



Cutaneous Adnexal Tumours: A Clinicopathological descriptive study of 70 cases

Chayanika Pantola, Sanjay Kala, Asha Agarwal, Sonal Amit and Saurabh Pantola
GSVM Medical College, Kanpur

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Background: Cutaneous adnexal neoplasms are large and diverse group of skin tumours that are classified according to embryologic and histologic features into eccrine, apocrine, follicular and sebaceous. The aim of study is to assess the clinicopathological characteristic of these tumours.

Material and methods: A total of 70 cases were studied during a period of 6 year, who were diagnosed to have cutaneous adnexal neoplasm and confirmed by histopathology. All the specimens were formalin fixed, processed and stained with H&E and special stains wherever necessary. Clinical data were gathered and tumours were classified as eccrine, follicular, apocrine and sebaceous after examination

Results: Among 70 cases, 67 cases were benign and 3 cases were malignant. Male (64.33%) outnumbered the female (35.67%) at our centre. Tumour with eccrine differentiation constituted the maximum number , 38 cases(54.3%) followed by follicular differentiation 24 cases(34.3%);tumours of sebaceous and apocrine differentiation 4 cases each(5.7%)

Conclusion: Cutaneous adnexal neoplasms are relatively uncommon neoplasm with distinct histological features , commonly distributed in head and neck region with a male dominance in our study.

Key words: Cutaneous adnexal neoplasm, skin tumours, histopathology

Introduction

The Cutaneous adnexal neoplasms (ANs) encompass a wide variety of tumours clinically presenting as papule and nodule and with histologically distinct features.[1] They are commonly clustered according to their adnexal differentiation based on histological, ultrastructural and immunohistochemistry analysis; eccrine, follicular, apocrine and sebaceous.[2] ANs basically originates from pluripotent stem cells and finally differentiate to specific tumour types influenced by genetics, local vascularity and the microenvironment of the

dermis and epidermis.[1-3] Owing to common origin many tumours may share common while on the other hand some ANs may display areas of mixed differentiation due to the ability of stem cells to differentiate along multiple lines, making the morphological classification of these tumours difficult. So now apparent differentiation rather than derivation may conceptually be more plausible approach to classifying these tumours. [13] Many a time it is the only academic interest to give a label because most of the time clinician do not bother about the label but pay more attention whether the labelled diagnosis is benign or malignant and what is the prognosis once it has been removed.

ANs generally behave in a benign fashion yet malignant counterpart has been describe for almost every benign ANs. Malignant ANs , though rare have a poor outcome especially if an early opportunity for the diagnosis is missed by the practitioner .Benign ANs are most often

Address for correspondence and reprint requests to: Dr. C Pantola, GSVM Medical College, Kanpur, India
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diagnosed histologically only in an asymptomatic papule or nodule excised cosmetically.

The traditional teaching dictum “the nuclear and cytological atypia denote malignancy” do not fulfill the sole criteria to label a cutaneous adnexal neoplasm malignant. Ackerman Challenges this concept and described the architectural attributes/ silhouettes to distinguish benign from malignant. He described a list of criteria to be applied to cutaneous adnexal neoplasms. [4,5] In literature only few studies have been described, other than isolated case reports, so this study aims at determining the clinic-pathological pattern of ANs in our patients.

Material and Methods

The present study is a retrospective analysis conducted for a period of 6 years from March 2007 to March 2013. Data was obtained from inpatient, outpatient and histopathological records. Histopathological evaluation was mandatory for inclusion in the study and cases clinically suspected to be AN but, not proved so histologically were excluded. A total of 70 cases were included in the study. Formalin fixed, paraffin embedded tissue sections were stained with Haematoxyline and Eosin in all cases and Periodic acid Schiff (PAS) with or without diastase in cases where intracytoplasmic glycogen content to be demonstrated, Von Gieson along with PAS where stromal hyalinised basement membrane is to be demonstrated and Alcian blue to highlight mucinous degeneration in certain tumour. Ackerman’s diagnostic Criteria were used to label a cutaneous tumour to be malignant which are as follows: irregular borders, asymmetry at scanning magnification, horizontal orientation, markedly irregular aggregates of epithelial cells, necrosis en masse, infiltration of the dermis or subcutis without the interposition of densely fibrotic stroma, mitoses frequent, can be atypical, stroma irregular, often scant, sometimes myxoid, nuclei pleomorphic.[4,5] The tumours were classified based on the differentiation into eccrine, follicular, apocrine and sebaceous tumours.

Table 1: Distribution of tumour type in relation to sex.

Tumour type	Male	Female	Total
Benign			
Eccrine: Nodular hidradenoma	8	8	16
Chondroid syringoma	1	0	1
Eccrine hidrocystoma	1	0	1
Eccrine spiradenoma	3	2	5
Eccrine poroma	2	1	3
Eccrine cylindroma	5	4	9
Follicular: Pilomatrixoma	8	4	12
Trichofolliculoma	1	1	2
Trichoepithelioma	2	0	2
Hair follicle nevus	1	1	2
Proliferating trichilemmal cyst	6	0	6
Sebaceous: Sebaceous adenoma	2	1	
Sebaceous epithelioma	1	0	1
Apocrine : Apocrine adenoma	0	1	1
Syringocystadenoma papilliferum	1	2	3
Malignant: Malignant eccrine spiradenoma	1	0	1
Adenoid cystic carcinoma	2	0	2
Total	20	25	70

Results

Out of total 18726 cases 70 cases were diagnosed as adnexal tumours, incidence being 0.37%. So a total number of 70 cases were analyzed constituting 45 male (64.3%) and 25 female (35.6%), ratio between male to female being 1.8: 1. [Table 1]

The differentiation and tumour type and anatomical distribution is shown in table 2. Out of 70 cases 67 cases (95.7%) were benign and 3 cases (4.3%) were malignant. Eccrine tumours were the most common group, nodular

Table 2: Characterization of tumour with respect to anatomical site.				
Tumour type	Head	extremities	trunk	Total
Benign				
Eccrine: Nodular hidradenoma	6	2	8	16
Chondroid syringoma	1	-	-	1
Eccrine hidrocystoma	1	-	-	1
Eccrine spiradenoma	1	2	2	5
Eccrine poroma	1	2	-	3
Eccrine cylindroma	7	-	2	9
Follicular: Pilomatricoma	6	2	4	12
Trichofolliculoma	2	-	-	2
Trichoepithelioma	2	-	-	2
Hair follicle nevus	2	-	-	2
Proliferating trichilemmal cyst	2	-	4	6
Sebaceous: Sebaceous adenoma	2	-	1	3
Sebaceous epithelioma	1	-	-	1
Apocrine : Apocrine adenoma	-	1	-	1
Syringocystadenoma papilliferum	1	2	-	3
Malignant: Malignant eccrine spiradenoma	-	1	-	1
Adenoid cystic carcinoma	-	1	1	2
Total	35	13	22	70

hidradenoma being the commonest in this group followed by the follicular tumours in which pilomatricoma was the commonest. Regarding anatomical distribution, the commonest site of involvement was head and neck, 35 cases (50%) followed by trunk, 22 cases (31.4%) and then extremities in 13 cases (18.5%).

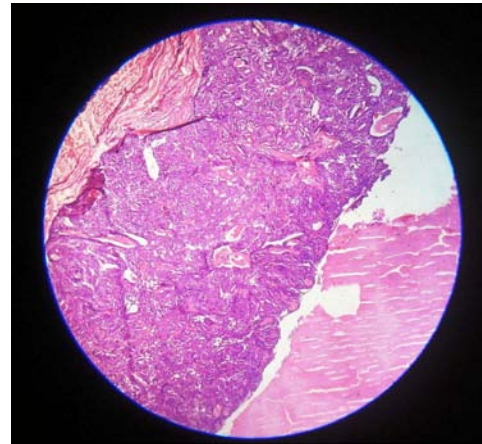


Fig 1: Section show a well circumscribed lesion comprises of basophilic cells along with cystic areas filled with eosinophilic material. (H&E, 100 X)

Table 3 shows age group involvement in different tumour type, age group 20-39 year constitute maximum numbers of cases 40 (57.1%). Duration of symptoms was 4 month to 12 years.

Clinical presentation include single nodule in 59 cases (84.3%) followed by polypoidal multinodular mass in 7 cases (10%) and ulcerated mass lesion in 4 cases (5.7%). Out of 3 malignant cases presented as ulcerated mass lesion of 4 month duration and one with a long history with recent increase in size for 2 month.

Discussion

ANs are derived from pluripotent cell that have ability to differentiate toward any of the lineage. Owing to common origin many tumour may share common features while some tumours may contain elements of two or more appendage in varying degree of maturation.[6] Many studies had described ANs with combined characteristics, but in present study no such case with combined nature was detected.[3,7] During the present study the incidence of ANs was 0.37% which was very low as compared to the total burden of surgical specimen received. The incidence ANs in present study was in concordance with other studies which ranges between 0.3-0.5%.[8-10] The long duration of the tumour and the presentation as asymptomatic papule or nodule indicate the benign nature of tumours. Also most

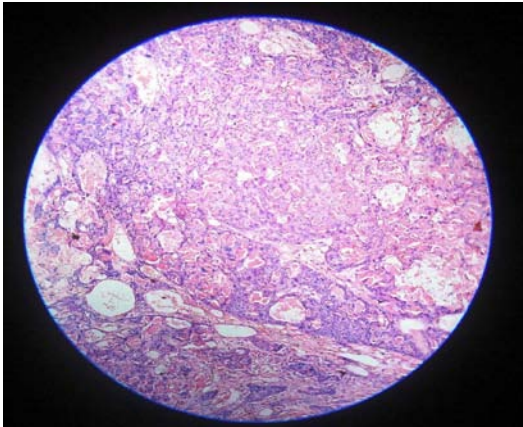


Fig 2: Section shows two types of epithelial cells the small basophilic and large eosinophilic cells along with hyaline globules. (H&E, 100 X)

cases were seen frequently in young age group (20-39 years) which is in concordance with other studies.[3,11,12] Eccrine / Sweat gland tumour was the commonest ANs found in the present study. The complex nature of sweat gland may be responsible for this.[13] Nodular hidradenoma was the Commonest eccrine tumor and the head and neck region was the preferred site of involvement. The morphological appearance was presence of solid nests with or without cystic areas filled with mucinous material. (Fig-1) The closely aggregated tumour cells display a round fusiform or polygonal biphasic cell population, one eosinophilic cell type and other clear cell type.[2]

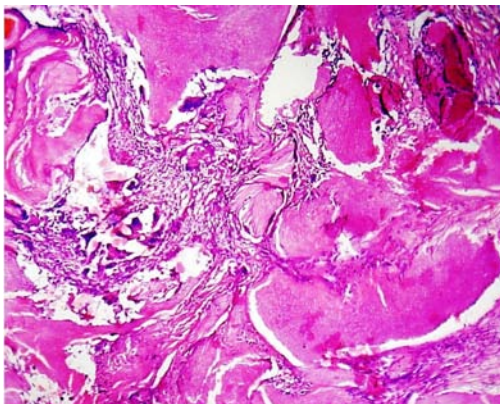


Fig 3: Section shows islands of keratinized ghost cells with foreign body giant cell reaction.(H&E, 100X)

Table 3: Distribution of tumour type in relation to age group

Tumour type	0-19 years	20-39 years	40-59 years
Benign			
Eccrine: Nodular hidradenoma	2	8	6
Chondroid syringoma	-	-	1
Eccrine hidrocystoma	-	-	1
Eccrine spiradenoma	1	4	1
Eccrine poroma	-	2	-
Eccrine cylindroma	-	8	1
Follicular: Pilomatoma	4	6	2
Trichofolliculoma	-	1	1
Trichoepithelioma	1	1	-
Hair follicle nevus	1	1	-
Proliferating trichelemmal cyst	-	3	3
Sebaceous: Sebaceous adenoma	1	1	1
Sebaceous epithelioma	-	1	-
Apocrine: Apocrine adenoma	-	1	-
Syringocystadenoma papilliferum	-	3	-
Malignant: Malignant eccrine spiradenoma	-	-	1
Adenoid cystic carcinoma	-	-	2
Total	10	40	20

The other common tumour of sweat gland lineage was eccrine cylindroma which was presented as slowly growing nodule; the commonest site of involvement was scalp. Microscopically tumour is characterized by numerous islands of tumour cells in the dermis displaying characteristic jigsaw puzzle arrangement. and the island are surrounded by hyalinised basement like material.[2] Eccrine spiradenoma characterized by multiple basophilic lobules shows intervening cords of two types of epithelial cells, cells with dark dense nuclei and

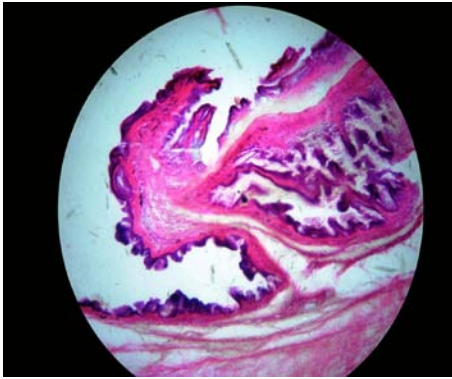


Fig 4: Section shows cystic lesion with wall show multiple papillary projections lined by basophilic cells. (H&E, 100 X)

cells with large pale nuclei. The pale cells often arranged around small lumina filled with amorphous eosinophilic material. (Fig 2) Among the follicular ANs commonest tumour was pilomatricoma and most of the cases were distributed around head neck region and presented as solitary nodule which is in concordance with other studies.[11] The tumour was characterized by biphasic pattern of ghost cells surrounded by basaloid cells with foreign body granulomatous reaction.(Fig-3)

The keratinized ghost cells have central unstained area represent the lost nuclei.[2] The cases of syringocystadenoma papilliferum showed a cystic invagination with multiple papillae projections lined by often by bilayered and occasionally by multiple layers of cells. (Fig-4) Small cells with dark nuclei and peripheral palisading lying at periphery and larger cells with light stained nuclei lying at the centre.[2]

Malignant ANs are rare and the present study report 3 cases (4.3%) predominantly in the trunk and a male sex predominance. Clinically 2 cases presented as large ulcerated poorly circumscribed mass as compared to benign tumours which were well circumscribed. Histologically adenoid cystic carcinoma showed tubuloalveolar structures lined by atypical basaloid cells along with basophilic globules and cylinders of basement membrane like material. Malignant eccrine spiradenoma on the other hand is characterized by polyploidy neoplasm with infiltrative margin with large areas

of necrosis. Cytologically it show variable admixture of basaloid , squamoid and clear cell islands. So to summarize ANs relatively uncommon tumours and they have distinct histological pattern which differentiate them from each other. They are commonly distributed in head and neck region and the commonest being eccrine / sweat gland tumour in our study

Authors' Contribution

CP: Manuscript preparation

SK: Concept and design and manuscript preparation

AA: Manuscript preparation

SA: Manuscript preparation

SP: Manuscript preparation

Conflict of Interests

The authors declare that there are no conflicts of interests

Ethical Considerations

The study was approved by the Ethics committee

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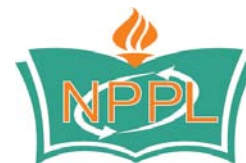
None

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