

## Clear cell hidradenoma of breast mimicking atypical breast lesion: a diagnostic pitfall in breast cytology

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### Abstract

Clear cell hidradenoma (CCH) is an uncommon skin adnexal tumor arising from eccrine glands. Although several kind of skin adnexal tumors arise in the breast tissue, CCH of the breast is an extremely rare entity. Failure to identify its cytomorphologic features and rarity of this tumor may lead to misdiagnosis on fine needle aspiration cytology. Hereby we report a case of 30-year-old female who presented with painless lump in left breast since 10 months. Fine needle aspiration cytology of lump yielded fluid material. On May-Grunwald-Giemsa stained smears, a possibility of atypical breast lesion was considered and patient was advised a biopsy examination. Final diagnosis of CCH was made on histopathologic examination. Awareness of cytomorphologic features of breast CCH will prevent misdiagnosis as malignant or atypical breast lesions and will allow for correct management of the patients.

### Introduction

Clear cell hidradenoma (CCH) is an uncommon adnexal tumor arising from eccrine glands and commonly seen on the face and the upper extremities. It is a rare lesion amongst the skin adnexal tumor known to arise from the breast and only few cases have been reported in the literature.<sup>1</sup> Failure to identify its cytomorphologic features and rarity of this tumor may lead to misdiagnosis on fine needle aspiration (FNA) cytology.<sup>2,3</sup>

We report a case of 30-year-old female who presented with breast lump and underwent FNA and was diagnosed as having an atypical breast lesion. Later it was confirmed by histopathology to be a CCH.

### Case Report

A 30-year-old female presented with painless lump in left breast since 10 months. There

was no history of preceding trauma, fever, nipple discharge or retraction. There was no family history of breast malignancy. Her menstrual and obstetric history was also not significant. On local examination, there was single well-circumscribed lump measuring 3×2.5 cm in upper outer quadrant of left breast. No skin abnormality was noted. Nipple and areola were also unremarkable. Ipsilateral axillary lymph nodes were not enlarged. Fine needle aspiration cytology (FNAC) was performed with 23G needle. 3 ml straw colored fluid was aspirated and swelling got reduced post aspiration. Cytological diagnosis of atypical breast lesion (C3 lesion) was made and patient was advised biopsy examination. Excision biopsy of lump was performed and mass was sent for histopathological examination. Histological diagnosis of CCH was made. Postoperative course was uneventful. The patient has been disease free since follow-up period of 10 months.

### Pathological findings

May-Grunwald-Giemsa (MGG) stained FNA smears showed scanty cellularity with few histiocytes in hemorrhagic background. The cellularity comprised of few round to oval cells in cohesive clusters showing nuclear crowding, mild pleomorphism and lack of bare nuclei (Figure 1). Few clusters showed loosely cohesive cells with abundant eosinophilic cytoplasm (Figure 2). Cytological diagnosis of atypical breast lesion (C3) was made in view of absence of bare nuclei and clusters with nuclear crowding and mild atypia. Gross examination of excised mass showed a soft tissue measuring 2.5×2 cm. Cut section revealed cyst with well-circumscribed intracystic solid component. Hematoxylin and eosin stained sections showed a well-circumscribed intracystic neoplasm. The tumor comprised of lobules separated by thin vascular connective tissue stroma with slit-like spaces. The tumor cells were predominantly of two types; most were large round clear cells with eccentric nuclei and other type of cells had a finely granular faintly eosinophilic cytoplasm with round to oval nucleus (Figure 3). No pleomorphism, mitosis or necrosis was observed. No breast ductules were found in the sections examined. Intervening areas showed eosinophilic hyalinizing stroma. Final diagnosis of CCH was made.

### Discussion

CCH is a benign dermal tumor, which arises from distal excretory ducts of eccrine glands, and it is also known as eccrine acrospiroma, nodular hidradenoma, and solid-cystic hidradenoma.<sup>2,4</sup> This entity is seen most often

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in young adults and appears to be slightly more common in women than in men.<sup>5</sup> Common sites of origin of CCH are face, upper extremity, axilla, trunk, thigh, scalp and pubic region.<sup>2,4</sup> CCH of breast is very rare and only few cases have been reported in English literature.<sup>1-5</sup> It shares features with its counterparts elsewhere in the body. The most common clinical presentation is slow growing, painless lump in the breast, occasionally associated with pain, nipple discharge or ulceration of the overlying skin.<sup>2</sup> CCH arises commonly in nipple and subareolar region but few case reports have also been seen in deeper breast tissue like in our case.<sup>1</sup>

Usually, CCH is difficult to diagnose cytologically and in most studies, cytological diagnosis was either inconclusive or misdiagnosed as breast tumor.<sup>1-4</sup> The rarity of this neoplasm and failure to identify its cytomorphologic features may lead to misdiagnosis. Being itself rare, cytological features of this lesion are less described in literature. Hence, we describe this case report to highlight cytological dilemma in diagnosis of this entity. We misdiagnosed it as atypical breast lesion (C3 lesion according to the National Cancer Institute guidelines)<sup>6,7</sup> because of lack of bare nuclei and clusters of round to oval cells with nuclear crowding and mild atypia. CCH typically shows cellular smears on cytology comprising of

polygonal cells with moderate clear to eosinophilic granular cytoplasm. In the absence of these typical cytomorphological features, these cells are confused with ductal cells of breast and sometimes with breast malignancy. Histopathological examination further confirms the diagnosis.

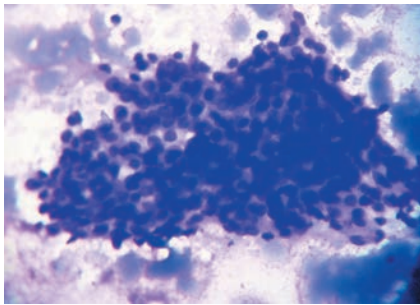
CCH of breast probably has two distinct histogenetic origin; from skin adnexal glands and from mammary ducts.<sup>8,9</sup> Because of its characteristic cyto-histological findings and deeper breast location of this tumor, primary breast ductal carcinoma, adenomyoepithelioma and metastatic clear cell carcinoma enter in differential diagnosis.<sup>1,3,5,10</sup> The lack of cytological

atypia, proliferation of monotonous cell and typical dual cell pattern helps in making correct diagnosis of CCH. It also needs to be differentiated from other skin adnexal tumors with follicular differentiation, sebaceous differentiation, or sweat gland differentiation which are known to arise from breast.<sup>4,5</sup> PAS positive diastase resistant material is typically seen in clear cells.<sup>9</sup> Immunohistochemistry (IHC) further aids in ruling other differentials. CCH shows reactivity for P63, keratin, EMA, CEA, S-100 and Vimetin but negativity for alpha-SMA, CD-10, ER, PR.<sup>1,4,9</sup>

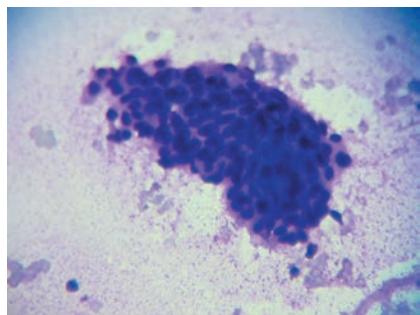
Malignant transformation of CCH has also been seen in few reported cases. However, neither clinical behavior nor histological features can predict malignant change.<sup>11</sup> It recurs very rarely in case of inadequate excision.<sup>5,11</sup> So, complete surgical excision with safe margins and regular follow-up is the treatment of choice for breast CCH.<sup>9,12</sup>

## Conclusions

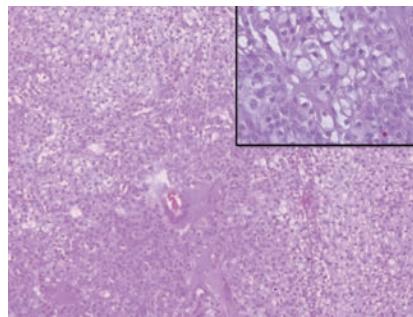
To conclude, CCH should be considered in the differential diagnosis of breast neoplasm on cytology. FNAC plays an important diagnostic modality of breast lump and awareness of these lesions on cytology is essential to prevent misdiagnosis and over treatment of these lesions.



**Figure 1.** Cytology smear showing cohesive cluster with nuclear crowding and mild nuclear atypia (May-Grunwald-Giemsa stain, 40×).



**Figure 2.** Cytology smear showing cohesive cluster of cells with moderate eosinophilic cytoplasm and mild nuclear pleomorphism (May-Grunwald-Giemsa stain, 40×).



**Figure 3.** The tumor is composed of two cell population, one with small eccentric nucleus and clear cytoplasm, and others having round to oval nucleus and eosinophilic cytoplasm (Hematoxylin and Eosin stain, 10× and 40× inset).

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