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Clinico-pathological Study of Skin Adnexal Tumours

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1. Introduction

Adnexal tumours (ATs) are the tumours arising from the appendages of the skin such as sweat glands, sebaceous glands, and hair follicles. Adnexal skin tumors are usually misdiagnosed clinically, and histopathology usually provides diagnostic confirmation. ATs are a heterogeneous group of skin tumors with mostly benign behavior. These are usually found as solitary, sporadic lesions; however, certain specific types of multiple tumors maybe an indication of some complex genetic syndromes, for example, Cowden's syndrome and Muir Torre syndrome[1.]

Neoplasm of skin appendages are rare lesions and since they are so infrequently encountered in practice, they may cause difficulty in diagnosis[2]

Apart from their rarity, difficulties in diagnosis also result due to their large variety, their frequent differentiation along two or more adnexal lines simultaneously and their complicated nomenclature.[3]. the study was performed to analyzed various features including histomorphological, and clinical features to classify according to WHO.

2. Materials and Methods

Skin adnexal tumors diagnosed in the department of pathology gmc Aurangabad, maharashtra during 3 years duration between July 2014 to July 2017 were included in this study which forms 1 years retrospective and 2years prospective study.

The biopsy material were stained by standard haematoxylin and eosin stain (H & E) and For all the retrospective case blocks were retrieved and serial sections were taken for each biopsy and were stained by standard haematoxylin and eosin stain (H & E).The H&E stained sections were then studied under light microscope. . Special stain like PAS was performed whenever required.

3. Results

A total of 54 skin adnexal tumors were received, which included both prospective and retrospective cases.

Out of 54 cases, 44 were diagnosed as benign and 10 as malignant tumours of skin constituting 81.48 % and 18.51 % respectively.

Most common benign tumour was Pilomatricoma and most common malignant tumour was sebaceous carcinoma.

Among all 54 cases of skin adnexal tumors, pilar differentiation constituted the maximum with 18 cases (33..33%) followed by tumors with eccrine glands differentiation with 16 cases (29.62 %), tumors with sebaceous differentiation 13 cases (24.09%) & apocrine 7 cases(12.96%).

Among hair follicle tumors, Pilomatricoma constituted the maximum with 13 cases (72.22%), trichoepithelioma tumors were 2 (11.11%),
single case of proliferating trichilemmal cyst, trichilemmoma, and malignant trichilemmal tumors accounting for 5.55% each.

Among eccrine, nodular hidradenoma constituted the maximum with 8 cases (50%), eccrine poroma 5 cases (31.25%) and single case of syringoma, chondroid syringoma and malignant eccrine poroma accounting for 6.25% each.

Among sebaceous tumors, 7 cases were sebaceous carcinoma accounting for maximum (53.84%), whereas five cases of sebaceous adenoma (38.46%) and two cases of nevus sebaceous (15.38%)

Among apocrine tumors, 3 were syringocystadenoma papilliferum (42.85), and single case of hidradenoma papilliferum, Cylindroma, apocrine hydrocystoma, and adenoid cystic carcinoma accounting for 14.28% each.

Among all the skin adnexal tumors solid pattern are maximum accounting for 42 cases (77.77%) followed by glandular/cystic pattern 5 cases (9.25%) and cystic patterns with 4 cases (7.40%).

Among all the adnexal tumors, basaloid pattern are maximum 29 cases (53.70%), followed by two cell pattern accounting for 22 cases (40.74%). This is followed by squamoid cell pattern accounting for 3 cases (5.55%).

Most common age group affected was 31- 40 years. Male female ratio-1.25:1. Head and neck was the most common site.

Table 1: Distribution of SAT according to sex

Sex (n=54)	Eccrine (n=16)	Pilar (n=15) (n=18)	Sebaceous (n=13)	Apocrine (n=7)
Male	8(42.30%)	12(60%)	9(75%)	1(14.29%)
Female	8(57.7%)	6(40%)	4(25%)	6(85.71%)

Table 2: Showing distribution of SAT according to age

Age	1-10 yrs	11-20 yrs	21-30 yrs	31-40 yrs	41-50 yrs	51-60 yrs	61-70 yrs	71-80 yrs
Eccrine differentiation	0	1 (5.88%)	2 (11.76%)	5 (29.41%)	3 (17.64%)	3 (23.5%)	1 (5.88%)	1 (5.88%)
Pilar differentiation	1 (5.26%)	2 (10.52%)	1 (10.52%)	7(36.84%)	3 (15.78%)	1 (5.26%)	2 (10.52%)	1 (5.26%)
Apocrine differentiation	0	1 (14.28)	2 (28.57%)	2 (28.57%)	1 (14.28%)	1 (14.2%)	0	0
Sebaceous differentiation	1 (9.1%)	0	1	2 (18.18%)	1	2 (18.1%)	4 (36.36%)	2 (18.18%)
Total no. of cases	2 (7.54%)	4 (18.86%)	6 (20.75%)	16 (20.75%)	8 (15.09%)	7 (3.77%)	7 (11.32%)	4 (5.66%)

Table 3: Distribution of all SAT according to the histomorphological arrangement

Tumor differentiation	Solid	Cystic	Solid/Glandular	Solid& cystic	Glandular cystic
Eccrine n=16	13 (75%)	-	02 (18.75%)	1 (6.25%)	-
Pilar n=18	16 (88.88%)	02 (11.11%)	-	-	-
Sebaceous n=13	12 (92.30%)	01 (7.69%)	-	-	-
Apocrine n=7	01 (14.28%)	1 (14.28%)	-	-	05 (71.42%)
Total n=54	42 (77.8%)	04 (7.40%)	2 (3.70%)	1 (1.85%)	5 (9.25%)

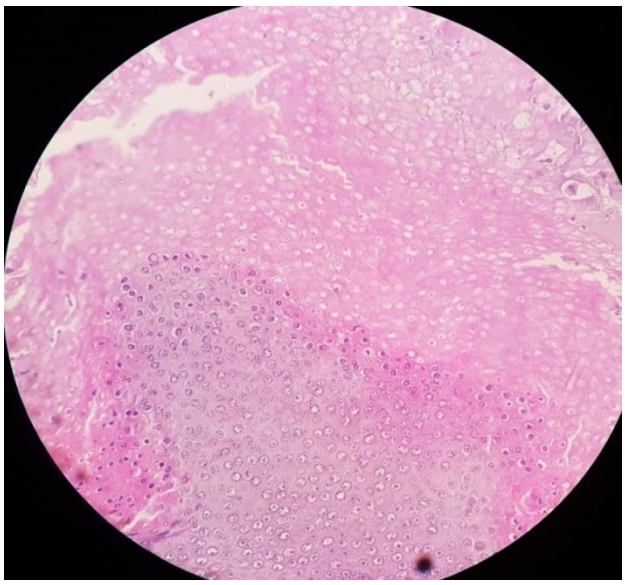

Figure 1: Pilomatricoma showing supramatrical and metrical differentiation and shadow cells. (H&EX40)

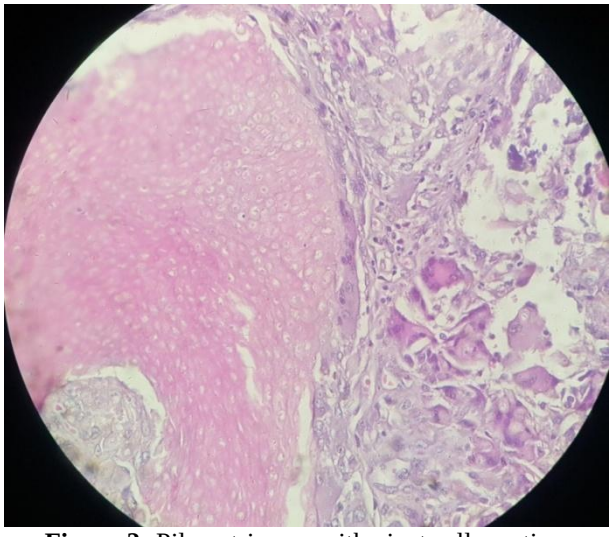

Figure 2: Pilomatricoma with giant cell reaction

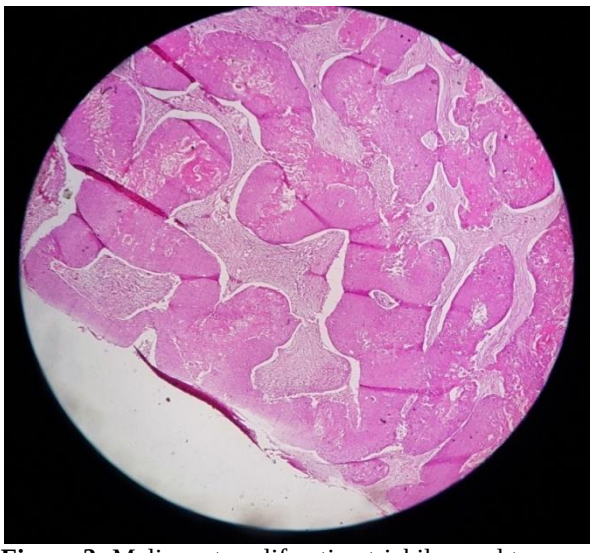

Figure 3: Malignant proliferating trichilemmal tumour (H&E X10)

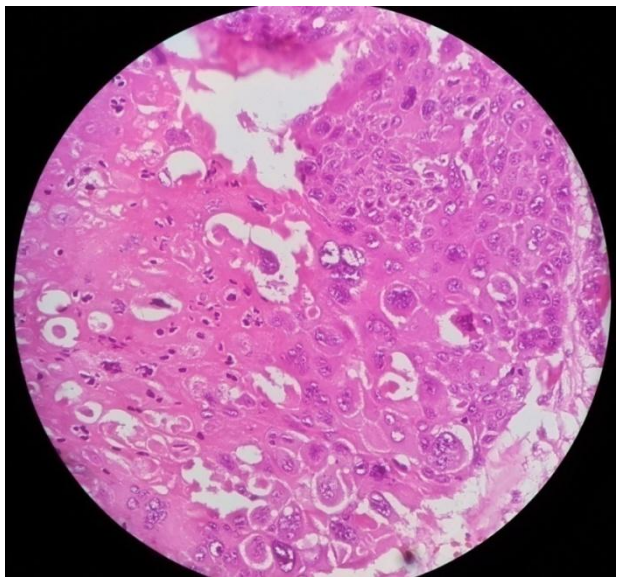

Figure 4: Malignant proliferation trichilemmal tumour Note the nuclear pleomorphism and mitotic figures

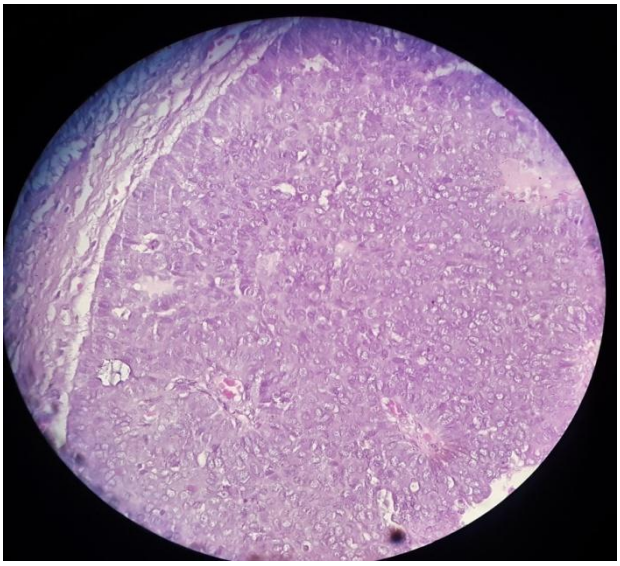

Figure 5: Nodular hydradenoma showing two types of cells and ductal differentiation

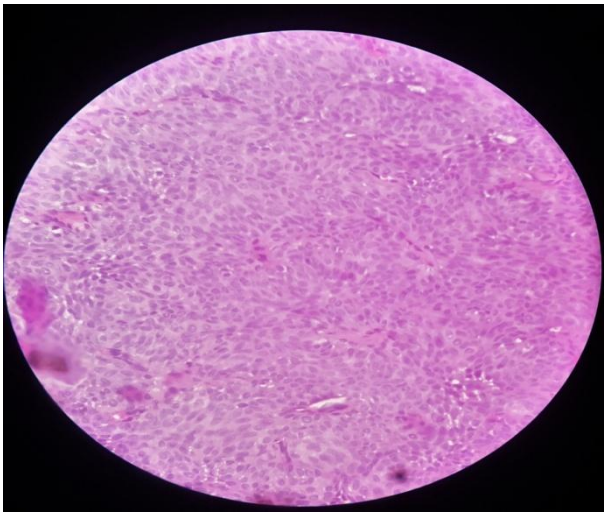

Figure 6: Eccrine poroma showing uniform basophilic cells arranged in solid sheets (H&E 40X)

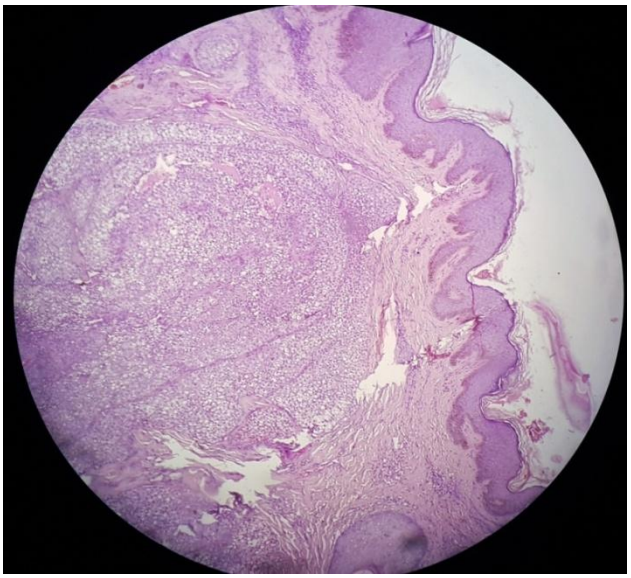

Figure 7: Sebaceous adenoma, showing nodular growth within dermis (H&E X10)

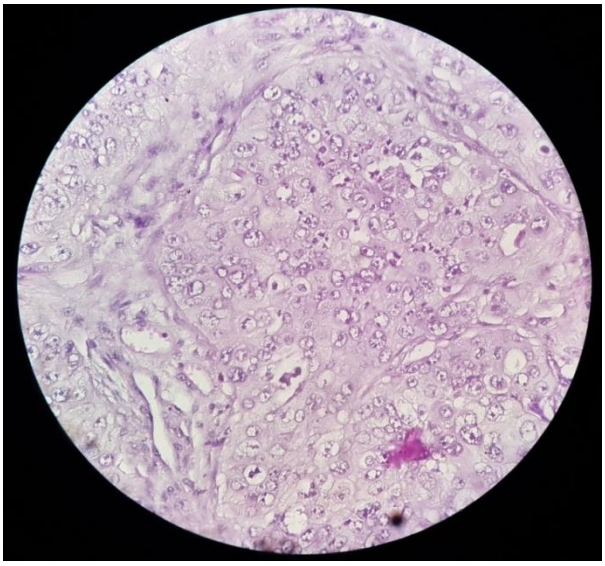

Figure 8: Sebaceous carcinoma showing pleomorphic sebocytes and nuclear atypia and mitosis.(H&E X40)

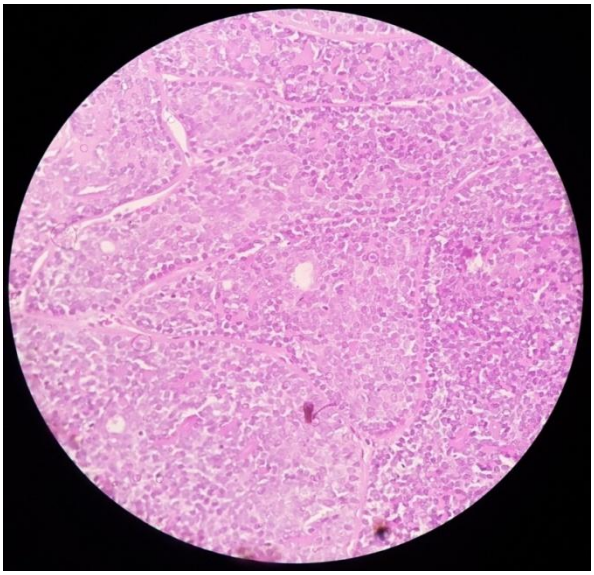

Figure 9: Cylindroma showing two cells population basaloids cell at periphery and large cells at centre.(H&E 40x)

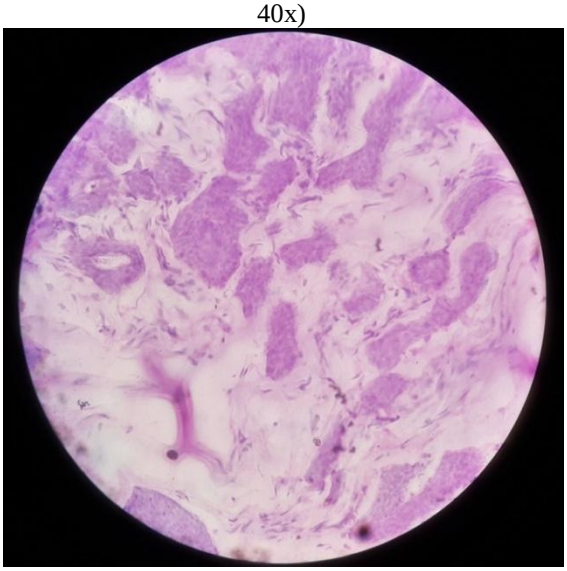

Figure 10: Chondroid syringoma, tumour showing myxoid stroma. (H&E 10X)

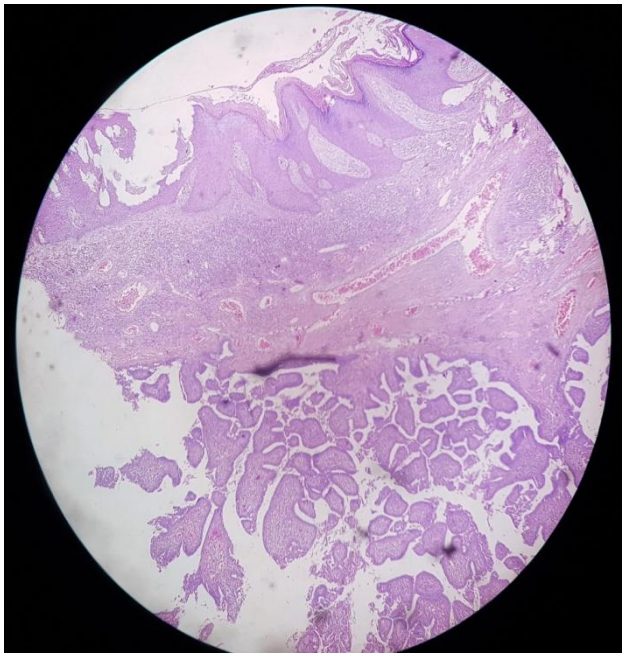

Figure 11: Syringocystadenoma papilliferum showing papillary proliferation.(H&E X10)

4. Discussion

In present study M:F ratio was 1.16:1, In the study by Yakoob et al and Nair PS et al**60** M:F ratio was 1.04:1 and 1:2.5 respectively. In Ankit Sharma**126** and kanwalpreet kaur**130** study ratio was 1.07:1, 1.03:1 respectively.

In present study benign tumors formed the majority accounting for 84.6%. Similarly in the studies done by Radhika et al[4], Yaqoob et al [2].

In the present study Pilar differentiated tumors formed the majority accounting for 33.33%. In the study by kanwalpreet kaur et al[8] tumour with follicular origin formed majority accounting for 39.09% , followed by tumour with sweat gland origin 37.27%. In the study by Nair PS et al**60** eccrine differentiated tumors formed the majority accounting for 51. 5%. Were as Study by Yaqoob N et al**2** pilosebaceous derived tumours formed the majority accounting for 41.56 % respectively.

In the present study among all Malignant skin adnexal tumors sebaceous carcinoma formed the majority accounting for 12.96%.in the study by kanwalpreet kaur et al[8] and ankit Sharma et al [6] sebaceous cell carcinoma formed the majority accounting for 11.8% and 19.64 % respectively

Table 4: Comparison of prevalence of skin adnexal tumors in various published studies and present study

Studies	Samalia et al[5]	Radhika et al [4]	Vani D et al[9]	Sharma et al[6]	Rajalaksmi et al [7]	Kanwalpreet et al[8]	Present study
Study period	January 1991 to December 2006	January 1993 to December 2003	January 2010 January 2014	June 2004 to June 2010	2009-2013	January 2013 to December 2015	July 2014 to July 2017
Total cases	52	35	51	56	21	110	54
Most common age group affected	33 years	20-30	40-49	51-60	30-40	20-39	31-40
Male:female	1:1	0.7:1	1:1.68	1.07:1	1.1:1	1.03:1	
Most common Site	Head and Neck	Head and Neck	Head and Neck	Head and neck	Head and neck	Head and neck	Head and neck
Benign tumors (%)	88.5	77.14	74.50	80.36	90.48	82.72	82
Malignant tumors (%)	11.5	29.63	25.49	19.64	9.52	17.28	18
Most common benign tumor	Eccrine acrospiroma (32.7%)	Nodular hideradenoma; nevus sebaceous (14.2% each)	Nodular Hidradenoma (11.6)	Clear cell hidradenoma; pilomatricoma (21.43% each)	Pilomatricoma (19.04%)	Pilomatricoma (28.2%)	Pilomatricoma (24.07%)
Most common malignant tumor	Sweat gland carcinoma (11.5%)	Sweat gland carcinoma (11.4%)	Sebaceous cells carcinoma (7.84)	Sebaceous carcinoma (19.64%)	Aggressive digital papillary adenocarcinoma; malignant dermal eccrine cylindroma (one	Sebaceous carcinoma (11.85%)	Sebaceous carcinoma (12.96.%)

5. Conclusion

Skin adnexal tumours are rare neoplasm which is difficult to diagnose clinically as their presentation is very nonspecific. Morphological assessment is very important in evaluating skin adnexal tumours and histochemical and immunehistochemical stain may occasionally serve as ancillary tools.

Histomorphology is the gold standard in the diagnosis of skin adnexal tumours. Among all skin adnexal tumours frequency of benign tumours is more compare to malignant ones. Skin adnexal tumours can occur anywhere in the body but head and neck region found to be the most common location. Benign adnexal tumours show wide age presentation, but malignant tumours mostly presented with older age. Most of adnexal tumours can be classified into

subgroup on the basis of light microscope alone. Peripheral palisading classically described in some malignant tumour like BCC but it can be seen in benign skin adnexal tumour. Among all the skin adnexal tumors, predominantly most of them showed solid pattern and basaloid cell population.

Calcification is common in both benign and malignant skin adnexal tumours, but necrosis is prominent feature of malignant tumours

This predominant pattern may help in the diagnosis of SAT whenever there is overlapping of cellular morphology. due to the scarcity of few tumors pattern, analysis was not clearly established hence multianalysis of individual tumor may be required along with the other ancillary techniques.

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