



ISSN: 0975-833X

Available online at <http://www.ijournalcra.com>

International Journal of Current Research
Vol. 15, Issue, 04, pp.24250-24254, April, 2023
DOI: <https://doi.org/10.24941/ijcr.45065.04.2023>

INTERNATIONAL JOURNAL
OF CURRENT RESEARCH

RESEARCH ARTICLE

A MORPHOLOGICAL STUDY OF SWEAT AND SEBACEOUS GLAND TUMOURS OF SKIN ADNEXA

Umera Ikram ¹, Lateef Ahmad Wani ², Sheikh Bilal³ and ⁴ * Sami ullah Mujoo,

¹Post Graduate Department of Pathology, Govt., Medical College Srinagar, J & K

²Professor Department of Pathology, Govt. Medical College Srinagar, J & K

³Professor and Head Department of Pathology, Govt. Medical College Srinagar, J & K

⁴Assistant Professor, Anaesthesiology and Critical Care, Govt., Medical College Srinagar, J&K

ARTICLE INFO

Article History:

Received 14th January, 2023
Received in revised form
17th February, 2023
Accepted 16th March, 2023
Published online 18th April, 2023

Key words:

Sweat and Sebaceous Gland Neoplasms

*Corresponding Author:

Dr. Sami ullah Mujoo,

ABSTRACT

Background Aim: To determine the pattern of Sweat and sebaceous gland tumours of Skin Adnexa histologically. **Material and Method:** The study was conducted in the department of Pathology, Government Medical College Srinagar for a period of 24 months. It was an observational cross sectional study. Formalin fixed, paraffin embedded tissue sections were stained with hematoxylin and eosin stain for histopathological analysis. **Result:** A total of 64 cases of sweat and sebaceous gland tumors were studied 59 were benign and 5 were malignant with male to female ratio of 0.93:1. Tumors with sweat differentiation are more common than sebaceous differentiation. The maximum number of benign cases were observed in 31-40 years of age group. The malignant tumors were found in the age group of 61 -70 years. Head and neck was the most common site. **Conclusion:** Skin appendageal tumors are relatively rare neoplasms. Cutaneous adnexal tumors are complex due to their diverse origin and varied histological appearance. Many of these have morphological overlap. In our study, sweat gland tumors were more common group. Although majorities of adnexal tumors are benign, malignant counterparts are rarely encountered, causing further diagnostic difficulties. By far the commonest variant in the present study was of eccrine sweat gland origin.

Copyright©2023, Umera Ikram et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Citation: Umera Ikram, Lateef Ahmad Wani, Sheikh Bilal. 2023. "A morphological study of sweat and sebaceous gland tumours.". *International Journal of Current Research*, 15, (04), 24250-24254.

INTRODUCTION

Cutaneous appendageal tumors are a large diverse group of tumors that are commonly classified according to their state of appendageal differentiation- eccrine, apocrine, follicular and sebaceous^[1] SAT may display more than one line of differentiation (hybrid/composite tumours), rendering precise classification of these neoplasms difficult.^[2] Incidence of skin tumours has increased dramatically over the last several decades at least in part as a result of increasing sun exposure necessitating vigorous surveillance. These tumors are derived from multipotent undifferentiated cells present within the epidermis or its appendageal structures and the histologic features of the tumor are related to the activation of molecular pathways responsible for forming the mature adnexal structure^[3,4] Head and neck region is unique because of its rich distribution of pilosebaceous apparatus, apocrine as well as eccrine sweat glands. It has also been previously documented that appendageal tumours (ATs) predominate over head and neck area^[5] Few clinicopathologic studies are available on adnexal tumours from India and the world as well.^[6,7] The clinical details are essential for diagnosing skin adnexal tumours on biopsy to avoid discrepancy between clinical and pathological diagnosis.^[3,5] Most of the time clinical diagnosis is difficult because of similarity in gross appearance. Even sophisticated investigations such as CT scan and various tumour markers are not useful in skin and adnexal tumours, histopathology alone remains a diagnostic tool^[3].

MATERIAL AND METHODS

The present study was an observational cross-sectional study over a period of 2 years from Jan 2020 to Dec 2021 in the Department of Pathology, Govt. Medical College and Associated Hospital Srinagar. The clinical details were retrieved from the requisition forms of our department. All skin specimens and skin biopsy received by Department of Pathology were properly labeled, numbered and kept for overnight fixation in 10 percent formalin. The maximum number of required tissue sections were taken, tissue was processed as per standard procedure. 3 to 4 micron sections were taken from paraffin embedded tissue blocks and stained with hematoxylin and eosin stain.

RESULTS

Statistical Methods: The recorded data was compiled and entered in Microsoft excel sheet and then exported to data editor of Statistical Package of Social Sciences (SPSS) V.23. Categorical variables were summarized as frequencies and percentage. Continuous variables were summarized as mean and standard deviations. The present study diagnosed, 64 sweat and sebaceous gland tumors of skin adnexa on histopathological examination. The benign sweat and sebaceous gland tumors constituted 92.18% (59/64) cases and malignant sweat and sebaceous gland tumors constituted 7.81% (5/64) cases. The sweat gland tumors constituted the larger group involving

90.6% (58/64) cases followed by sebaceous gland tumors 9.37% (6/64) cases (Table 1).

Table 1. Histo pathological Diagnosis

	Total cases	Benign	Malignant
Sebaceous Gland	6	2	4
Sweat Gland	58	57	1

The most common neoplasm identified in this study was Eccrine Spiradenoma (23.4%), and least common were Hidradenocarcinoma (1.5%), Apocrine cystadenoma (1.5%) and Eccrine syringofibroadenoma (1.5%) as shown in table 2.

Table 2. Histological Pattern with Categorization

Histological Diagnosis		No. of cases (n=64)	Percentage (%)
BENIGN			
Sebaceous Gland	Sebaceous Adenoma	2	3.12%
	Sebaceous Carcinoma	4	6.25%
BENIGN			
SWEATGLAND	Syringoma	5	7.81%
	Eccrine Hidradenoma	5	7.81%
	Eccrine Poroma	9	14.00%
	Eccrine Spiradenoma	15	23.43%
	Syringocystadenopapilliferum	4	6.25%
	Cylindroma	2	3.12%
	Eccrine Hydrocystoma	3	4.68%
	Chondroid Syringoma	8	12.50%
	Hidradenopapilliferum	2	3.12%
	Apocrine Hydrocystoma	2	3.12%
	Apocrine Cystadenoma	1	1.56%
	Eccrine Syringofibroadenoma	1	1.56%
MALIGNANT			
	Hidradenocarcinoma	1	1.56%

The male: female ratio was 0.93:1 showing slight female predominance. Tumors were observed in all age groups ranging from 11 to 80 years. However the highest incidence was observed in the age group of 31-40 years, followed by 41-50 years and 61-70 years respectively as shown in Table 3. Head and Neck was the most common site comprising of 62.5% (40 case), followed by upper limb, lower limb, trunk and perineum (Table 4).

DISCUSSION

Skin appendageal tumors are very rare tumors and their overall incidence is low in our population. There is no proper literature available regarding the racial and geographic incidence of these tumours and their etiopathogenesis is also not clear.^[8] The large majority of SATs differentiate only along one adnexal line and this results in the formation of reasonably distinct types. The structure, cytochemistry and immunohistochemistry can be correlated with those of the corresponding adnexa or even a subdivision thereof.^[9]

64 cases of sweat and sebaceous gland tumors were studied over a period of 18 months in our institution. The sweat gland tumors were the larger group encountered in this study. These observations are in concordance with Radhika et al⁷, Sharma et al¹⁰, Kartha et al¹¹. A comparative analysis of many studies from Indian literature has been shown in Table 5. The male to female ratio of the patient in the present study was found to be approximately equal 0.93:1 in our study group which is comparable to that of Pujani M et al¹², Kamyab Hesari et al^[13] and Jindal and Patel^[14]. Several other researchers found variable results namely Nair et al^[8] found male to female ratio of 1:2.3. In our study, the commonest age group was 31-40 years which was consistent with the study of Amin et al^[15] and Radhika et al^[7]. Head and neck was the most common site of occurrence followed by Upper limb, lower limb, trunk and perineum which is consistent with the studies of Pujani M et al et al¹² and Nirali Amin et al¹⁵. Incidence of benign tumor was more as compared to malignant cases which was consistent with other studies like Amin et al^[15].

Benign tumors showed smooth borders, absence of ulcers, absence of necrosis and presence of adnexae. The occurrence of benign tumor in the present study was 92.1% (59/64) cases and 7.81% (5/64) cases was malignant.

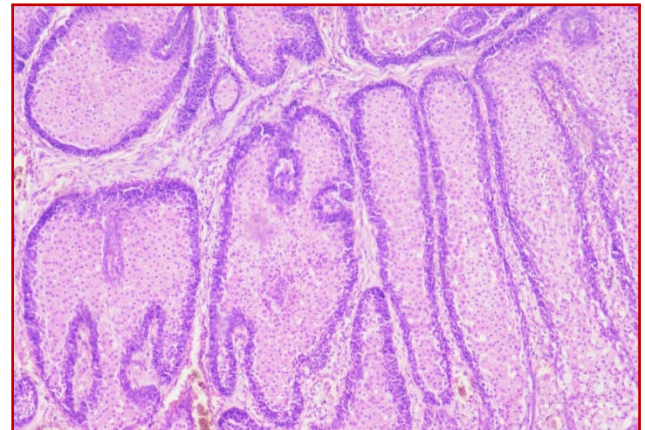


Fig 1 A. Sebaceous Adenoma 10x low power view showing multilobulations (H&E)

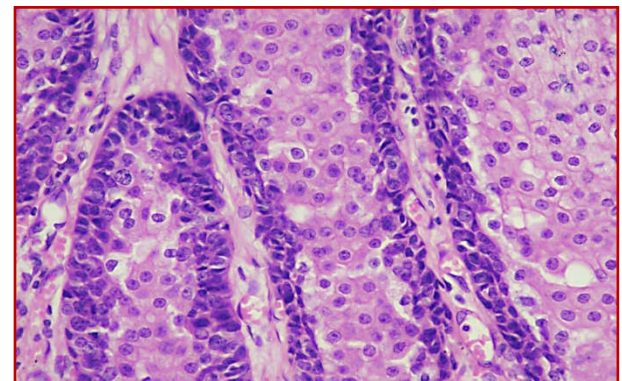


Fig 1 B. Sebaceous Adenoma 40x high power view showing peripheral basaloid cells and inner sebocytes (H&E)

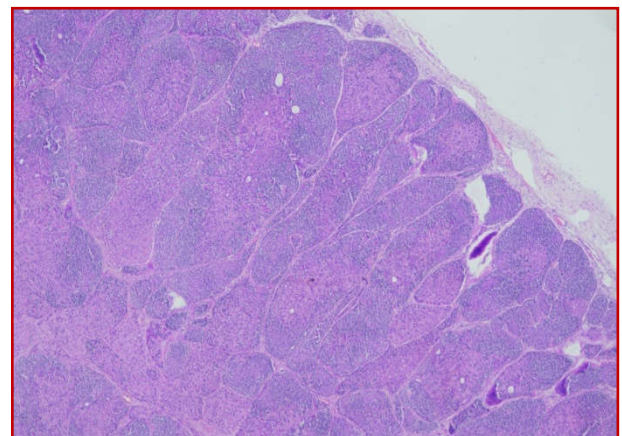


Fig 2 A. Cylindroma 4x Scanner showing irregular arrangement of lobules in pattern of jigsaw puzzle (H&E)

Eccrine Spiradenoma is the most common benign sweat gland tumor. 15 cases were reported in the present study which constitutes 23.4% of sweat and sebaceous gland neoplasms which is comparable to the study done by Sirsat et al^[16] (11.11%) and Nair et al^[8] (10.5%). Microscopy: Generally they show well circumscribed, encapsulated tumor lobules in the dermis. The biphasic cell population is evident. The outer layer cells have small hyperchromatic nuclei and minimal cytoplasm. These surround larger cells with round or oval vesicular nuclei and more conspicuous eosinophilic cytoplasm.

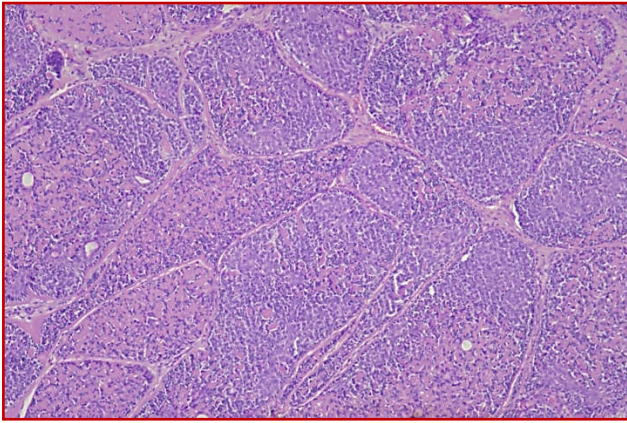


Fig. 2. B. Cyli ndroma 10x low power showing lobules with deposits of hyaline material (H & E)

The stroma between the nests of epithelial cells is often edematous with prominent vascularity. Many widely dilated vessels are also seen in between these tumor cells.

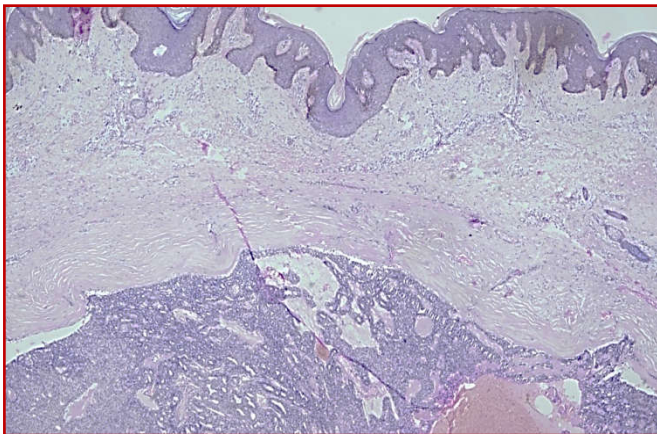


Fig. 3. A. Eccrine Spiradenoma 4x scanner showing tumor lobules containing cystic cavities (H&E)

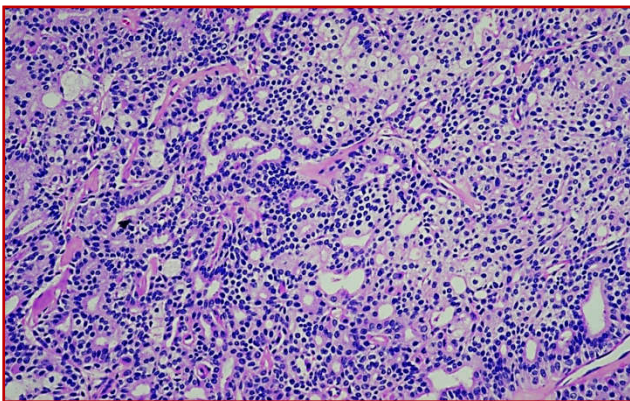


Fig. 3.B Eccrine Spiradenoma 40x High power showing biphasic population (H&E)

Eccrine Poroma: There were 9 cases reported in the present study which constitute 14.06 % of all sweat and sebaceous gland neoplasms. 2 cases were seen in the study of Arvind G *et al* ^[17] with an overall frequency of 6.67%. A single case was reported by Gayathi *et al* ^[1] making a frequency of 6.67% which shows slightly higher frequency as compared to the present study.

Microscopy: Most of the cases show well circumscribed broad anastomosing bands of epithelial downgrowths with multiple foci of attachment to the epidermis. Poroma cells are monomorphic, small, cuboidal with basophilic round nuclei, inconspicuous nucleoli and compact eosinophilic cytoplasm.

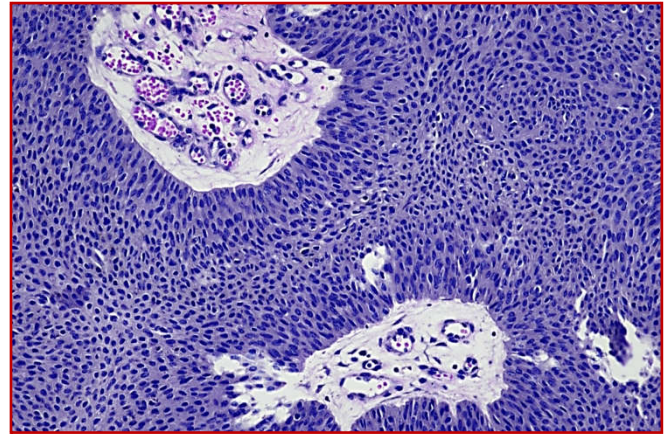


Fig 4. Eccrine Poroma 40 x high power view showing interconnected epithelial downgrowths (H&E)

Chondroid Syringoma: There were 8 cases of chondroid syringoma which constitutes 12.5% of all sweat and sebaceous gland neoplasms which is slightly higher as compared to Arvind G *et al* ^[17] showing 3.33% of all sweat and sebaceous gland neoplasms.

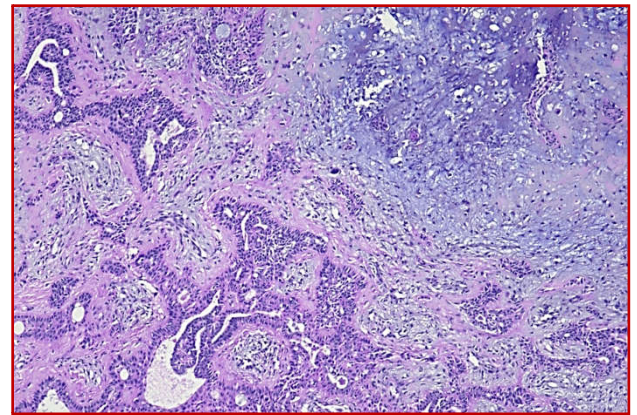


Fig 5. Chondroid Syringoma 10x showing epithelial tubules in a chondromyxoid stroma (H&E)

Microscopy: In general they show well circumscribed multi lobulated mass separated by fibrous septa with a prominent chondroid or myxoid stroma. The nodular tumor is composed of branching tubular epithelial elements embedded in a basophilic stroma. The tubular lumina are lined by 2 layers of cells; a luminal layer of cuboidal cells and a peripheral layer of flattened cells. Single case of hidradenocarcinoma was identified in the present study. Hidradenocarcinoma is a very rare tumour. Other studies have not reported this neoplasm Arvind G *et al*,^[17]Sailendra *et al*,^[18]

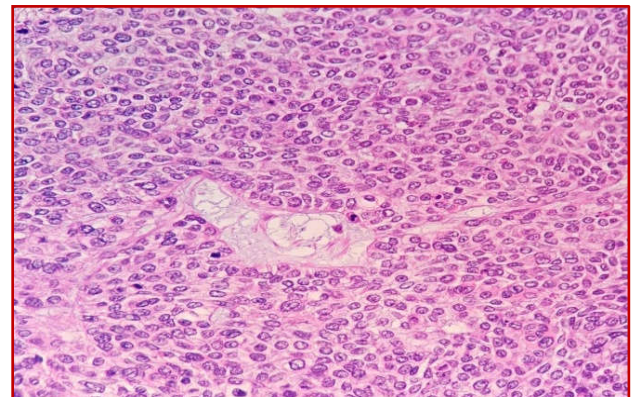


Fig 6 A. Hidradenocarcinoma 40x High power showing sheets of tumor cells with clear cytoplasm. Mitotic figures also discernible (H&E)

Table 3. Distribution of Sweat and Sebaceous glandneoplasms according to age group

Histological Dx	≤ 10yrs	11-20yrs	21-30yrs	31-40yrs	41-50yrs	51-60yrs	61-70yrs	71-80yrs	Total
Sebaceous adenoma	0	0	0	0	0	1	1	0	2
Sebaceous Carcinoma	0	1	0	0	0	0	2	1	4
Syringoma	0	0	2	1	0	2	0	0	5
Eccrine Acrospiroma	0	1	2	1	1	0	0	0	5
Eccrine Poroma	0	0	0	2	4	0	2	1	9
Eccrine Spiradenoma	0	1	2	5	4	2	1	0	15
Hidradenocarci-noma	0	0	0	0	0	0	1	0	1
Syringocystadenopilliferum	0	2	1	0	1	0	0	0	4
Cylindroma	0	0	0	1	0	0	1	0	2
Chondroid Syringoma	0	1	2	1	3	1	0	0	8
Hidradenoma—Papilliferum	0	0	0	2	0	0	0	0	2
Eccrine Syringofibroadenoma	0	0	1	0	0	0	0	0	1
Eccrine hydrocystoma	0	0	0	2	0	0	1	0	3
Apocrine hydrocystoma	0	0	0	1	0	1	0	0	2
Apocrine cystadenoma	0	0	0	0	0	1	0	0	1
Total	0	6	10	16	13	8	9	2	64

Table 4. Site wise Frequency of Sweat and Sebaceous gland neoplasms

S.No	Site	Frequency	Percentage %
1	Head and Neck	40	62.5%
2	Upper limb	10	15.6%
3	Lower limb	7	10.9%
4	Trunk	4	6.25%
5	Perineum	3	4.68%
	Total	64	100%

Table 5. A Comparative analysis of Indian literature with regard to the line of differentiation of adnexal tumors

Study	Year	Number of cases	Sebaceous differentiation	Sweat gland differentiation
		n	n(%)	n(%)
Kartha et al	1980	48	3	45
Radhika et al	2013	24	7	17
Sharma et al	2014	36	12	24
Present study		64	6	58

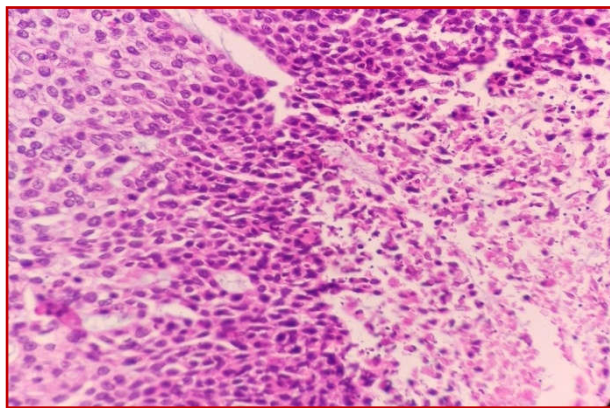


Fig 6 B. Necrosis in hidradenocarcinoma 40x (H&E)

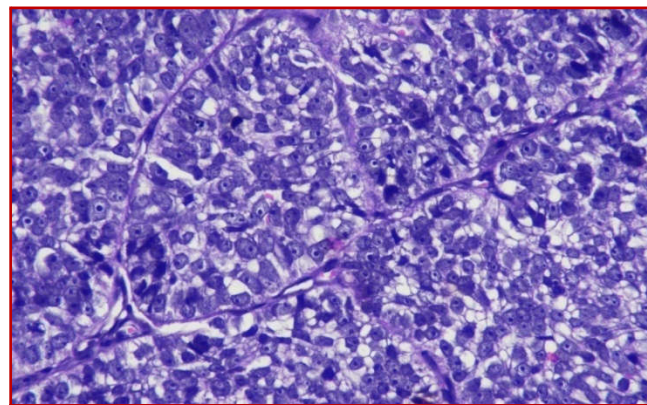


Fig 7 B. Sebaceous Carcinoma 40x high power view showing almost pure basoid cell population with marked mitotic activity (H&E)

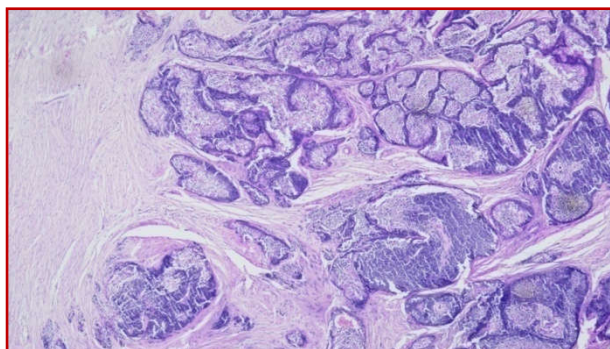


Fig 7 A. Sebaceous Carcinoma 4x scanner view showing tumor lobules composed of disorderly admixture of basophilic cells and sebaceous differentiated cells (H&E)

Microscopy: It was a cellular tumour with irregular infiltrating borders comprising of sheets of atypical epithelial cells with clear cytoplasm. High mitotic activity and areas of necrosis were also seen. There were 4 cases of sebaceous carcinoma which constitute 6.25% of all sweat and sebaceous gland neoplasms. Sebaceous carcinoma was the most frequent malignant skin adnexal tumor in the present study. This is in concordance with the study of Dr. Vani D *et al* [19].

Microscopy: In general all cases show irregular epithelial lobules separated by fibrovascular stroma with infiltrative growth pattern in the dermis. Lesional cells demonstrate marked atypia and mitotic activity.

CONCLUSION

We conclude that sweat and sebaceous gland tumors of skin adnexal are relatively rare. Benign are far more common than their malignant counterparts. Sweat gland tumors are more common than sebaceous gland tumors. There is slight female preponderance. Head and neck are the frequent site for occurrence of these tumors. Eccrine Spiradenoma is the most frequently encountered tumor. Skin adnexal tumors cannot be diagnosed clinically only and histopathological diagnosis plays a very important role in diagnosing these tumors.

REFERENCES

1. Gayathri Sri S, Alavandar E, S. Kumar A. An analysis of skin appendageal tumors in south India. *Journal of Evolution of Medical and Dental Sciences*. 2012; 1(6): 907- 12.
2. K O Alsaad, N AObaidat, D Ghazarain, Skin adnexal neoplasms-part 1: An approach to tumours of pilosebaceous unit, *J ClinPathol* 2007; 60: 129:44
3. Narhire VV, Swami SY, Baste BD, Khadase SA, D'costa GF. A clinicopathological study of skin and adnexal neoplasms at a rural based tertiary teaching hospital. *Asian Pac J Heal Sci*. 2016;3(2):153-62.
4. Sirsat MV, Kail P. Adnexal tumors of skin. *J Post Grad Med*. 1964; 10:137-155
5. Mackie RM, Calonje E. Tumors of the Skin Appendages. In: Burns T, Breathnach S, Cox N, Griffiths C, editors. *Rook's Textbook of Dermatology*. 7th edition. London: Blackwell Publishing Company; 2004. p. 1-34.
6. Rathoriya SG, Soni SSL, Sinha U, Chanchlani R. Epidemiological study of Appendageal skin tumors in tertiary health centre in central India. *Int J Med Res Rev* 2014;2(2):87-91 .doi:10.17511/ijmrr.2014.i02.003
7. Radhika K, Phaneendra BV, Rukmangadha N, Reddy MK. A study of biopsy confirmed skin adnexal tumours: experience at a tertiary care teaching hospital. *J Clin Sci Res* 2013;2:132-8
8. Nair PS. A clinicopathologic study of skin appendageal tumours. [5]*Indian J Dermatol venerol leprol*. 2008;74(5):550.
9. Rosai J., "Tumors and tumor like conditions" In: Rosai And Ackerman's *Surgical Pathology*, 10th edition. Vol.1. St. Louis, USA: Elsevier Mosby; 2011.p.137
10. Sharma A, Paricharak DG, Nigam JS, Rewri S, Soni PB, Omhare A et al. Histopathological study of skin adnexal tumors – institutional study in South India. *J Skin Cancer* 2014; 2014: 543756
11. Kartha CC, Shankar SK, Bhuyan UN. Benign mixed tumour of skin – A histopathologic study of 7 cases. *Indian J PatholMicrobiol*. 1980;23:1–6
12. Pujani M, Madaan GB, Jairarajpuri ZS, Jetley S, Hassan MJ, Khan S. Adnexal tumors of skin; An experience at a tertiary care centre at Delhi. *Ann Med Health Sci Res* 2016;6:280-5.
13. Kamyab-Hesari K, Balighi K, Afshar N, Aghazadeh N, Rahbar Z, Seraj M, et al. Clinicopathological study of 1016 consecutive adnexal skin tumors. *Acta Med Iran*. 2013;51:879–85
14. Jindal U, Patel R. Study of adnexal tumors of the skin: A three year study of 25 cases. *Int J Pathol*. 2012;13:3.
15. Nirali Amin, Smita Shah, Shreedhan Prajapati, Hansa Goswami. Histomorphological spectrum of skin adnexal tumors at a tertiary care hospital- A retrospective study. *Int J Cur Res Rev Vol 8, Issue 4, February 2016*
16. Arvind.G. Valand, Sameer Abdul Hamid Ansari, Rohan K Sinha, Vishakha C Jadhav. A Clinicopathological Study of Adnexal Tumors of Skin in a Tertiary Care Research Hospital. *International Journal of Health Sciences & Research* (www.ijhsr.org) 52 Vol.6; Issue: 12; December 2016.
17. Sailendra K. Thakuria, Monoj K. Deka, Arindam Das, Angela Phukan, Nitu M. Khakhlani. A two years study of histopathological spectrum of skin adnexal tumors in a tertiary care centre of Southern Assam, India. *International Journal of Research in Medical Sciences | May 2020 | Vol 8 | Issue 5*
18. Vani.D, Ashwini.N.S, Sandhya.M, T.R.Dayananda, Bharathi.M. A 5 Year Histopathological Study of Skin Adnexal Tumors at a Tertiary Care Hospital. *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)* e-ISSN: 2279-0853, p-ISSN: 2279-0861. Volume 14, Issue 4 Ver. VII (Apr. 2015), PP 01-05
