated CK20 positivity in a perinuclear dot-like pattern (**Figure 3**). It also demonstrated positivity to chromogranin A, synaptophysin, and Merkel cell polyomavirus (MCPyV). Immunohistochemistry was negative for TTF-1. A PET scan revealed a hypermetabolic dermal lesion in the right lateral thigh as well as low-level metabolic focus in the left lateral body wall.

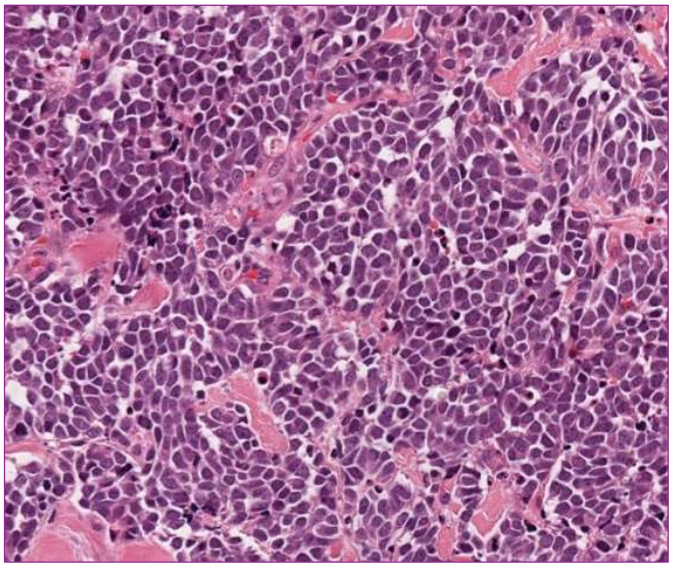

Figure 2. Biopsy revealing small, round basophilic cells with a high nuclear-to-cytoplasmic ratio and inconspicuous cytoplasm

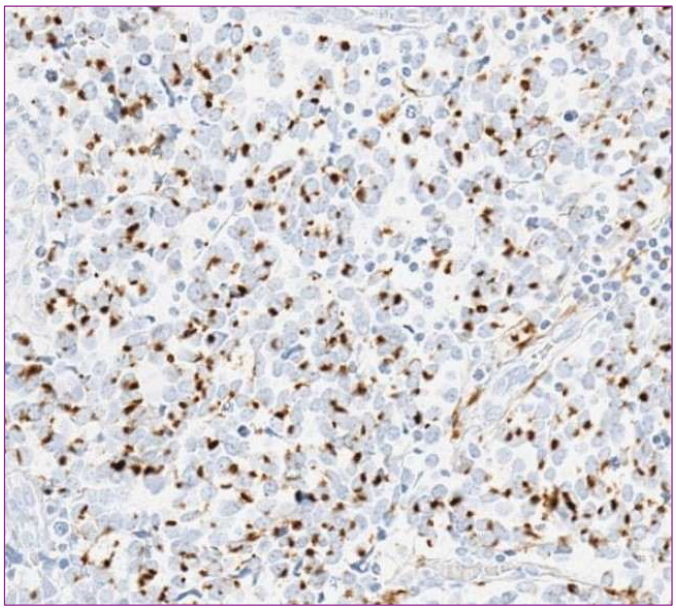

Figure 3. CK20 positive stain in a perinuclear dot-like pattern

The patient underwent wide local excision with two-centimeter margins. A sentinel lymph node biopsy from the right groin revealed nodal disease. The patient is currently undergoing radiation to both the primary tumor site and the nodal basin.

DISCUSSION

Merkel cell carcinoma poses a diagnostic challenge due to its rarity and necessitates a high index of suspicion for accurate identification. Early recognition and intervention is crucial to enhancing survival outcomes in affected individuals[5]. While MCC typically presents as a pink-violaceous nodule, it's important to remain vigilant for atypical presentations, as illustrated in this case.. This case report also highlights the importance of full body skin exams and the utility of punch biopsies of skin-colored nodules with no other identifying features. Even an ultrasound, while not an inappropriate next step, may have delayed care and not been diagnostically revealing. Histologically, MCC presents as a dermal tumor with sheets of basaloid cells with oval to round nuclei, scant cytoplasm, and speckled “salt-and-pepper” chromatin.[2] Frequent mitotic figures are observed. Immunohistochemistry demonstrates positivity for synaptophysin, chromogranin, neurofilament, and neuron-specific enolase.[2] CK20 will be positive in a paranuclear dot pattern and TTF-1 will be negative.[2]

The differential diagnosis of MCC includes squamous cell carcinoma, amelanotic melanoma, Kaposi's sarcoma, cutaneous B-cell lymphoma, leukemia cutis, and dermatofibrosarcoma protuberans, all of which can be distinguished from MCC by histopathology and immunohistochemistry.[3]

Surgical removal of the primary tumor with either Mohs surgery or wide local excision with one to two-centimeter margins is first-line therapy.[2] If there are any baseline risk factors including primary tumor size greater than one centimeter, chronic T-cell immunosuppression, HIV, chronic lymphocytic leukemia, solid organ transplant, head or neck primary site, or lymphovascular invasion, then adjuvant radiation therapy to the primary tumor site is recommended. All patients should receive a sentinel lymph node biopsy, and if positive, node dissection or radiation therapy to the nodal basin is advised.[1] Imaging should be performed on all patients with clinical nodal disease.[2] The first-line treatment for disseminated disease includes clinical trials, avelumab, nivolumab, pembrolizumab, or retifanlimab-dlwr.[2,6] Adjuvant chemotherapy may be considered on an individual basis; however, it is not routinely recommended as a survival benefit that has not been demonstrated in retrospective studies.[2] The overall 5-year survival rates for MCC are poor at 51% for local disease, 35% for nodal disease, and 14% for metastatic disease.[1]

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