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Research Article

Clinicopathological Study of Skin Adnexal Tumours at Tertiary Care Centre

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ABSTRACT
Background: Skin, which is composed of epidermis, dermis and skin adnexa has high incidence of Skin tumours. Subgroups of skin adnexal neoplasms are distinguished based on the differentiation of these tumours towards sebaceous, apocrine, eccrine, and hair follicles. Though clinical features provide clues to the diagnosis, histopathology remains the gold standard in the confirmation of the diagnosis. Categorization of the tumor as benign or malignant is vital for therapeutic and prognostic purposes. Present study was conducted to assess frequency, histological subtype, benign or malignant nature and age distribution of skin adnexal tumours which will further help diagnosis towards their line of differentiation. **Materials and Methods:** Present study is a cross sectional observation study conducted from October 2022 to September 2024. 43 cases of skin adnexal tumors of all ages & both gender who has been advised histopathology were enrolled**.** After Histo-morphological analysis of the tumors they were classified according to predominant pattern of differentiation into follicular, sebaceous, eccrine, and apocrine. Statistical analysis was performed using SPSS software, version 20. **Observations and Results:** majority cases i.e. 17 (39 %) were from age group between 41 to 60 years. Males were 24 (56 %) and females were 19 (44 %). In majority i.e. 28 (65 %) Head, neck & face was involved. Benign cases were 40 (94 %) whereas Malignant were 3 (6 %). In 26 (61 %) cases Hair follicle was involved. In 4 (10 %) Sebaceous gland, in 6 (13 %) Apocrine gland and in 7 (16 %) Eccrine gland was involved. amongst Benign cases Trichelemmal cyst was the commonest found in 12 (29 %) cases. **Conclusion:** To conclude Majority of the skin adnexal tumours were benign compared to malignant. Head, neck and face region were found as the commonest site of involvement and maximum cases involved hair follicle

Keywords: Skin appendageal tumours

INTRODUCTION

Skin, which is composed of epidermis, dermis and skin adnexa has high incidence of Skin tumours[1,2]. Skin adnexal tumours are classified according to appendageal differentiation[3,4]. These tumours are mostly benign in nature[5,6] whereas malignant ones are usually irregular shaped, solitary, rapidly growing plaques or nodules that have a tendency to ulcerate. Subgroups of skin adnexal neoplasms are distinguished based on the differentiation of these tumours towards sebaceous, apocrine, eccrine, and hair follicles[7]. Diagnosis of Skin adnexal tumours has important therapeutic implications. Often presenting as an asymptomatic papule or nodule, skin adnexal tumours can be missed clinically in many cases. Most of the tumours present with fleshy coloured, solitary or multiple papules or nodules[8,9]. Though clinical features such as anatomic location, number, and pattern of distribution provide clues to the diagnosis, histopathology remains the gold standard in the confirmation of the diagnosis[10]. The confirmation of the diagnosis is by Histopathology as well as immunohistochemistry. Immunohistochemistry however is thought to be of little value in definitely differentiating the various adnexal tumours[11]. Hence, histopathologic examination remains the mainstay of diagnosis[10]. categorization of the tumor as benign or malignant is vital for therapeutic and prognostic purposes. present study was conducted to assess frequency, histological subtype, benign or malignant nature and age distribution of skin adnexal tumours which will further help diagnosis towards their line of differentiation

MATERIAL AND METHODS

Present study is a cross sectional observation study conducted from October 2022 to September 2024 at MGM medical college &

hospital Aurangabad, Maharashtra. Institutional ethics committee permission was taken prior to commencement of present study. 43 cases of skin adnexal tumors fulfilling inclusion and exclusion criteria were enrolled. Study was explained to all participants and written informed consent was obtained from all.

Inclusion Criteria

Skin biopsy specimens from all clinically diagnosed cases of skin adnexal tumors of all ages & both gender who has been advised histopathology were enrolled

Exclusion Criteria

Skin lesions of epidermal origin & Patients who were clinically diagnosed as having appendageal tumours but later not proven histologically

Procedure

Present study was undertaken in the Department of pathology at tertiary care hospital over a period of two years. Total number of specimens including skin biopsies sent for histopathological examination during the study duration were 14,530, of which biopsies clinically suspected of skin adnexal tumor were 170. Out of these, total 43 patients with histopathological diagnosis of skin adnexal tumor fulfilling inclusion and exclusion criteria were enrolled (Incidence 0.295 %). Details like age, gender, clinical features, site of involvement, dimensions, histopathological features such as adnexal structure involved (hair follicle/sebaceous/apocrine/eccrine) were recorded in case record form (CRF). Detailed gross and Histopathological examination was performed in each case**.** After Histo-morphological analysis of the tumors they were classified according to predominant pattern of differentiation into follicular, sebaceous, eccrine, and apocrine. Adnexal tumors were diagnosed according to the literature from Lever's Histopathology of Skin 11th ed and categorized as per the latest WHO classification[11]. Differentiation between benign and malignant tumors was done according to criteria by **Rajlaksmi Tirumale et al (2013)[12]**

Statistical Analysis

Statistical analysis was performed using SPSS software, version 20. Data are expressed as mean ± SD and frequency with percentages N (%). Relevant statistical test was used to evaluate association & Statistical significance. Statistical significance was assumed if P value less than 0.05.

OBSERVATION AND RESULT

Table 1: Demographics

Sr No	Demographic Parameter	Number of cases n	Percentage %
1	Age (Years)		
	a. ≤ 20	9	21 %
	b. 21 to 40	17	39 %
	c. 41 to 60	8	19 %
	d. >60	9	21 %
2	Gender		
	a. Male	24	56 %
	b. Female	19	44 %

As shown in **Table 1,** majority cases i.e. 17 (39 %) were from age group between 41 to 60 years. Males were 24 (56 %) and females were 19 (44 %).

Table 2: Clinical history of lesion

Sr No	Parameter	Number of cases n=43	Percentage 100 %
1	clinical sign		
	a. Cystic swelling	31	72 %
	b. Papule	4	9 %
	c. Nodule	8	19 %
2	site of abnormality		
	a. Head, neck & face	28	65 %

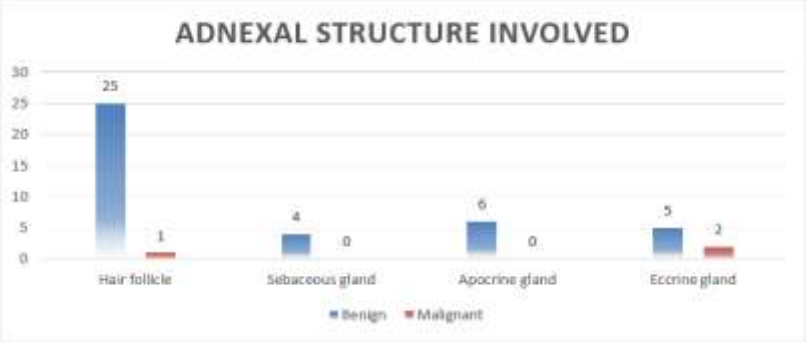
	b. Upper & lower Extremity	7	16 %
	c. Trunk region	8	19 %
3	Dimensions (cm)		
	a. ≤ 1	3	7 %
	b. 1.1 to 2	20	46 %
	c. 2.1 to 3	9	21 %
	d. 3.1 to 4	8	19 %
	e. > 4	3	7 %

As shown in **Table 2,** Cystic swelling was found in 31 (72 %), papule in 4 (9 %) and nodule in 8 (19 %) cases. In majority i.e. 28 (65 %) Head, neck & face was involved. In maximum i.e. 20 (46 %) cases lesion dimension was between 1.1. to 2 cm.

Table 3: adnexal structure involved

Sr No	Parameter	Benign 40 (94 %)	Malignant 3 (6 %)	Total 43 (100 %)	Relative Risk	P value
1	Hair follicle	25 (58 %)	1 (3 %)	26 (61 %)	0.326	0.345 (NS)
2	Sebaceous gland	4 (10 %)	0 (0 %)	4 (10 %)	1.142	0.925 (NS)
3	Apocrine gland	6 (13 %)	0 (0 %)	6 (13 %)	0.775	0.861 (NS)
4	Eccrine gland	5 (13 %)	2 (3 %)	7 (16 %)	10.285	0.043 (S)

As shown in **Table 3,** Benign cases were 40 (94 %) whereas Malignant were 3 (6 %). In 26 (61 %) cases Hair follicle was involved. In 4 (10 %) Sebaceous gland, in 6 (13 %) Apocrine gland and in 7 (16 %) Eccrine gland was involved**.**

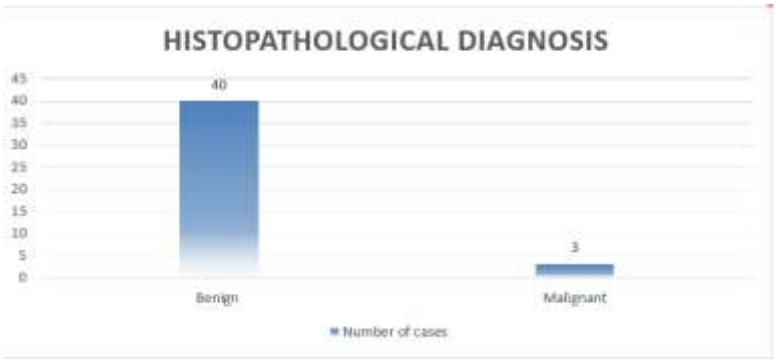


Graph 1: adnexal structure involved

Table 4: histopathological diagnosis

Sr No	Parameter	Number of cases n=43	Percentage 100 %
1	Benign	40	94 %
	a. Trichoadenoma	2	5 %
	b. Trichoblastoma	1	2 %
	c. Pilomatricoma	7	16 %
	d. Trichelemmal cyst	12	29 %
	e. Proliferating trichilemmal tumour	3	7 %
	f. Apocrine hidroccystoma	2	5 %
	g. Syringocystadenoma papilliferum	1	2 %
	h. Hidradenoma papilliferum	3	7 %
	i. Nevus sebaceous	4	9 %
	j. Chondroid syringoma	2	5 %
	k. Nodular hidradenoma	2	5 %
	l. Eccrine spiradenoma	1	2 %
2	Malignant	3	6 %
	a. Malignant adnexal tumour	1	2 %

	b. Adenoid cystic carcinoma, grade ii	1	2 %
	c. Eccrine carcinoma with cystic degeneration	1	2 %



Graph 2: Histopathological Diagnosis

As shown in **Table 4, amongst** Benign cases Trichelemmal cyst was the commonest found in 12 (29 %) cases followed by Pilomatricoma in 7 (16 %) cases. **Amongst** Malignant cases 1 (2 %) cases was each of Malignant adnexal tumour, Adenoid cystic carcinoma, grade ii and Eccrine carcinoma with cystic degeneration

Table 5: Immunohistochemical markers

Sr. No.	Markers	Malignant adnexal tumour	Adenoid cystic carcinoma, grade ii	Eccrine carcinoma with cystic degeneration
1	CEA	Positive	Positive	Positive
2	EMA	Positive	Positive	Positive
3	S100	-	Positive	Positive
4	GATA3	Negative	Negative	-
5	CK7	Positive	Positive	Positive
6	CK20	Negative	Negative	Positive
7	p63	Positive	Positive	Positive
8	p40	Positive	Positive	-
9	ALCIAN blue/PAS	Negative	Positive	-
10	CD117	Negative	Positive	-
11	AR	Negative	Negative	Positive

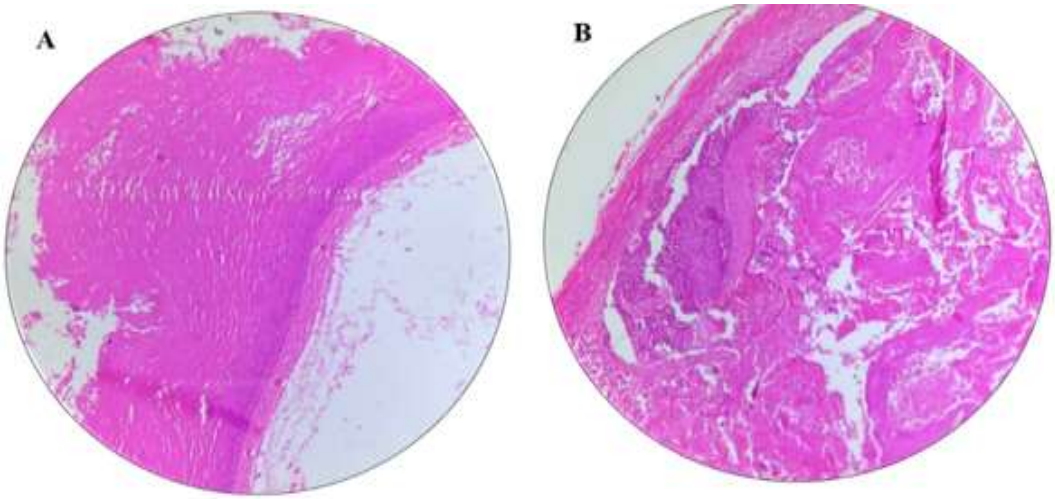
On comparison of histopathological with IHC diagnosis, 1 hair follicle malignant case was diagnosed as Malignant adnexal tumour on histopathology & later as Trichoblastic carcinoma on IHC. Amongst 2 Eccrine gland malignant cases 1 was diagnosed as Adenoid cystic carcinoma, grade ii on histopathology & later as adenoid cystic carcinoma on IHC. Other 1 case was diagnosed as Eccrine carcinoma with cystic degeneration on histopathology and also as Eccrine carcinoma on IHC

DISCUSSION

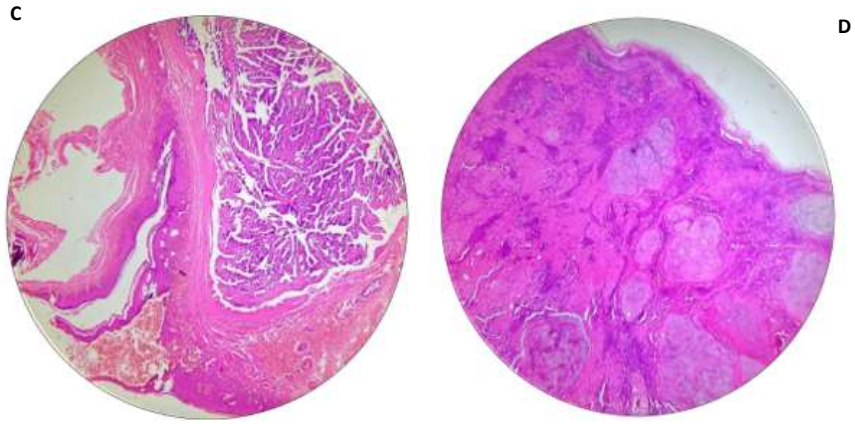
Neoplasms that differentiate towards or originate from the pilosebaceous apparatus, apocrine glands, or eccrine sweat glands are known as skin adnexal tumours. Incidence is low but diagnose is challenging. In present study 43 histo-pathologically diagnosed and confirmed cases of skin adnexal tumors (Incidence -0.295 %) of all ages & both genders were enrolled. Skin lesions of epidermal origin & Patients who were clinically diagnosed as having appendageal tumours but later not proven histologically were excluded. Details like age, gender, clinical features, site of involvement, dimensions, histopathological features such as adnexal structure involved (hair follicle/sebaceous/apocrine/eccrine) were recorded and after detailed gross & Histopathological examination statistical analysis done

In present study majority cases i.e. 17 (39 %) were from age group between 41 to 60 years. Males were 24 (56 %) and females were 19 (44 %). In similar study by Budamakuntla L et al (2022)[13] they found mean age as 32.64 years with range 11 to 55

years. males were 34.78 % & females were 65.21 %. Nayak GD et al (2020)[14] in their study found maximum number of cases belonged to age-group of 31 to 40 years (10/43 - 23.8 %) followed by 11 to 20 & 21 to 30 years (21.4 % each). total 25 were males (58.1%) and 18 (41.9%) were females. In present study Cystic swelling was found in 31 (72 %), papule in 4 (9 %) and nodule in 8 (19 %) cases. In majority i.e. 28 (65 %) Head, neck & face was involved. In maximum i.e. 20 (46 %) cases lesion dimension was between 1.1. to 2 cm. In similar study by Budamakuntla L et al (2022)[13] they found common site was head & neck 31/42 (73.80 %) followed by trunk 9/42 (21 %) & upper limb 2/42 (5.20 %). Nayak GD et al (2020)[14] in their study found the clinical presentation of swellings varied as cysts (70%), nodules (25%) and papules (5%). Commonest site of involvement was scalp (22/43 - 51.2%) followed by face (12/43 - 27.9%) and followed by Upper limbs (5/43 – 11.6%). Kaur K et al (2017)[15] in their study found head and neck (78.18%, 86/110) was the most common site of involvement followed by extremities (13.64%, 15/110) and trunk (8.18%, 9/110). Garima et al (2019)[16] in their study found head and neck (27/57 – 47.5%) as the most common site of involvement followed by upper limb (13/57 – 22.8%). In present study incidence of skin adnexal tumours was 0.295 % whereas in similar study by Budamakuntla L et al (2022)[13] it was 0.096 % & in Kaur K et al (2017)[15] it was 0.3 %. In present study Benign cases were 40 (94 %) whereas Malignant were 3 (6 %). In 26 (61 %) cases Hair follicle was involved. In 4 (10 %) Sebaceous gland, in 6 (13 %) Apocrine gland and in 7 (16 %) Eccrine gland was involved. In similar study by Sejekan SV et al. (2022)[17] in their study found overall lesions with hair follicle differentiation comprised of 73.3% (77/105), followed by sebaceous differentiation of 15.3% (16/105) and eccrine differentiation of 11.4 % (12/105). Ankit Sharma et al (2014)[18] in their study found sweat gland tumours constituted the largest group involving 42.86 % (24/56) cases followed by the hair follicle tumors 37.71% (20/56) cases followed by sebaceous gland tumors 21.43% (12/56). V. Srinivas Kuma et al (2018)[19] in their study found largest group was of sweat gland tumors consisting of 43%, hair follicle tumors in 39% and sebaceous gland in 18 %. Sangeetha Kandasamy et al (2023)[20] in their study found hair follicular tumours constituted the largest group involving 40 % of cases, followed by apocrine and eccrine tumours involving 37% of cases and lastly sebaceous tumours involving 23 % of cases. amongst Benign cases Trichelemmal cyst was the commonest found in 12 (29 %) cases followed by Pilomatricoma in 7 (16 %) cases. In present study Amongst Malignant cases 1 (2 %) cases was each of Malignant adnexal tumour, Adenoid cystic carcinoma, grade ii and Eccrine carcinoma with cystic degeneration. In similar study by Budamakuntla L et al (2022)[13] they found 42 (100%) benign cases out of which trichoepithelioma in 18/42 (42.85 %), trichofolliculoma in 1/42 (2.38 %), pilomatricoma in 4/42 (9.52 %) and trichilemmal cyst in 4/42 (9.52 %). Sweat glands tumors were comprised of chondroid syringoma in 12/42 (28.57 %), hidrocystoma in 2/42 (4.76 %) and syringocystadenoma papilliferum in 1/42 (2.38 %). Nayak GD et al (2020)[14] in their study found 42 (97.7%) benign cases and 1 (2.3%) malignant case. Majority of tumours showed pilar differentiation (52.4%) with Trichilemmal cyst being the most common benign pilar tumor (30.23%).



A: H&E: 10X – Trichilemmal cyst, B: H&E: 10X – Pilomatrixoma



C: H&E: 4X-Hidradenoma Papilliferum, D: H&E: 4X –Chondroid syringoma

CONCLUSION

To conclude incidence of Skin appendageal tumours were found as 0.295 % in present study. Majority of the skin adnexal tumours are benign compared to malignant. Head, neck and face region were found as the commonest site of involvement and maximum cases involved hair follicle. Diverse & specific histomorphological features observed making biopsy an imperative tool for diagnosis of Skin appendageal tumours. Systematic and detailed history, proper clinical examination and histopathological approach can help in getting close to correct diagnosis

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