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Hidradenocarcinoma Treated with Mohs Micrographic Surgery

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Abstract

Hidradenocarcinomas are very uncommon malignant tumors of sweat gland origin that exhibit a high potential for local recurrence, metastasis, and poor outcome. These neoplasms typically resemble benign appearing dermal nodules that lack distinguishable features. We present the case of hidradenocarcinoma in a 39-year-old male with a 5-year history of a slow growing nodule along his right eyebrow. Excisional biopsy of the lesion was taken with pathology showing nuclear pleomorphism, increased mitoses, and foci of necrosis. Immunohistochemical analysis revealed reactivity for Ki-67/MIB1 and strong diffuse staining for p63, CK5/6, and CK7. Mohs micrographic surgery was performed and clear margins were obtained after one stage. Compared to traditional treatment with wide local excision, Mohs micrographic surgery is a potentially advantageous alternative therapy as there have been no reported cases of tumor recurrence or metastasis to date.

Keywords

Hidradenocarcinoma, Mohs micrographic surgery, sweat gland tumor

Conflict of Interest Statement

The authors have no conflicts of interest to disclose.

CASE REPORT

Hidradenocarcinoma Treated with Mohs Micrographic Surgery

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Abstract

Hidradenocarcinomas are very uncommon malignant tumors of sweat gland origin that exhibit a high potential for local recurrence, metastasis, and poor outcome. These neoplasms typically resemble benign appearing dermal nodules that lack distinguishable features. We present the case of hidradenocarcinoma in a 39-year-old male with a 5-year history of a slow growing nodule along his right eyebrow. Excisional biopsy of the lesion was taken with pathology showing nuclear pleomorphism, increased mitoses, and foci of necrosis. Immunohistochemical analysis revealed reactivity for Ki-67/MIB1 and strong diffuse staining for p63, CK5/6, and CK7. Mohs micrographic surgery was performed and clear margins were obtained after one stage. Compared to traditional treatment with wide local excision, Mohs micrographic surgery is a potentially advantageous alternative therapy as there have been no reported cases of tumor recurrence or metastasis to date.

Keywords: Hidradenocarcinoma, Mohs micrographic surgery, Sweat gland tumor

1. Introduction

Hidradenocarcinoma (HAC) is a rare adnexal neoplasm derived from eccrine sweat glands with high malignant potential. Historically, HAC has been reported as having an aggressive clinical course, with frequent local recurrence ranging from 10 to 50% and a metastatic rate as high as 60%.[1–4] The clinical appearance of HAC is nonspecific, typically reported as a firm, solitary, subcutaneous nodule that is often mistaken clinically for the more common infundibular and pilar cysts, among other benign lesions.[2] The most frequently affected anatomic sites include the head and neck. HAC can be difficult to distinguish from its benign counterpart, hidradenoma, as there are no definitive histological features or established criteria.

Treatment of choice for HAC has traditionally been wide local excision, however tumor recurrence and metastases remain common despite achieving clinically free margin.[3] Furthermore, wide excision of these tumors can result in large surgical defects that may pose reconstructive challenge.[3] Therefore, treatment with Mohs micrographic surgery has been increasingly reported in an attempt to improve cure rates and aesthetic outcomes.[4]

2. Case report

A 39-year-old white male presented with a 5-year history of a flesh-colored nodule along his right eyebrow. For the past two years the nodule repeatedly increased in size, drained clear fluid, and subsequently regressed to its original size. The mass was mildly pruritic, but otherwise asymptomatic. Past medical history was significant for gastroesophageal reflux disease. Skin examination revealed a 1.1 × 1.1 cm firm violaceous nodule (Fig. 1). A sebaceous cyst was initially suspected. An initial excisional biopsy with 0.1 cm margins and multilayer linear closure was performed.

Histopathology demonstrated a large, well-circumscribed dermal tumor with solid and cystic

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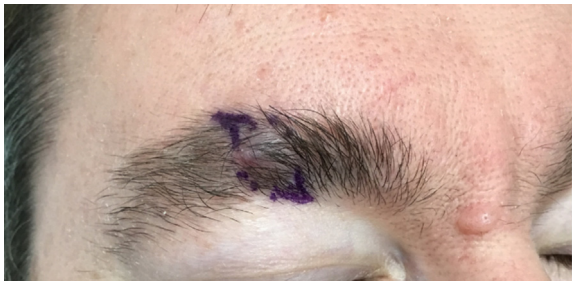

Fig. 1. Lesion prior to biopsy. Firm violaceous nodule on the right eyebrow measuring 1.1 × 1.1 cm.

growth patterns and abundant ductal differentiation. Focal squamous differentiation at the superficial edge of the tumor was noted. The lesional cells showed nuclear pleomorphism, scattered single cell necrosis, small foci of tumoral necrosis, and mildly increased mitoses (Fig. 2). The borders of the lesion were predominantly circumscribed rather than infiltrative, although near the superficial edge of the lesion, in the area of squamous differentiation, some infiltrative features were noted. Immunohistochemical staining was diffusely and strongly positive for p63, CK5/6, and CK7, variably positive for Ki-67/MIB1, and negative for CEA and HER-2. The overall morphology and immunoprofile of the lesion was compatible with a hidradenoma, however the presence of nuclear pleomorphism, increased mitoses, and foci of necrosis are worrisome for malignant hidradenocarcinoma.

The diagnosis and treatment options were discussed. Given the infiltrative appearance of this carcinoma, Mohs micrographic surgery was performed. The stage was removed with a 2 mm margin following gentle curetting and then analyzed with frozen sectioning, which revealed clear margins. Close follow up has showed no sign of recurrence.

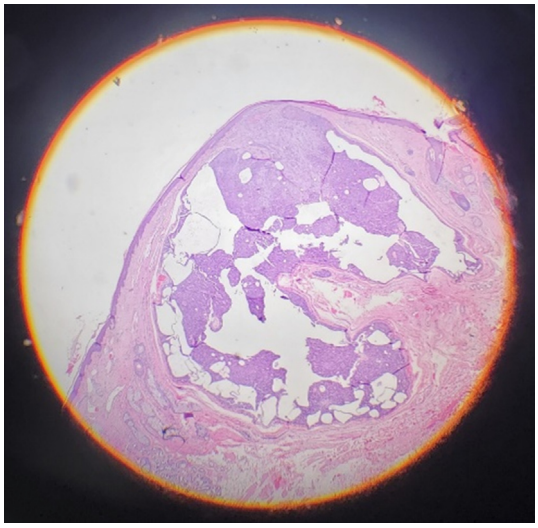

Fig. 2. Hidradenocarcinoma. The lesion showed a well-circumscribed dermal tumor with nuclear pleomorphism, scattered single cell necrosis, small foci of tumoral necrosis, and mildly increased mitoses.

3. Discussion

HAC is an uncommon neoplasm of the eccrine sweat glands that has been associated with high rates of regional recurrence and metastasis.[1–4] The neoplasm accounts for approximately 6% of malignant eccrine tumors, which are seen in 1 in 13,000 dermatopathology biopsies.[5,6] HAC poses a diagnostic challenge given its nondistinctive clinical appearance and difficultly to distinguish histologically from hidradenoma. The majority of HAC lack characteristic morphology, with most tumors prompting a clinical impression of a benign lesion, as was the case in this patient.[3] HAC often presents as a solitary, firm, nontender nodule, which may appear flesh-colored, red, violet, pink, or gray. The most frequently affected sites include the head and neck, with lesions on the extremities and trunk being reported less often.[2]

Histologic criteria that may be used to distinguish HACs from hidradenoma include increased mitotic activity, invasion into surrounding tissue, loss of circumscription, asymmetry, necrosis, pleomorphism, dispersed growth pattern, and angiolymphatic or perineural invasion.[2,5] Immunohistochemical staining is often positive for keratin AE1/3, cytokeratin 5/6, Ki-67, and p53. There is no consistent pattern when neoplasms are stained with antibodies to S100 protein, gross cystic disease fluid protein 15, carcinoembryonic antigen, epithelial membrane antigen, BCL1, or BCL2.[5,7] In the present case, immunohistochemical staining was reactive for Ki-67/MIB1 and diffusely strong for p63, CK5/6, and CK7.

Treatment of HAC has traditionally been managed with wide local excision, however recurrence and metastatic rates remain higher than desired, highlighting the need for more effective options.[8] Including our case report, there have been at least 15 cases of HAC treated using Mohs micrographic surgery.[9] To date, there have been no evidence of recurrence or metastasis in those cases whom follow up information was available.[9] Adjuvant therapies for HAC have included chemotherapy and radiation.[2]

4. Conclusion

HAC is an aggressive adnexal tumor that is often misdiagnosed preoperatively and may benefit from treatment with Mohs micrographic surgery. While

the data thus far suggests improved outcomes in patients treated with Mohs micrographic surgery, close follow up is still recommended given the malignant nature of this tumor.

Conflict of interest

The authors have no conflicts of interest to disclose.

References

1. Ashley I, Smith-Reed M, Chernys A. Sweat gland carcinoma. Case report and review of the literature. *Dermatol Surg*. 1997;23: 129–133.
2. Yavel R, Hinshaw M, Rao V, et al. Hidradenomas and a hidradenocarcinoma of the scalp managed using Mohs micrographic surgery and a multidisciplinary approach: case reports and review of the literature. *Dermatol Surg*. 2009;35: 273–281. https://doi.org/10.1111/j.1524-4725.2008.34424.x.
3. Tolkachjov SN, Hocker TL, Hochwalt PC, et al. Mohs micrographic surgery for the treatment of hidradenocarcinoma: the Mayo Clinic experience from 1993 to 2013. *Dermatol Surg*. 2015; 41:226–231. https://doi.org/10.1097/DSS.0000000000000242.
4. Wildemore JK, Lee JB, Humphreys TR. Mohs surgery for malignant eccrine neoplasms. *Dermatol Surg*. 2004;30: 1574–1579. https://doi.org/10.1111/j.1524-4725.2004.30569.x.
5. Gauerke S, Driscoll JJ. Hidradenocarcinomas: a brief review and future directions. *Arch Pathol Lab Med*. 2010;134:781–785. https://doi.org/10.5858/134.5.781.
6. Elder DE, Elensitas R, Johnson BL, Murphy GF, eds. *Lever's histopathology of the skin*. 9th ed. Lippincott Williams & Wilkins; 2005.
7. Ko CJ, Cochran AJ, Eng W, Binder SW. Hidradenocarcinoma: a histological and immunohistochemical study. *J Cutan Pathol*. 2006;33:726–730. https://doi.org/10.1111/j.1600-0560.2006.00536.x.
8. de Lima AA, Santos M, de Morais PM, Rodrigues CAC. *Hidradenocarcinoma. An Bras Dermatol.* 2021;96(2):251–253. https://doi.org/10.1016/j.abd.2020.03.023.
9. Tolkachjov SN. Adnexal carcinomas treated with Mohs micrographic surgery: a comprehensive review. *Dermatol Surg*. 2017;43:1199–1207. https://doi.org/10.1097/DSS.0000000000001167.