

**STUDY ON MORPHOLOGICAL FEATURES OF NODULAR HIDRADENOMA**B. Pushpa<sup>1</sup>, K. Duraisamy<sup>2</sup>, Gayathri<sup>3</sup>**HOW TO CITE THIS ARTICLE:**

B. Pushpa, K. Duraisamy, Gayathri. "Study on Morphological Features of Nodular Hidradenoma". Journal of Evolution of Medical and Dental Sciences 2015; Vol. 4, Issue 53, July 02; Page: 9140-9144, DOI: 10.14260/jemds/2015/1328

**ABSTRACT:** Study conducted in Government Villupuram medical college about morphological features of nodular hidradenoma by reviewing the hispathology slides of five cases in one year period. Analytical study done regarding the gender, age, and sites distribution of tumour and also variation in gross and histopatholgy features. **OBJECTIVE:** To describe and study the morphological features of Nodular Hidradenoma along with data on gender and age. Study on Sites and morphological features also included. **MATERIALS AND METHOD:** Retrospective evaluation of histopathological records during the previous year 2013-2014. The study was conducted in Tertiary care Teaching hospital, Government Villupuram Medical College, Villupuram. 5 cases of nodular hidradenoma were identified. Data on gender, age, Clinical presentation, gross and microscopic findings with hematoxylin and eosin stains were collected. Histological slides were reviewed.

**KEYWORDS:** Giant Nodular hidradenoma, Cyst with papillary excrescences, Squamous horn pearls, solid and cystic areas.

**INTRODUCTION:** Nodular hidradenoma is a benign adnexal neoplasm arising from the distal excretory ducts of eccrine sweat glands. Though it is a benign neoplasm very rarely malignant transformation can occur.<sup>(1)</sup> It frequently occurs from fourth to eighth decade of life and it is rare in children.<sup>(1)</sup> This tumor has gender predilection with female preponderance in ratio of 1.7:1.<sup>(2)</sup> It most commonly occurs in head, trunk and extremities and can occur in any cutaneous skin surface.<sup>(3)</sup> Our case series includes one case in breast. These tumours usually presents as a solitary, slowly enlarging, intradermal nodule, ranging in size from 0.5-2.0cm or more. Nodular hidradenoma breast is still a rare tumour.<sup>(4)</sup> Rapid enlargement of the tumor raises the possibility of malignant transformation or haemorrhage.<sup>(5)</sup> Grossly these tumors are often solid and cystic.<sup>(6)</sup> Microscopically, they are well circumscribed sharply demarcated from the epidermis by Grenz zone and tumor is composed of solid and cystic spaces. Solid areas reveal the presence of epithelial lobules. Within the lobules two types of cells are seen. Predominant cell type is the polyhedral cells with more basophilic cytoplasm and the other cell type is round with a clear cytoplasm due to the presence of glycogen.<sup>(7)</sup> Cystic spaces often contain eosinophilic fluid material, these cysts occur due to tumor cell degeneration. Lumen of cysts usually contain homogenous eosinophilic material and in few cases contain haemorrhagic foci probably due to rapid growth of lesion or after minor trauma.<sup>(8)</sup> There are also tubular lumina of varying sizes seen, sometimes lined by cuboidal ductal cells. In some tumors squamoid differentiation<sup>(9)</sup> can occur. There even may be keratinizing cells with formation of squamous horn pearls particularly in clear cell hidradenoma.<sup>(10)</sup>

**DISCUSSION:** Nodular hidradenoma is also known as clear cell myoepithelioma, clear cell hidradenoma, eccrine sweat gland adenoma of clear cell type, solid cystic hidradenoma and eccrine acrospiroma.<sup>(11)</sup> Nodular hidradenoma are conventionally regarded as eccrine sweat gland neoplasm but apocrine differentiation can also occur. Enzyme histochemical and electron microscopical

## ORIGINAL ARTICLE

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features show eccrine differentiation.<sup>(12)</sup> Our case series includes 5 cases of nodular hidradenoma with eccrine differentiation which were identified during the study period. Clinically all these 5 cases were solitary; slowly growing tumors, occurred after 4<sup>th</sup> decade of life with a mean age of 57 years (Table 1). Most common location of this tumor in our case series is scalp (3/5), one case in left thigh and other case in left breast (Table 3) The common sites of nodular hidradenoma are scalp, but can occur anywhere like axilla, face, arms, and thighs.<sup>(13)</sup> However unusual sites like oral cavity,<sup>(14)</sup> umbilical region presenting as umbilical polyp<sup>(15)</sup> has been reported in the literature. Nodular Hidradenomas of breast have also reported. Clinically breast hidradenomas occur in nipple, subareolar region and in mammary ducts.<sup>(16)</sup>

These tumors also showed gender predilection, 4/5 cases in this study occurred in females (Table 2). Average size of these tumors were 4x3cm, one case which occurred in a 57 year old female patient, in the inner lower quadrant of left breast is largest in size, which measured 9x6 cm(Figure 2). All five cases were grossly well circumscribed, 4/5 tumors presented with solid and cystic areas, solid areas with focal haemorrhage (Figure1, Figure 2 and Figure 3) and one (1/5) case which occurred in left thigh was a purely cystic lesion showed multiple papillary excrescences in its inner surface (Table 4).

Microscopically these tumors are sharply demarcated from the epidermis, presents as intradermal lesion composed of epithelial lobules. Within the lobulated mass, tubular lumina of varying sizes and cystic spaces filled with eosinophilic material are seen. Solid areas shows presence of two types of cells, one is polyhedral with basophilic cytoplasm and other is round cells with round nucleus & clear cytoplasm due to presence of glycogen in it (Figure 4). 3/5 tumors showed extensive areas of squamoid differentiation and the keratinizing cells also form multiple squamous horn pearls (Figure 5). Extensive search has been made to look for the presence of nuclear atypia, increased mitotic activity/atypical mitotic figures, infiltrative margins, necrosis, angiolymphatic invasion <sup>(17)</sup> especially in large sized tumor and none of the five tumors showed presence of any of these features. Presence of any of these features is an indication for close follow-up of these patients because of higher rate of recurrence and malignant transformation. Although, mild nuclear atypia and mitotic figures may be present but do not necessarily indicate malignancy. Complete local excision of these tumors prevent recurrence.<sup>(18)</sup>

It has been demonstrated that chromosomal translocation t (11;19) of clear cell hidradenoma of the skin is associated with TORC1-MAML2 gene fusion. Its fusion gene product, identical to that of mucoepidermoid carcinoma of the salivary gland, leads to the aberrant activation of downstream cAMP/CREB signaling genes, which results in deregulation of cAMP/CREB and Notch pathways and is associated with epithelial tumorigenesis. The t(11:19) is demonstrated in warthins tumour, in mucoepidermoid tumour and also in clear cell hidradenoma indicating that these tumours evolve through activation of same molecular pathway.<sup>(19)</sup>

**CONCLUSION:** Although nodular hidradenoma is a benign neoplasm there is a risk of recurrence and malignant transformation. Wide local excision with adequate margins has to be done and histopathological confirmation of diagnosis is recommended. Unique features observed in this study is Nodular hidradenoma can present as uniloculated cyst with surface papillary excrescences, it can reach a size of about 9x6cm and histologically apart from classical findings, it can show extensive areas of squamoid differentiation with formation of squamous horn pearls. In majority of cases

## ORIGINAL ARTICLE

Immunohistochemistry study need not be done as Heamatoxylin and eosin stain gives us reliable diagnosis.

Sl. No.	Age Group in Years	No. of Cases
1.	10-20Yrs	-
2.	21-30Yrs	-
3.	31-40Yrs	-
4.	41-50Yrs	1
5.	51-60Yrs	2
6.	61-70Yrs	2

Table 1

Sl. No.	Gender	No. of Cases
1.	Male	1
2.	Female	4

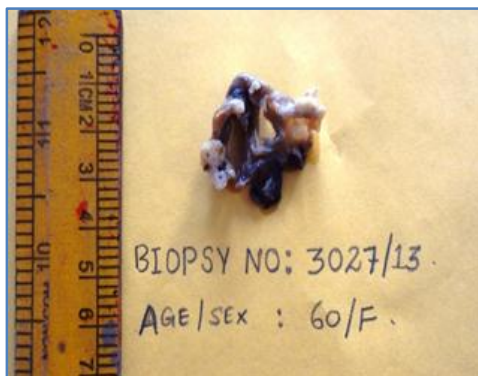
Table 2

Sl. No.	Site	No. of Cases
1.	Scalp	2
2.	Forearm	1
3.	Thigh	1
4.	Breast	1

Table 3

Sl. No.	Gross Morphology	No. of Cases
1.	Solid & Cystic	4
2.	Uniloculated cyst with multiple papillary excrescences	1

Table 4



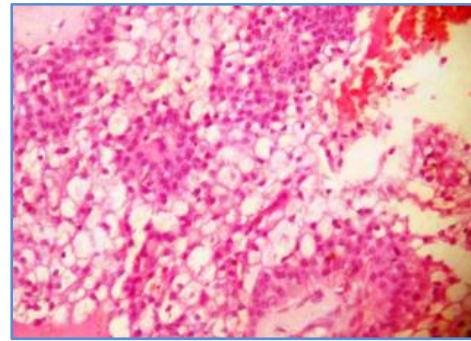
**Fig. 1: Showing solid and cystic area**



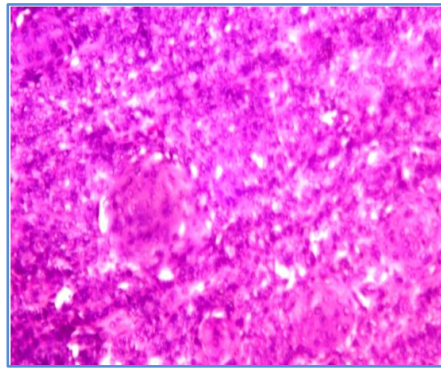
**Fig. 2: Showing solid and cystic area in nodular hidradenoma of breast**



**Fig. 3: Showing solid and cystic areas**



**Fig. 4: H & E stain shows two cell population of epithelial lobule**



**Fig. 5: H & E stain shows squamous differentiation**

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## ORIGINAL ARTICLE

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### FINANCIAL OR OTHER

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Date of Submission: 09/06/2015.

Date of Peer Review: 10/06/2015.

Date of Acceptance: 26/06/2015.

Date of Publishing: 30/06/2015.