CLINICAL VIGNETTE

Plasmacytoma of the Skull at the Site of a Previously Resected Melanoma

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Introduction

Solitary plasmacytoma is a rare, early-stage, localized malignancy of plasma cells that falls between monoclonal gammopathy of unknown significance and multiple myeloma on the spectrum of plasma cell disorders. Solitary plasmacytomas are usually diagnosed by biopsy, with lack of other lytic lesions on imaging, a lack of clonal plasma cells on bone marrow biopsy, and no end-organ damage attributable to a clonal proliferative disorder.[1]

Solitary plasmacytomas can be divided into those that affect bone or those that affect soft tissue. Of those affecting bone, the tumor typically occurs in the vertebrae, ribs, femur, and pelvis. Rarely, solitary plasmacytoma may occur in the skull.[2]

We report a patient with multiple plasmacytomas, with the most notable plasmacytoma occurring in the skull at the site of a recently excised melanoma.

Case

A 76-year-old man presented to dermatology with complaints of scalp bogginess and a dull headache. His past medical history was significant for melanoma, most recently of the right parietal scalp at the site of his "bogginess", which had been treated with wide local excision and lymph node dissection.

Physical examination revealed a well-healed scalp scar with no pigment recurrence but with significant edema and bogginess (Figure 1). Brain magnetic resonance imaging revealed a 7 x 3 x 6 cm signal-enhancing mass in the right parietal calvarium. Involvement of the overlying scalp and underlying dura were also noted, as well as a persistent mass effect on the subjacent brain parenchyma. Computed tomography scan of the chest, abdomen and pelvis found no evidence of metastatic disease.

Initially, the mass was suspicious for recurrent melanoma of the scalp given its proximity to the previously resected melanoma. The patient thus underwent parietal craniectomy with tumor resection, cranioplasty, and scalp reconstruction with a free musculocutaneous flap.

However, surgical pathology of the scalp, tumor and bone flap identified no evidence of melanoma. Instead, pathology showed a plasma cell neoplasm composed of cells with densely packed, slightly enlarged oval nuclei, "clockface" chromatin, minimal eosinophilic cytoplasm, and paranuclear clearing.

Evaluation for multiple myeloma with serum protein electrophoresis showed minimonoclonal protein spike of IgG kappa (0.49 g/dL). Positron emission tomography (PET) scans revealed two hypermetabolic lytic lesions in the sternum and manubrium. Two subsequent bone marrow biopsies showed only hypercellular marrow with no monotypic plasma cell infiltrate, and both sites were non-tender to palpation. Labs were notable for a hemoglobin of 13.8 g/dL, a creatinine of 0.79 mg/dL, and a calcium of 9.7 mg/dL. Given the negative bone marrow biopsies and lack of end-organ damage, the patient was diagnosed with multiple plasmacytomas without meeting criteria for multiple myeloma. Accordingly, no systemic treatment was initiated, and close follow-up over 12 months has revealed no signs of new or worsening disease.

Discussion

This patient's presentation of a plasmacytoma in the skull without signs of systemic myelomatosis is a very rare cancer diagnosis. Plasma cell myelomas account for 2% of all new malignancies.[3] Solitary plasmacytomas of the bone comprise only 5–6% of plasma cell neoplasms.[4–6] Furthermore, most plasmacytomas of the bone occur in the vertebrae, with only 5% occurring in the skull.[7] Accordingly, we estimate that fewer than 100 people are diagnosed with plasmacytoma of the skull in the United States each year.[7,8]

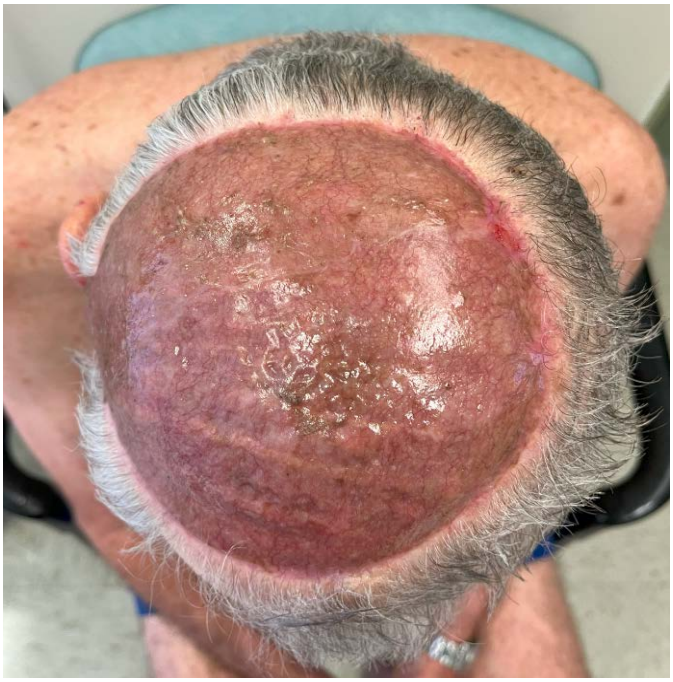
To our knowledge, this is the first reported case of a plasmacytoma of the skull presenting at the site of a previously-resected melanoma. Other sporadic cases of parietal bone plasmacytoma were identified in the literature, but all were in patients with no significant past oncologic history.[9–13]

Given the rarity of plasmacytomas, risk factors for their development are not well-known. At least one large-scale study has shown that plasmacytomas primarily occur in males, Blacks, and older individuals, but history of prior malignancy or surgery at the site was not identified as a risk factor.[8] It thus remains unclear for our patient whether his prior scalp melanoma may have predisposed him to a plasmacytoma at the same site, or if this was simply coincidence.

Interestingly, the patient's PET scans also revealed two hypermetabolic lytic lesions of the manubrium and sternum, which prompted consideration of multiple myeloma as a possible diagnosis. Per the International Myeloma Working Group, a

diagnosis of multiple myeloma can be made in a patient with a biopsy-proven plasma cell neoplasm along with at least one of the following criteria: 1) anemia, 2) hypercalcemia, 3) renal insufficiency, or 4) lytic lesions on imaging.[14] It could thus be argued that this patient does meet criteria for multiple myeloma given the presence of a skull plasmacytoma with additional lytic lesions. However, the bone marrow biopsies of the lytic lesions were both negative for plasma cell neoplasms, and the patient did not have anemia, hypercalcemia, or renal insufficiency. Furthermore, multiple myeloma normally presents with an IgG monoclonal protein level of at least 1.5 g/dL,[15] while it was only 0.49 g/dL in this patient. For all of these reasons, it was felt that multiple plasmacytomas was a more appropriate diagnosis than multiple myeloma.

Ultimately, this case illustrates that scalp bogginess, even if occurring at the site of a prior malignancy, should prompt consideration of plasma cell neoplasm as a diagnostic possibility. In addition, this case demonstrates that a plasmacytoma with lytic lesions may not necessarily mean multiple myeloma, especially in the context of negative bone marrow biopsies and no other signs of end-organ damage.



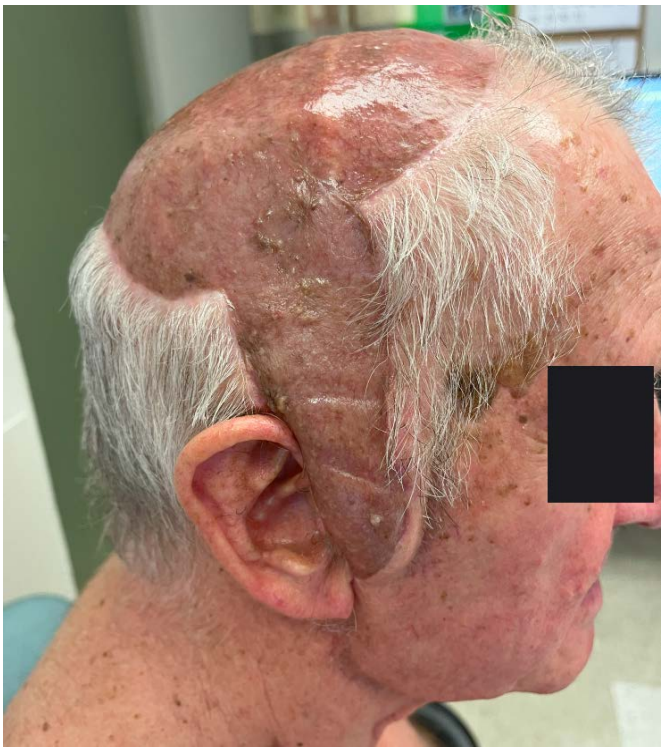


Figure 1. Edema and bogginess of the parietal scalp at the site of prior wide local excision for melanoma

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