

Nodular Hidradenoma: A Cytohistological Correlation on Fine-Needle Aspiration Cytology

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Abstract

Cytodiagnosis of adnexal tumors is challenging by virtue of an enormous number of individual tumors and their variant forms. We report a case of nodular hidradenoma in a male patient aged 59 years who presented with nodular swelling at the outer canthus of the left eye. Clear cell hidradenomas arise as nodules from eccrine sweat glands. It is an uncommon benign adnexal neoplasm that is more common in adults than in children. The diagnosis is usually based on histopathology, and the lesion is rarely diagnosed on fine-needle aspiration cytology (FNAC), hence merits mention. Overall our study established that the FNAC can be used as the first line of diagnostic investigation for most of the nodular lesions of the skin.

Key words: Adnexae, Basaloid, Eccrine, Hidradenoma, Nodular

INTRODUCTION

Nodular hidradenoma is a cutaneous neoplasm that may appear at various sites all over the body. It is common been referred as clear cell hidradenoma or sweat gland adenoma¹ of eccrine origin. Nodular hidradenomas arises as intradermal from eccrine sweat glands as intradermal nodules. Electron microscopic ultrastructural features and histochemical enzyme analysis have shown nodular hidradenomas to be an intermediate entity between eccrine poroma and eccrine spiradenoma.² The histology of the malignant hidradenoma resembles that of its benign counterpart. The criteria for malignancy includes poor circumscription, the presence of nuclear atypia, along with presence of predominantly solid cell islands, infiltrative growth pattern, necrosis, mitotic activity, and angio-lymphatic permeation.³⁻⁵ Sweat gland tumors of the eyelid are quite rare yet the possibility of sweat gland tumors has to be considered during differential diagnosis of eyelid tumors. The malignant forms are even more unusual in appearance. We report a case of malignant nodular

hidradenoma in a 59-year-old man, who presented to the outpatient department with a nodular swelling in the outer canthus of the left eye.

CASE REPORT

The 59-year-old man presented with enlarged, painless nodular mass in the outer canthus of the left eye that began 4 years prior with a rapid increase in size over the last 3 months. Additional complaints of pain, ulceration, and bleeding were also associated. Physical examination revealed a solitary pigmented nodule on the outer canthus measuring 1.5 cm × 0.5 cm, fleshy with central ulceration. The nodule was firm to hard in consistency. There was no regional auricular, cervical, or submandibular lymphadenopathy. Hematological investigations and biochemical parameters were within the normal limit. Clinical provisional diagnosis of basal cell carcinoma and squamous cell carcinoma is given, and the patient sent to cytology department for fine-needle aspiration cytology (FNAC).

Microscopy

May-Grunwald-Giemsa stain (Figure 1) and hematoxylin and eosin stain (Figure 2) revealed high cellularity comprising of numerous large sheets of cells with papillary fronds and overcrowding of cohesive three-dimensional groups of monomorphic cells. Occasional duct, like

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tubular structures, is also seen. Cells are polygonal with a round to ovoid nuclei, smooth nuclear contour, dense nuclear chromatin, inconspicuous nucleoli with abundant cytoplasm. Some cells showed very scanty cytoplasm thereby imparting a basaloid appearance resembling myoepithelial cells. Few squamoid to spindly cells are also seen. No presence of any atypical mitosis. Diagnosis of Nodular hidradenoma was given based on the cytological findings. For confirmation excision biopsy is done and tissue sent for histopathological analysis. A special stain like alcian blue (Figure 3) was also done. Histopathologic diagnosis of Nodular hidradenoma is given thereby confirming the cytological findings.

DISCUSSION

Cytological diagnosis of nodular hidradenoma is rarely reported in the literature. Most cases of nodular hidradenoma are misdiagnosed, inconclusive, or misinterpreted on FNAC.

Smears are usually cellular containing a variably mixed population of two types of cells- eosinophilic/polygonal and clear cells. Eosinophilic cells contain round to ovoid nuclei, small nucleoli, with a moderate amount of faintly eosinophilic cytoplasm. Occasional cells show scanty cytoplasm with more basal cell-like appearance while some cells closely resemble squamoid cells. Clear cells have round eccentric nuclei, finely granular chromatin, small nucleoli and more abundant, water-clear cytoplasm. Mild hyperchromasia, aniso-nucleosides, and overlapping of nuclei with small prominent nucleoli were also seen. Eosinophilic cells formed large, cohesive, three-dimensional, papillary-like, closely packed clusters. Clear cells formed medium-sized, flat clusters. Rounded rosette-like formations and duct-like tubular structures were also seen. Extracellular hyaline material and amorphous material was present in the background. Histiocytes, fibroblasts, pigmented macrophages, foam cells, and naked nuclei may be seen.⁶⁻¹³ The cytology of our case shows all the features reported previously except a prominent clear cell component. Scanty or absent clear cells may be the reasons for diagnostic pitfalls. The cytologic appearance of our case closely resembles that of adenoid cystic carcinoma, cutaneous cylindroma, and eccrine spiradenoma. Cytology of nodular hidradenocarcinoma shows cells with dense cytoplasm and basal cell-like appearance, cell sheets with squamous differentiation, necrotic debris, and multinucleated giant cells.¹⁴

Histologically, nodular hidradenoma is a well-circumscribed but unencapsulated solid cystic dermal tumor with a clear zone between the tumor and epidermis. Cystic spaces were

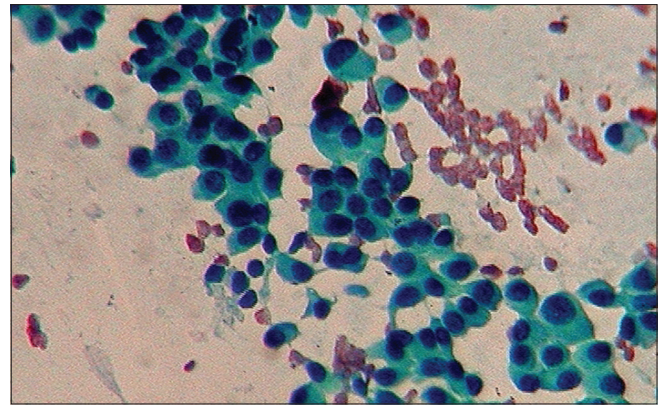


Figure 1: May-Grunwald-Giemsa stain shows variably sized overcrowded clusters of cells with variable amount of faintly stained cytoplasm, round to ovoid bland nucleus, inconspicuous nucleoli

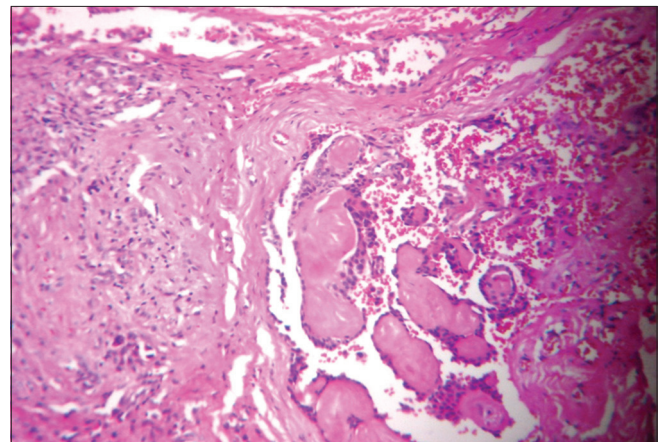


Figure 2: Hematoxylin and eosin stained section shows dark and light stained solid area with amorphous eosinophilic hyaline material filled cystic spaces lined by cuboidal cells

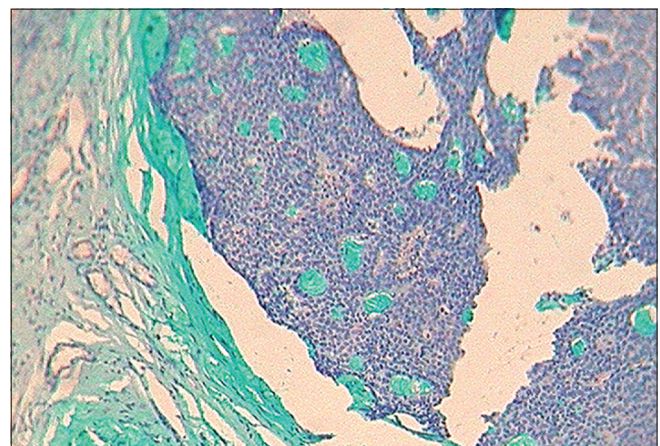


Figure 3: Alcian blue stain showing hyalinized stroma at places (x40)

filled with homogenous eosinophilic material. Solid areas comprised of eosinophilic and clear cells. Marked nuclear pleomorphism, hyperchromasia, and frequent or atypical mitoses are not observed.

Variants of nodular hidradenoma may show several types of cells. Clear cell hidradenoma, the most common variant consist predominantly of clear cells, with distinct cell borders. As the percentage of different cell types varies markedly in different tumors, cytopathologists should keep in mind the close resemblance of nodular hidradenoma to metastatic renal cell carcinoma, squamous cell carcinoma and hence these should be kept as a closest differential diagnosis.

CONCLUSION

To give a diagnosis of an adnexal tumor on cytology, adequate cellularity is of paramount importance. Cytologically the appearance of two types of cells, eosinophilic and clear cells in a papillary pattern along with ducts-like tubular structures and extracellular hyaline material in a cytology smear are the key features of nodular hidradenoma.

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