

## A solitary nodular lesion on the shoulder

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A 23-year-old female patient presented with asymptomatic skin lesion over the left shoulder area. The lesion started as a small skin colored papule one year back, and it slowly increased in size and became darkly pigmented. One month back, the patient experienced several attacks of pain in the lesion especially with pressure. There was a history of similar lesion on the scalp 5 years back, that was excised without remission. There was no family history of similar condition and no history of systemic illness was reported.

Cutaneous examination revealed a solitary exophytic dome-shaped nodule on the left shoulder area (Fig. 1). The lesion was tender, firm in consistency and measured about 1.6 cm in diameter. The surface of the nodule was shiny and smooth. It also showed surface telangectasia and bluish tinge. The borders of the lesion were well-demarcated while the margins were skin

colored (Fig. 2). Examination of other body areas showed no similar lesions. Hair, nail and mucous membranes were absolutely normal. Routine laboratory investigations were irrelevant.

### What is the clinical diagnosis?

1. Basal cell carcinoma
2. Giant Molluscum contagiosum
3. Pilomatricoma
4. Dermatofibroma
5. Nodular Hidradenoma

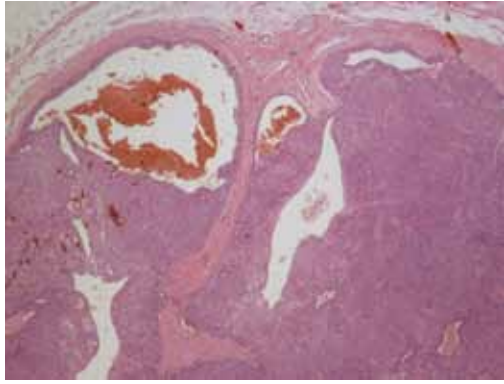
Excision biopsy was performed and histological examination revealed a large well-circumscribed encapsulated tumor that occupied whole of the dermis (Fig. 3). The tumor was formed of large masses of cells with tubular lumina of different sizes (Fig. 4). The tubular lumina were lined by cuboidal cells while the cell masses were formed of dark and pale cells in different combination (Fig. 5).



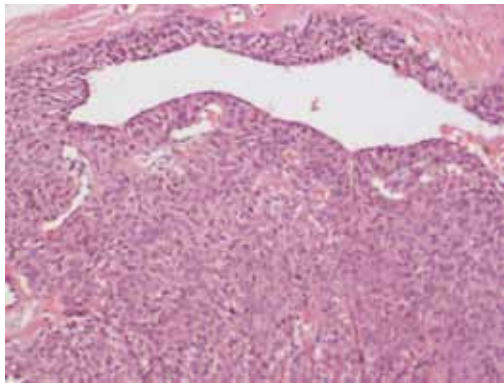
**Fig. 1** Showing nodule of affecting the left shoulder.



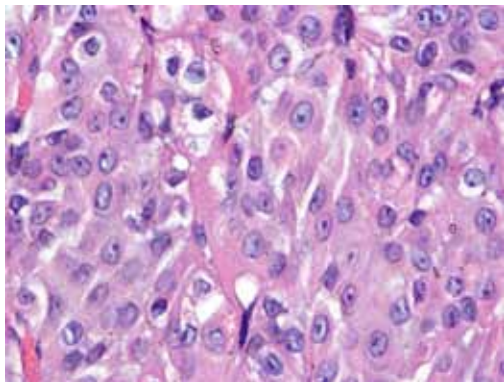
**Fig. 2** The lesion is well demarcated and shows smooth surface and telangectasia.



**Fig. 3** The dermis shows a large encapsulated well circumscribed tumor (H&E x100)



**Fig. 4** The tubular lumina lined by cuboidal cells (H&E x200)



**Fig. 5** The cell masses formed of dark and pale cells (H&E x400).

## DIAGNOSIS

### Nodular Hidradenoma

## DISCUSSION

Nodular Hidradenoma is an uncommon benign adnexal neoplasm of either eccrine or apocrine origin that is commoner in adults than in children. Clinically, it is usually a solitary, slow growing;

well circumscribed, freely mobile, firm, non-tender, dermal lesion varying in diameter from 0.5 cm to 12 cm.<sup>1</sup> Occasionally, the development of brown, blue or red discoloration with superficial ulceration and serous discharge may mimic malignancy. Nodular hidradenomas are most commonly seen on the scalp, neck, trunk and extremities.<sup>2</sup>

The tumor usually presents as solitary nodule 2-3 cm in diameter, but larger variants do occur. It predominates in females. There is no site predilection. It can occur at all ages, including infancy. Local recurrence can occur, particularly if the lesion is incompletely excised.<sup>3</sup> In 1990, Abenoza and Ackerman introduced the poroid hidradenoma (PH) as the fourth subtype of poroma. They described it as a rare, benign adnexal tumor with morphologic characteristics of both a poroma, and a hidradenoma. Recently, it has been proposed to reclassify PH as a subtype of nodular hidradenoma by subdividing nodular hidradenoma into those with eccrine differentiation (PH) and those with apocrine differentiation clear cell hidradenoma (CCH).<sup>4</sup>

Histologically, Hidradenomas are usually circumscribed non-encapsulated multilobular tumors, centered in the dermis but sometimes extending into the subcutis. Epidermal connections are present in up to one-quarter of cases. Mucinous syringometaplasia has been described in one case, overlying a clear cell variant of hidradenoma. Hidradenomas may be solid or cystic in varying proportions. Uncommonly they are pedunculated.<sup>5</sup> Sometimes, large cystic spaces are present and may contain sialomucin attached to the surface of the lining cells. The closely arranged tumor cells, which may be round, fusiform, or polygonal in shape, are biphasic in cytoplasmic

architecture, with one type having clear and the other eosinophilic cytoplasm.<sup>6</sup>

Variants of nodular hidradenoma may show several types of cells. Clear cell hidradenoma, the most common variant, contains predominantly clear or pale cells with distinct cell borders. Clear cells contain glycogen and periodic acid-Schiff-positive, diastase-resistant material, but no lipid. Clear cell hidradenoma or eccrine acrospiroma of the skin was first described by Liu in 1949 as clear cell papillary carcinoma of the skin. Subsequently, it was reported under various designations. Clear cell hidradenoma or nodulocystic hidradenoma or acrospiroma are histologically distinct relatively rare tumors of sweat gland duct origin. Although traditionally regarded as displaying eccrine differentiation, it is now accepted that tumors can show either eccrine or apocrine differentiation. This tumor found mainly in adults, and is excised more commonly in women than in men.<sup>7</sup>

Cytological features of nodular hidradenoma are rarely reported in the literature. Most cases of nodular hidradenoma are either inconclusive or misinterpreted on cytology. Smears are usually cellular containing a variable admixture of two types of cells: Eosinophilic/polygonal and clear cells. Eosinophilic cells contain round to ovoid nuclei, small nucleoli and moderate faintly eosinophilic cytoplasm. Occasional cells show scanty cytoplasm with more basaloid appearance while some cells are reminiscent of squamoid cells.<sup>8</sup>

Clear cells have round eccentric nuclei, fine granular chromatin, small nucleoli and more abundant, water-clear cytoplasm. Mild hyperchromasia, anisonucleosis and overlapping of nuclei with small distinct nucleoli are also seen. Eosinophilic cells form large, cohesive,

three-dimensional papillary-like, densely packed clusters. Clear cells form medium-sized, flat clusters. Rounded rosette-like formations and duct-like tubular structures are also seen. The background shows extracellular hyaline material and amorphous material. Histiocytes, fibrocytes, pigmented macrophages, foam cells and naked nuclei may be seen.<sup>9</sup>

Poroid hidradenoma shows compact poroid cells with prominent ductal differentiation.<sup>10</sup> Mucinous cells are large cuboidal to columnar in shape with fine basophilic granular cytoplasm and are noted in the least common variant. They line the tubules and may show evidence of apocrine differentiation. As the quantity of different cell types varies markedly in different tumors, cytopathologists and dermatopathologists should be aware of the resemblance of nodular hidradenoma to metastatic renal cell carcinoma, squamous cell carcinoma or signet-ring adenocarcinoma.<sup>11,12</sup>

NH of breast probably has two distinct histogenetic origins: From skin adnexal glands when located superficially and from mammary ducts if located deep in breast parenchyma. Morphologically, they are identical with their counterparts occurring in the skin.<sup>13</sup> Lesions with a deep mammary gland location were often initially diagnosed as adenomyoepithelioma or ductal carcinoma. The lack of cytologic atypia, proliferation of monotonous cells and presence of single bland bare nuclei in a case of NH should be helpful for differentiating from ductal carcinoma. However, adenomyoepithelioma is also an important consideration because of similar two-cell pattern.<sup>14</sup> Adenomyoepithelioma is positive for myoepithelial markers such as SMA, CD10, p63 and anti-muscle actin by immunohistochemistry while NH is negative for SMA, CD10, p63 and

anti-muscle actin. These tumors are usually diagnosed cytologically as benign cystic lesion or as ductal carcinoma. Malignant transformation of NH is observed in only 5% of the cases.<sup>15</sup>

Like most other adnexal tumors, the standard of treatment is surgical resection to prevent recurrence or malignant transformation. Though rare, atypical hidradenoma does have some malignant biological potential. Wide excision and follow-up are recommended. Since hidradenomas originate from dermal tissue, simple skin sparing excision is not recommended because of risk of recurrence. Excision of the mass en bloc with overlying skin and surrounding adipose is recommended.<sup>16</sup>

## REFERENCES

1. Grampurohit VU, Dinesh U, Rao R. Nodular hidradenoma of male breast: Cytohistological correlation. *J Cytol* 2011; 28:235-37.
2. Novak NP, Kaiæ G, Tomasoviæ-Loncariæ C, Zic R, Skoro M, Ostoviæ KT. Fine-needle aspiration cytology of apocrine hidradenoma. *Coll Antropol* 2010; 34:671-74.
3. Yamamoto O, Hisaoka M, Yasuda H, Kasai T, Hashimoto H. Cytokeratin expression of apocrine and eccrine poromas with special reference to its expression in cuticular cells. *J Cutan Pathol*. 2000; 27:367-73.
4. Nandeesh BN, Rajalakshmi T. A study of histopathologic spectrum of nodular hidradenoma. *Am J Dermatopathol*. 2012; 34:461-70.
5. Will R, Coldiron B. Recurrent clear cell hidradenoma of the foot. *Dermatol Surg*. 2000; 26:685-86.
6. Delfino S, Toto V, Brunetti B, Di Marino MP, Baldi A, Persichetti P. Poroid hidradenoma: a case report. *In Vivo*. 2007; 21:905-08.
7. Gianotti F, Alessi E. Clear cell hidradenoma associated with the folliculo- sebaceous apocrine unit. Histologic study of five cases. *Am J Dermatopathol*. 1997; 19:351-57.
8. Punia RS, Handa U, Mohan H. Fine needle aspiration cytology of eccrine acrospiroma. *Acta Cytol* 2001; 45:1083-85.
9. Agarwal S, Agarwal K, Kathuria P, Jain M, Chauhan DS, Prakash O. Cytomorphological features of nodular hidradenoma highlighting eccrine differentiation: A case report. *Indian J Pathol Microbiol* 2006; 49:411-13.
10. Dubb M, Michelow P. Cytologic features of hidradenoma in fine needle aspiration biopsies. *Acta Cytol* 2009; 53:179-82.
11. Gottschalk-Sabag S, Glick T. Fine-needle aspiration of nodular hidradenoma: A case report. *Diagn Cytopathol* 1996; 15:395-97.
12. Will R, Coldiron B. Recurrent clear cell hidradenoma of the foot. *Dermatol Surg*. 2000; 26:685-86.
13. Domoto H, Terahata S, Soto K, Tamai S. Nodular hidradenoma of the breast: report of two cases with literature review. *Pathol Int*. 1998; 48:907-11.
14. Dhingra KK, Mandal S, Khurana N. An unusual case of nodular hidradenoma of breast. *Iran J Pathol*. 2007; 2:80-82.
15. Ohi Y, Umekita Y, Rai Y, Kukita T, Sagara Y, Takahama T, et al. Clear cell hidradenoma of the breast: A case report with review of literature. *Breast Cancer*. 2007; 14:307-11.
16. Chen C-C, Chang Y-T, Lieu H-N. Clinical and histological characteristics of poroid neoplasms: a study of 25 cases in Taiwan. *Int J Dermatol*. 2006; 45:722-27.