Original Research Article

Clinico-pathological study of skin adnexal tumor – a retrospective review of 242 cases from a tertiary care hospital in India

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Abstract

Background: Skin adnexal tumors are primary skin tumors, not uncommon in routine histology practice. Though most of the adnexal tumors are benign, histological differentiation and sub typing is important in further fallow up and prognosis. **Aims & Objectives:** Present study was undertaken to analyze the clinical and histo-morphological spectrum of different skin-adnexal tumors in Eastern India.**Materials & Methods:** In our 5-year research program, all histologically confirmed adnexal tumor cases were studied. History, clinical features and histology were analyzed and tabulated.**Results:** 242 cases were diagnosed among which 94.22% were benign tumors and 5.78% were malignant adnexal tumors. Most common site was head & neck region (69%) and more than half of adnexal tumors were of sweat gland origin (53.3%).**Conclusion:** Excisional biopsy and histopathology is important to diagnose the adnexal tumors. Clinician and pathologists should be familiar with the uncommon adnexal lesions and malignant adnexal tumors.

Keywords: Skin adnexal tumors, clinicopathological study, histology.

Introduction

Skin adnexal tumors are heterogeneous group of primary skin tumors, which arise from pilosebaceous apparatus, apocrine gland and eccrine sweat gland.[1,2] These are classified into four groups according to origin and differentiation- hair follicle, sebaceous, apocrine and eccrine gland type. [1,3] Most of the cases are sporadic and solitary lesion but multiple tumors may originate and may be associated with complex genetic syndromes.[1] Adnexal tumors originate from pleuripotent stem cells and further differentiate to specific subtypes of tumor due to influences of genetic abnormalities, vascularity and tumor microenvironment.[3,4]Sometimes these exhibit composite/hybrid histological differentiation and thus it causes controversies regarding developmental theory and lineage. [1, 5] Most of the adnexal tumors are benign. Malignant cases exhibit rapidly growing irregular mass or nodule with tendency to ulcerate. [2] Diagnosis of adnexal tumor needs excisional biopsy and histopathology. Immunohistochemistry may help in confirmation of the diagnosis. [1, 3] Most of the previous clinic-pathological studies in India are comprised of very low number of cases. This study was undertaken to analyze the clinical and histo-morphological spectrum of different skin-adnexal tumors in Eastern India.

Materials and Methods

The present study was conducted over a period of five years (Jan 2011 to Dec 2015) in our institute. Institutional ethical clearance was obtained from Institutional Ethical Committee. This was a cross sectional descriptive study to assess the clinico-pathological aspect of different adnexal tumors. History and clinical data were collected from the patient's treatment sheet and clinical notes at hospital record. The tissue samples were received in our histopathology laboratory. The tissue samples were processed as routine histological process of fixation, paraffin embedding, section cutting and staining (Haematoxylin and eosin). Special stains and immunohistochemistry were used wherever required. Histopathological diagnosis was done in our department. We have analysed the clinical data with the histopathological findings to reach the diagnosis. Only Histologically confirmed cases of adnexal tumors were included in the study group. Non-neoplastic skin lesions and neoplasms of non-adnexal structures were excluded from the study group. Statistical analysis was done in SPSS system (Version 22, window 8).

Results

During the study period, we have evaluated 242 cases of adnexal tumor. We found 134 cases (55.37%) were male and 108 cases (44.63%) were female. Age distribution of the cases is shown in figure 1. Adnexal tumor was diagnosed among wide age range of 7 years to 76 years with a mean age of 38.7 years. Highest number of cases was among the age group of 31-40 years (85 cases, 35.12%). Site distribution revealed 69% (167 cases) were at head and neck region. We found 50 cases (20.66%) at extremities and 45 cases (18.49%) at trunk. On histopathological examination, we found 228 (94.22%) benign adnexal tumor and 14 cases (5.78%) of malignant adnexal tumor. According to histological differentiation, we found 129 cases (53.3%) of adnexal tumor of sweat gland origin, 82 cases (33.88%) of hair follicle origin and 33 cases (12.8%) of sebaceous gland origin. Among the sweat gland tumors most common was hidradenoma (47 cases, 36.43%) [Figure 2]. Histological subtypes and distribution have been represented in table 1. Only eight cases of malignant sweat gland tumors were diagnosed (table 1). Among the tumors of hair follicle origin, pilomatricoma (figure 3) is the commonest subtype, accounting 49 cases (59.75%). Four malignant adnexal tumor of hair follicle in origin were diagnosed and proliferating trichilemmal tumor was the commonest type (3 cases). Most of the sebaceous gland neoplasms are benign (29 cases) among

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which nevus sebaceous was the most common subtype (15 cases). Other lesions were sebaceous adenoma (4 cases), steatocystoma (6 cases) and sebaceous hyperplasia(4 cases).Two cases of sebaceous carcinoma were diagnosed in our series.

Discussion

Though most of the adnexal tumors are not uncommon but many pathologists are not familiar with adnexal tumors [1,3]. Many authors have reported a lower prevalence of adnexal tumors in different countries [3, 7]. We assessed 242 cases of adnexal tumor accounting 1.32% of the biopsy cases in our series. K Kamyab Hesari et al found 3.3% adnexal tumors among the biopsy series in Iranian population. [1] But Gonalez L et al found prevalence of adnexal tumor as 1.4% in their study. Mean age of adnexal tumor in our series was 38.7 years, concordant with other previous studies. [9.10] In the present study, we found slight male preponderance in the sex ratio (1.24:1) , similar to Sharma et al, Pantola C et al and Saha et al from India but Hesari et al, Paudyal et al and Nair et al found a female dominance. [1-4, 9, 11] We detected 228 cases (94.21%) as benign adnexal tumors and 5.78% as malignant tumors. Our findings correlate with Hesari et al (benign 93.8%), Pantola et al (95.7%), and Paudyal et al (97.1%). [1, 4, 9] But Sharma et al found higher rate of malignant adnexal tumor in their series (19.64%). [11] In site distribution, we found largest number of cases at head and neck region (167 cases, 69%); consistent with finding of Sharma et al and Pantola C et al. [4, 11] Trunk and extremities are other common sites in our study and also in other previous studies. [1, 4, 9, 11] Sweat gland tumors are commonest type tumors (129 cases, 53.3%) in the present study. In previous studies, Paudyal et al, Gayathri et al, Sharma A et al and Pantola et al found sweat gland tumors as most frequent subtype in their study. [4, 9, 11, 12] But Hesari et al found tumors of sebaceous differentiation as most common type in a study in Iran.[1] Nodular hidradenoma was the most frequent type sweat gland tumor (47 cases, 36.43%) in our study. Most of the cases were located at head and neck region supporting the findings of previous studies. [3,4] In other studies by Pantola et al and Nair et al found syringoma as the commonest type sweat gland tumor. [3,4] Syringoma was diagnosed in 16 cases. Histologically it is characterised by cystically dilated ductal structure lined by two layers of cells. Few ducts revealed epithelial cell tails with a tadpole like appearance. Most of the cases were located at head and neck region. Poromas were diagnosed in 12 cases. Histology showed broad anastomosing brands of epithelial cells, smaller than keratinocyte. Most of the poromas were diagnosed at extremities and trunk, similar to Hesari et al. We have diagnosed nine cases of spiradenoma in the present study and most of the cases were located at head and neck area. Histologically they showed nodular sharply demarcated lesion composed of two types of cells (small basophilic cells and larger pale cells) with lymphocytes and variable size blood vessels. [12] Cylindromas were diagnosed in seven cases and six of the cases were at scalp, supporting the findings of Pantola et al. [4] Microscopy of the tumor show nests of tumor cells surrounded by hyalinised basement membrane having a Jigsaw puzzle arrangement. Syringocystadenoma papilliferum was diagnosed in 11 cases. Histologically the cases revealed cystic invagination with papillary architecture lined by two types of cells.

Conclusion

Adnexal tumors are not uncommon in histopathology practice. Clinically it is difficult to suspect and diagnose, that warrants excisional biopsy and histopathology. Some cases may need immunohistochemistry aid for correct diagnosis. Nodular hidradenoma was most common benign adnexal tumor and most frequent sweat gland tumor (36.43%). Malignant adnexal tumors are rare but clinician and pathologists should be aware of the clinicopathological context of the lesion for correct diagnosis.

Table 1: Distribution of histological subtypes of adnexal tumor of sweat gland origin.

	Histological subtypes	Number	Percentage
Benign	Hidradenoma	47	36.43
	Syringoma	16	12.40
	Poroma	12	9.30
	Spiradenoma	09	6.97
	Syringocystadenoma papilliferum	11	8.52
	Cylindroma	05	3.87
	Chondroid syringoma	07	5.42
	Hydrocystoma	14	10.85
Malignant	Eccrine carcinoma	2	1.55
	Porocarcinoma	2	1.55
	Mucinous carcinoma	1	0.77
	Micro-cystic adenexal carcinoma	1	0.77
	Adenoid cystic carcinoma	1	0.77
	Aggressive digital carcinoma	1	0.77

Table 2: Distribution of histological subtypes of adnexal tumor of hair-follicular in origin

n-82	Subtypes of the tumor	Number	Percentage
Benign	Pilomatricoma	49	59.75%
	Trichoepithelioma	17	20.73%
	Tricholemmoma	03	3.65%
	Trichofolliculoma	02	2.43%
	Trichoblastoma	02	2.43%
	Inverted follicular keratosis	05	6.09%
Malignant	Proliferating trichelemal tumor	03	3.65%
	Tricholemal carcinoma	1	1.21%

Table 3: Distribution of tumors of sebaceous differentiation (n-31)

n-31	Histology subtypes	Number	Percentage
Benign	Nevus sebaceous of Jadasson	15	58.38%
	Sebaceous adenoma	04	12.9%
	Steatocystoma	06	19.35%
	Sebeceous hyperplasia	04	12.9%
Malignant	Sebeceous carcinoma	02	6.45%

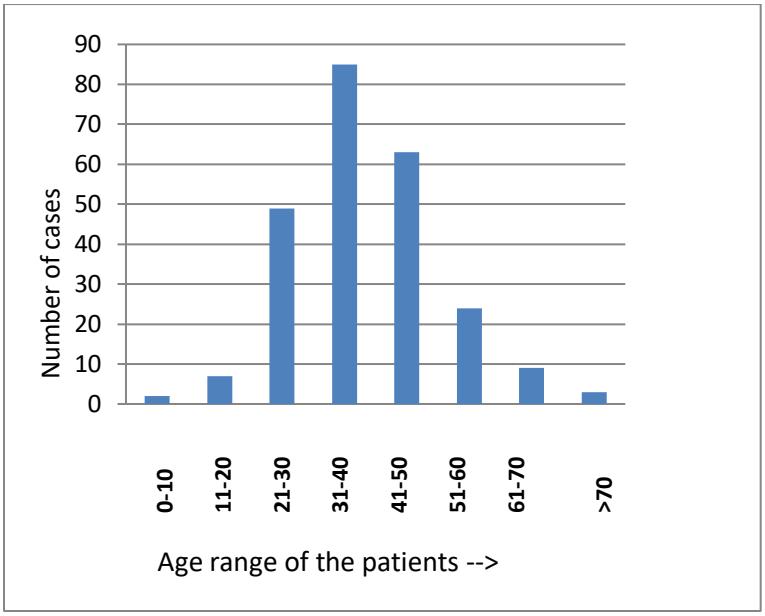

Fig 1: Bar diagram showing age distribution of the cases of skin adnexal tumors.

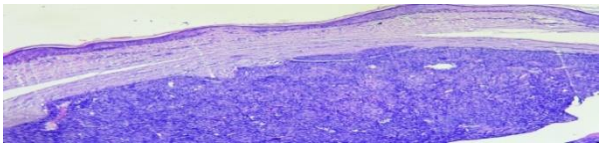

Fig 2: Photomicrograph of histology of nodular hidradenoma (low power view, H&E stain).

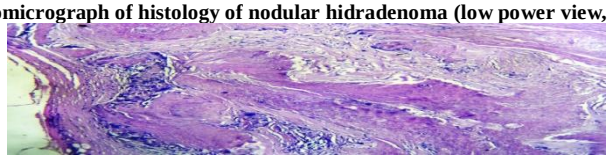

Fig 3: Photomicrograph of histology of cutaneous pilomatricoma (Low power view, H &E stain).

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