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# HISTOPATHOLOGICAL SPECTRUM OF SKIN APPENDAGEAL TUMORS AND TUMOR LIKE LESIONS

**Pathology**

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## ABSTRACT

**Introduction:** The skin appendageal tumors are large group of neoplasm that originates from multipotential stem cells. They exhibit morphologic differentiation towards one of the four primary adnexal structures. **Aim:** To study the histopathological spectrum of skin appendageal tumors and tumor like lesions. **Materials And Methods:** Our study is partly retrospective and prospective. All histopathologically diagnosed skin appendageal lesions were reviewed and results were tabulated. **Results:** 56 cases of skin appendageal lesions were diagnosed during the study period. Predominant lesions were neoplastic (89.28%) while remaining were tumor like lesions(10.72%). The large variety of tumors were benign (66.07%) in nature. The most common line of differentiation was towards sweat gland, followed by hair follicle and sebaceous differentiation with 25(44.64%), 18(32.14%) and 13(23.22%) cases respectively. **Conclusion:** The skin appendageal tumors are the rare and most clinically misdiagnosed neoplasms, thus diagnosis relies on histological evaluation.

## KEYWORDS

Appendageal tumors, Histopathology.

### INTRODUCTION :

The skin appendageal tumors (AT) are large group of neoplasms that exhibit morphological differentiation towards one of the four primary adnexal structures of skin. ATs are not derived directly from mature cells and rather, tumors originate from multipotential stem cells present within the epidermis or its appendageal structures. They exhibit histological features which are analogous to those of hair follicles, sebaceous glands, apocrine glands, and eccrine glands.[1]

Appendegeal tumors are a heterogenous group of skin tumors with mostly benign behaviour.[2] Most of the skin adnexal tumors are asymptomatic and presents as papules or nodules. The clinical diagnosis is mostly based on the anatomical location, number and distribution of lesion.[3] However, they are confirmed by histopathology and immunohistochemistry.[4] Most of the studies have proved that benign tumors outnumbers malignant ones.

### AIM :

To study the histopathological spectrum of skin appendageal tumors and tumor like lesions.

### MATERIALS AND METHODS :

We conducted 2 years retrospective and 2 years prospective study. All histopathologically diagnosed ATs received in the department of pathology, from January 2018 to December 2021 at S Nijalingappa Medical College and HSK Hospital were included in our study. Relevant clinical details were obtained through medical records and also by examining the patient.

All skin punch and excision biopsies were examined grossly and processed as per standard protocol. Formalin fixed and paraffin embedded sections were stained routinely with Haematoxylin and Eosin stain. Histopathological features of each tumors were studied and grouped according to line of differentiation. The results obtained were tabulated and analysed.[5]

### RESULTS :

Total 820 skin biopsies were received during the study period. Out of which, total of 56(6.82%) cases were displaying features of appendageal tumors and tumor like lesions. 37(66.07%) cases were benign and 13(23.21%) were malignant, while 06(10.72%) were tumor like lesions. Based on the history provided by the patient we found majority of the lesions were seen in head and neck region followed by shoulder and back and least in extremities.

Tumors were observed in all age groups ranging from 8 years to 60 years. Study showed slight male predominance with M:F ratio of 1.15:1. Nevus sebaceous and sebaceous hyperplasia constituted tumor like lesions. [Table 1]

**Table 1: Clinicopathological Characteristics Of The Study Cases**

| CHARACTERISTICS | TOTAL CASES (n= 56 ), n(100%) |
|---|---|
| Age (Years): | |
| 0-25 | 32(57.14%) |
| 26-50 | 16(28.57%) |
| 51-75 | 06(10.71%) |
| 76-100 | 02(3.57%) |
| Gender: | |
| Male | 30(54%) |
| Female | 26(46%) |
| Location: | |
| Head and neck | 27 (48.21%) |
| Shoulder and back | 16 (28.57%) |
| Trunk and abdomen | 08 (14.28%) |
| Extremities | 05 (08.92%) |
| Behavior | |
| Benign | 37 (66.07%) |
| Malignant | 13 (23.21%) |
| Tumor like lesions | 06 (10.72%) |
| Line of differentiartion | |
| Sweat gland differentiation | 25 (44.64%) |
| Hair follicle differentiation | 18(32.14%) |
| Sebaceous differentiation | 13 (23.22%) |

All appendageal tumors were classified into 3 types based on line of differentiation. The most common line of differentiation was towards sweat gland 25 cases (44.64%); followed by tumor with hair follicle differentiation 18 cases (32.14%) and least being sebaceous differentiation 13 cases (23.22%). **[ Figure 1]**

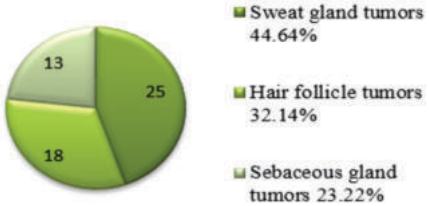


**Figure 1: Distribution of Skin Appendageal lesions.**

## DISCUSSION

Skin adnexal tumours are a large and diverse group of benign and malignant neoplasms, which exhibit morphological differentiation towards one or more types of adnexal structures found in normal skin.

As most of the studies mentioned, even in our study the benign tumors out numbered malignant ones. Sharma A et al,[6] Yaqoob N et al[7] and Pujani et al[2] stated in their studies that 80.36%, 87.34% and 96% were benign and 19.64%, 12.6% and 04% were malignant lesions.

Pilomatrixoma is the most common benign tumor in our series with a total of nine cases, followed by sebaceous carcinoma which is common among malignant tumors. **[TABLE 2]**

| TABLE 2: LIST OF TUMORS ENCOUNTERED IN OUR STUDY | | |
|---|---|---|
| TUMOR | Behavior | No of cases |
| SWEAT GLAND DIFFERENTIATION | | |
| Cylindroma | Benign | 03 |
| Eccrine Spiroadenoma | Benign | 06 |
| Apocrine cyst adenoma/Hidrocytoma | Benign | 04 |
| Nodular Hidradenoma | Benign | 04 |
| Malignant Eccrine Acrospiroma | Malignant | 02 |
| Adenoid cystic carcinoma of Eccrine gland | Malignant | 03 |
| Apocrine Adenocarcinoma | Malignant | 03 |
| HAIR FOLLICLE DIFFERNTIATION | | |
| Pilar sheath Acanthoma | Benign | 03 |
| Pilomatrixoma | Benign | 09 |
| Trichoepithelioma | Benign | 04 |
| Trichilemmoma | Benign | 02 |
| SEBACEOUS DIFFERENTIATION | | |
| Nevus Sebaceous | Benign | 02 |
| Sebaceous hyperplasia | Benign | 04 |
| Sebaceous Adenoma | Benign | 02 |
| Sebaceous Carcinoma | Malignant | 05 |

A comparative study of Indian literature was done with regard to line of differentiation and the present study also showed the following results **[TABLE 3]**.

Table 3: Comparison of different studies with regard to the line of differentiation

| Study | Year | Number of case (n) | Sweat gland differentiation (n%) | Sebaceous differentiation n(%) | Hair follicle differetiation n(%) |
|---|---|---|---|---|---|
| Yaqoob N et al | 2003 | 166 | 86(51.79%) | 69(48.21%) | |
| Nair et al | 2007 | 33 | 19(56.56%) | 02(6.06%) | 12(36.36%) |
| Sharma A et al | 2013 | 56 | 24(42.86%) | 12(21.43%) | 20(35.71%) |
| Pujani et al | 2017 | 25 | 14(56%) | 04(16%) | 07(28%) |
| Pathakaruri P et al | 2019 | 50 | 45(90%) | 01(02%) | 04(08%) |
| Bansal et al | 2019 | 109 | 04(3.6%) | 01(0.9%) | 01(0.9%) |
| Present study | 2021 | 56 | 25(44.64%) | 13(32.14%) | 18(23.22%) |

The results obtained by Sharma et al were most comparable with our study results. They also observed that, amongst the benign tumors; Pilomatrixoma and Clear cell hidradenoma were the most common tumors representing 21.43% cases each.[6]

Pilomatrixoma is a benign tumor arising from hair matrix and presents as nodular lesion at head and neck region. In our study these tumors were male predominant and seen mostly in young adults. Microscopically, it is composed of solid nests of basaloid cells with abrupt keratinisation forming ghost cells.[8]

Other tumors we encountered with hair follicular differentiation were also benign and showed no prefered site predilection. They includes Pilar sheath Acanthoma, Trichoepithelioma and Trichilemmoma. These observations were in concordance with that of Bnsal et al and Sharma et al.[6,9] **[FIGURE 2] [FIGURE 3]**

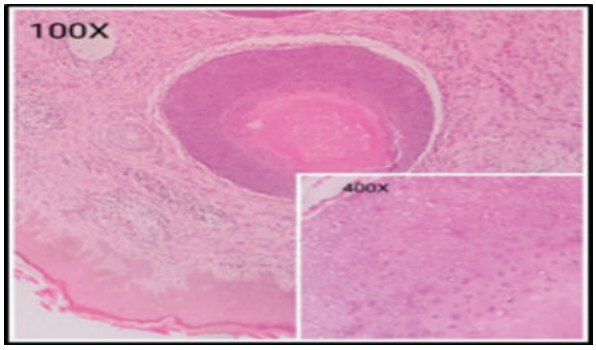


**Figure 2 : PILOMATRIXOMA – Nests of basaloid cells in dermis undergoing abrupt keratinisation leading to formation of Ghost cells.**

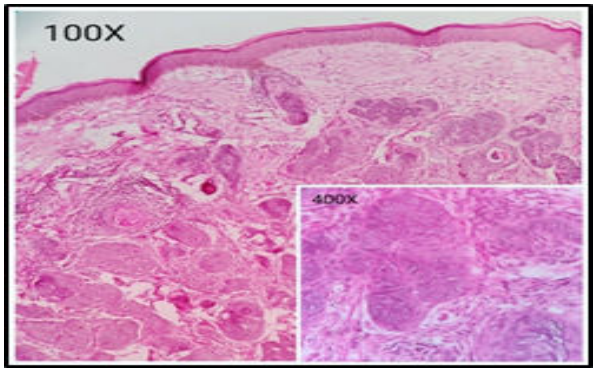


**Figure 3 : TRICHOEPITHELIOMA - Organoid pattern / frondlike arrangement of basaloid cells surrounded by fibroblastic stroma.**

Benign tumors of sweat gland differentiation outnumber the malignant ones in our study. Eccrine Spiroadenoma, Hidrocytoma and Nodular Hidradenoma were most common among them. One case of Malignant Eccrine acrospiroma presented in scrotal skin showed metastasis to inguinal lymphnode. **[FIGURE 4]**

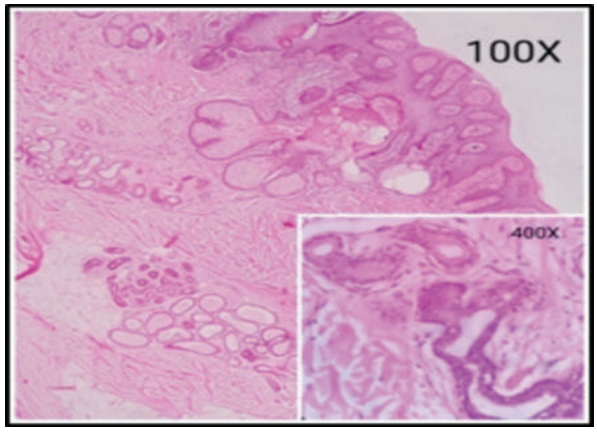


**Figure 4 : APOCRINE HIDROCYTOMA - Multiple unilocular spaces lined by double layer of epithelium. Some of them are even showing eosinophilic secretions within.**

Sebaceous gland tumors were comprising of sebaceous adenoma and sebaceous carcinoma. 3 out of 5 Sebaceous carcinoma cases were seen in age group between 18 to 30 years and located around the nose. Sebaceous carcinoma should be distinguished from basal cell carcinoma with sebaceous differentiation, and squamous cell carcinoma accompanied by hydropic changes in the tumor cells. **[FIGURE 5]**

We also came across some tumor like lesions in various locations which closely mimics ATs which includes Nevus sebaceous of Jadassohn and Sebaceous hyperplasia. Both the lesions were mostly located in scalp and at the nape of neck. Grossly Nevus sebaceous was showing cooblestone appearance and lesion was present from infancy

while sebaceous hyperplasia presents as small nodules in elderly. **[FIGURE 6]**

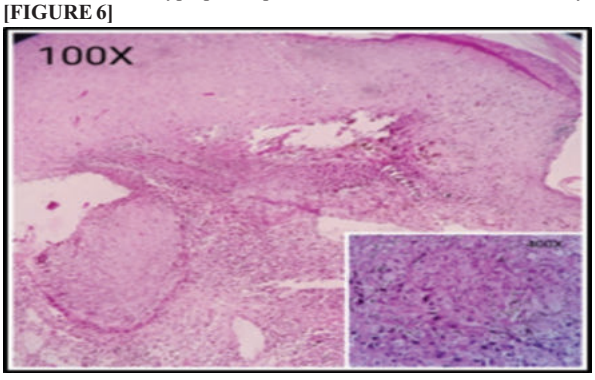


**Figure 5: SEBACEOUS CARCINOMA – Infiltrating tumor comprised of lobules of vaculated tumor cells with scant intervening septae. Tumor cells with nuclear pleomorphism and pale foamy cytoplasm.**

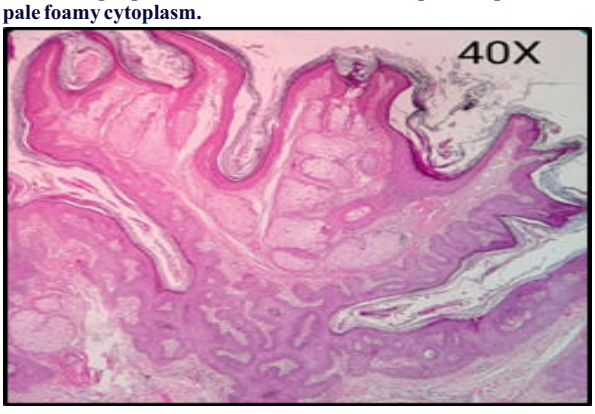


**Figure 6 : Nevus sebaceous showing epidermal papillomatous hyperplasia and papillary dermis composed of hamartomatous conglomerate of large sebaceous glands.**

As per our study, in our region which is northern part of karnataka, tumors with sweat gland differentiation were most common, followed by hair follicle tumors. The commonest tumors encountered were Pilomatrixoma, Trichiepithelioma, Accrine spiradenoma and sebaceous carcinoma.

## CONCLUSION:

The skin appendageal tumors are rare neoplasms with huge variety of types and their variants. All these tumors share the same origin, so they exhibit many features in common.[8] Often they are misdiagnosed clinically, thus histopathological examination is essential for the accurate diagnosis and classification of the tumors.

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