



Original Article

Histopathological evaluation of tumours and tumour like lesions of skin and adnexa

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ABSTRACT

Background: Tumours and tumour like lesions of skin have overlapping clinical presentation and sometimes pose a diagnostic difficulty on clinical ground alone. Histopathological examination although helpful to arrive at correct diagnosis, at times may be treacherous and may require ancillary tests such as Immunohistochemistry.

Materials and Methods: The study was conducted at Department of Pathology of Tribhuvan University Teaching Hospital. It was a one year prospective study which enrolled 238 cases of skin biopsies after histopathological confirmation of tumours and tumour like lesions. The specimens were processed by standard method and Hematoxylin and Eosin stained sections were examined. Data entry and analysis was done by using SPSS 20 version.

Results: Epidermal cyst was commonest lesion (11.8%). Among benign tumours squamous papilloma was most frequent while Pilomatricoma and Spiradenoma were most common adnexal tumour. Squamous cell carcinoma constituted 41.8% and was commonest malignant tumour followed by basal cell carcinoma (30.2%). Benign tumours were common in 11-30 years of age, malignant tumours in 61-80 years of age while tumour like lesions were common in 21-30 years of age.

Conclusion: Squamous papilloma and squamous cell carcinoma was the most common benign and malignant tumour respectively. Benign adnexal tumours exceeded malignant one and were seen in third decade of life. Epidermal cyst was the commonest tumour like lesions followed by dermoid cysts.

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INTRODUCTION

A wide range of neoplastic and non-neoplastic disease can develop within skin because of its complexity.^{1,2} The variation in trends and incidence of skin cancer may be due to difference in skin types, geographical distribution, occupational exposure, sun exposure, skin protection measures and difference in disease awareness and surveillance.³ Keratinocytic tumours account for approximately 90% of all skin malignancies, of which, approximately 70% are basal cell carcinoma (BCC).⁴

Ultraviolet radiation of wave length 280-320nm (UVB) and 320-400nm (UVA) are implicated in actinic skin damage and carcinogenesis.⁵ UVC (200-280 nm), although a potent

Table 1: Age wise distribution of tumour and tumour like lesions

Age range in years	Number of cases (%)			
	Benign neoplasm	Malignant neoplasm	Tumour like lesions	Total
<1	01(00.4)	00.00	00.00	01(0.4)
1-10	09 (03.8)	01(0.4)	07(2.9)	17(7.1)
11-20	29 (12.2)	04(1.7)	14(5.9)	47(19.7)
21-30	29(12.2)	03(1.3)	15(6.3)	47(19.7)
31-40	21(08.8)	03(1.3)	06(2.5)	30(12.6)
41-50	18(07.6)	05(2.1)	04(1.7)	27(11.3)
51-60	15(06.3)	03(1.3)	05(2.1)	23(9.7)
61-70	09(03.8)	09(3.8)	01(0.4)	19(8.0)
71-80	07(02.9)	09(3.8)	01(0.4)	17(7.1)
81-90	03(01.3)	03(1.3)	00.00	06(2.5)
91-100	01(00.4)	03(1.3)	00.00	04(1.7)
Total	142 (60.9)	43 (18.1)	53 (21.0)	238 (100)

mutagen, is not considered significant because it is filtered out by the ozone layer.⁶

Diagnosis of adnexal neoplasms presents unique difficulties, related to the wide pathological variety, substantial frequency of one lesion exhibiting histological features of two or more adnexal lines and the complicated nomenclature.⁷ This prospective study was conducted to estimate the frequency, age, sex and site wise distribution of tumour and tumour like lesions encountered in the department over a period of one year.

MATERIALS AND METHODS

The study is a hospital based cross sectional prospective study carried out from 1st November 2014 to 31st October 2015 at Department of Pathology, Maharajgunj Medical Campus, Kathmandu, Nepal. Permission was obtained from ethical review committee prior to the study. The study included all the patients presenting with tumours (benign and malignant) and tumour like lesions arising from skin, adnexa and soft tissue tumour arising from the dermis diagnosed on histopathological examination.

All the diagnosed cases coming for follow up, in which biopsy was done previously, tumours arising from subcutaneous tissue, suboptimal biopsy sample, and tumors and tumor like lesions in the genital region were excluded. All the received skin biopsy specimens were fixed in 10% formalin and subjected for tissue processing, embedded in paraffin and block was made to obtain 5 micron sections. The sections stained with Hematoxylin and Eosin (H and E) were examined. The data collection was done in predesigned proforma and data entry was done in SPSS and results were computed using Statistical Package for Social Sciences (SPSS) version 20.

RESULTS

During the study period, 395 skin biopsies were received, out of which 238 cases were histopathologically diagnosed as tumours and tumour like lesions of skin and adnexa. Tumours and tumour like lesions of skin and adnexa were most commonly seen in 11-30 years (n=94; 39.4%) of age. (Table 1) Peak of benign neoplasms was seen at 11-30 years (n=58; 24.4%), thereafter the frequency decreased with increasing age. Malignant neoplasms showed a peak at 61-80 years (n=18; 7.6%). Before 60 and after 80 years there was not much variation in frequency of tumours. Tumour like lesions showed a peak at third decade of life (Table 1).

There were 135 male and 103 female with M:F ratio of 1.3:1. Male to female ratio for benign tumour, malignant tumour and tumour like lesions were 1.2:1, 1.8:1 and 1.12:1 respectively. (Table 2) The frequency of tumour and tumour like lesions decreased from face to trunk. Sixty seven percent of total benign tumours and 65% of total malignant tumours occurred in face and scalp. (Table 3).

Basal cell carcinoma was the most common malignant neoplasm in face followed by squamous cell carcinoma and basosquamous carcinoma (fig.1). Squamous cell carcinoma was the most ubiquitous which was seen at almost all the locations. Of 20 cases of benign adnexal tumors, 11 were seen in face and tumours with eccrine and apocrine differentiation was the most common.

Out of 238 cases, tumour constituted 185 cases (77.8%) and tumour like lesions constituted 53 cases (22.2%). Intra-dermal melanocytic naevus was the most common tumour followed by SCC and squamous papilloma. Among the tumour like lesions epidermal cysts was most common type followed by dermoid cysts and trichilemmal cysts. Benign neoplasms were the most common lesions (60%) followed by tumour like lesions (22%) and malignant neoplasms (18%).

Table 2: Sex wise distribution of tumour and tumour like lesions

S.N	Gender	Number of cases (%)			Total
		Benign neoplasm	Malignant neoplasm	Tumour like lesions	
1.	Male	79 (56)	28 (65)	28 (53)	135 (57)
2.	Female	63 (44)	15 (35)	25 (47)	103 (43)
	Total	142 (100)	43 (100)	53 (100)	238 (100)

Table 3: Site wise distribution of tumour and tumour like lesions

Site	Number of cases (%)			Total
	Benign neoplasm	Malignant neoplasm	Tumour like lesions	
Face	70 (49.3)	22 (51.1)	31 (58.5)	123 (51.7)
Scalp	25 (17.6)	06 (14.0)	03 (05.7)	34 (14.3)
Upper Limb	19 (13.4)	04 (09.3)	04 (07.5)	27 (11.3)
Lower limb	13 (09.2)	06 (14.0)	04 (07.5)	23 (9.7)
Trunk	13 (09.2)	04 (09.3)	04 (07.5)	21 (8.8)
Neck	02 (01.4)	01(02.3)	07(13.3)	10 (4.2)
Total	142 (100)	43 (100)	53 (100)	238 (100)

Table 4: Site wise distribution of benign adnexal tumours

Site	Number of cases (%)		
	Tumour with hair follicle differentiation	Tumour with eccrine and apocrine differentiation	Tumour with sebaceous differentiation
Face	4 (67)	6 (55)	1 (33)
Scalp	2 (33)	2 (18)	2 (67)
Upper limb	00	1 (09)	00
Lower limb	00	1 (09)	00
Trunk	00	1 (09)	00
Total	6 (100)	11 (100)	3 (100)

Benign soft tissue tumours of dermis were the most common type of benign neoplasms, followed by keratinocytic tumours, melanocytic naevi and adnexal tumours. Out of 50 cases of soft tissue tumour of dermis, vascular tumours were commonest. Out of 20 cases of benign adnexal tumours, pilomatricoma (2.8%) and spiradenoma (2.8%) were the commonest. Benign vascular neoplasms (total 39 cases) constituted 16.3% of total biopsies. They constituted 27.5% of benign neoplasms out of which cavernous hemangioma (36%) was the most common. (Table 5)

Malignant tumours constituted 18% (43 cases) of total cases. Keratinocytic tumour was the commonest. Melanoma and adnexal carcinoma constituted three cases each. Squamous cell carcinoma (SCC) was the commonest carcinoma followed by basal cell carcinoma (BCC) Table 6 .

Out of 53 cases (22.3% of total cases) of tumour like lesions, epidermal cysts were the commonest, followed by dermoid cysts and trichilemmal cysts (fig. 2).

DISCUSSION

Skin biopsy constitutes a simple and inexpensive procedure

performed in the dermatology setting which facilitates clinical decisions regarding diagnosis and treatment. Various studies consider histological confirmation as the standard for the correct diagnosis in dermatology.

In the present study skin biopsies constituted 5.4% of the total surgical pathology specimen which is comparable to the study done by Bari et al⁸ where skin biopsies constituted 5.38% of total surgical specimens. Tumours and tumour like lesions of skin constituted 60.2% of the total skin biopsies in this study.

The present study showed male predominance with male to female ratio of 1.3:1. Both benign and malignant tumours were more common in males than females which correlated with the study done by Bari et al.⁸ In the present study 55.6% of benign neoplasms and 65.1% of malignant neoplasms were seen in males, whereas 44.3% of benign neoplasms and 34.8% of malignant neoplasms were seen in females. Tumour like lesions were also more common in male (52.8%) than female (47.1%) which correlated with a similar study conducted on tumour like lesions of skin by Bari et al.⁹ As in our study, both benign and malignant skin tumours showed male predominance in a study done

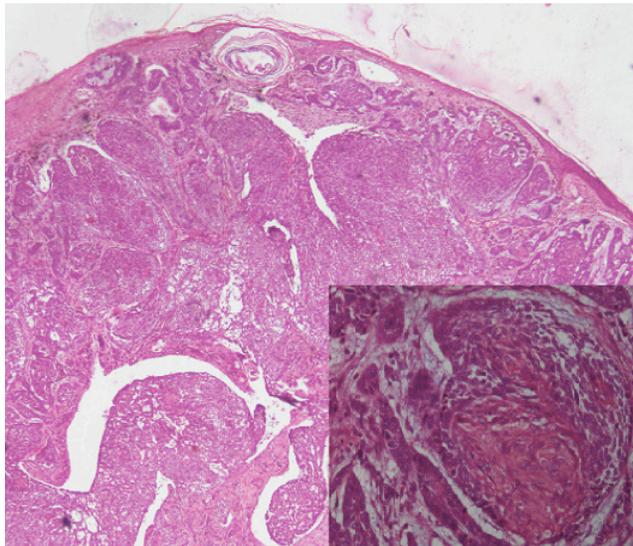


Figure 1: Basosquamous carcinoma (H&E stain; X400). Inset showing same tumor in high power view.

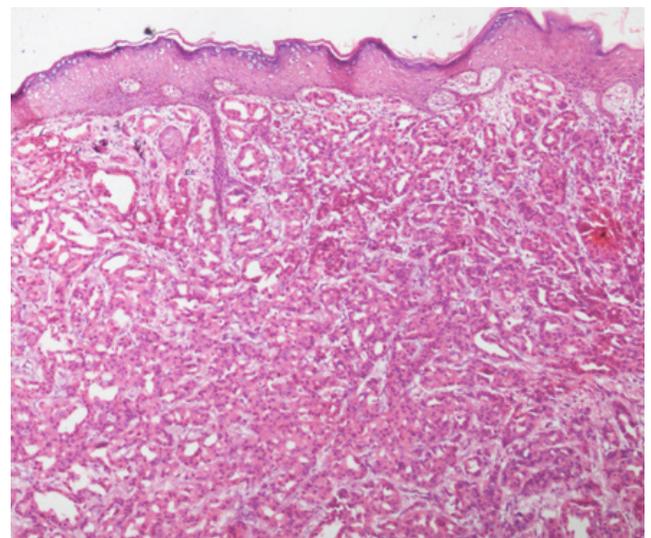


Figure 3: Apocrine carcinoma (H&E stain; X400)

by Sharma et al.²

In various studies done in Singapore and India, SCC was more common in males than females as in present study.^{3,10,11} All six cases of basosquamous carcinoma, were seen in males. In a study done by Martin et al¹², males (75%) were more commonly affected than females (25%). Out of 18 cases of SCC, 12 cases were seen in males and six cases were seen in females. Hence, the present study showed that frequency of SCC and basosquamous carcinoma in men is higher than in women, which may be attributable to the cumulative effect of sun exposure in males, who work outdoors more commonly than women.

In the present study, benign neoplasms of skin were common in younger age groups (11-30 years) (Table 1). Studies done in India by Nandyal and Puranik¹³ and Bari et al⁸ showed that benign tumours had a peak incidence in the third decade of life.

It is often observed that the frequency of malignant neoplasm increases with increasing age of the patient. A similar trend was noted in the present study with a peak in seventh to ninth decades of life. Malignant tumours in present study decreased in frequency after 80 years of age. A study done by Gundalli et al¹¹ and Bari et al⁸ showed that malignant neoplasms were most commonly noted in sixth to eighth decade and seventh decade of life respectively. The age range of different malignant tumours in different studies is compared in table 7.

In the present study, tumour like lesions were most commonly noted in third decade where as in study done by Bari et al⁹, maximum cases of tumour like lesions occurred in fourth to fifth decade of life.

In this study, out of 238 cases, benign tumours were most common followed by tumour like lesions of skin and adnexa and malignant tumours which correlated with study of Bari

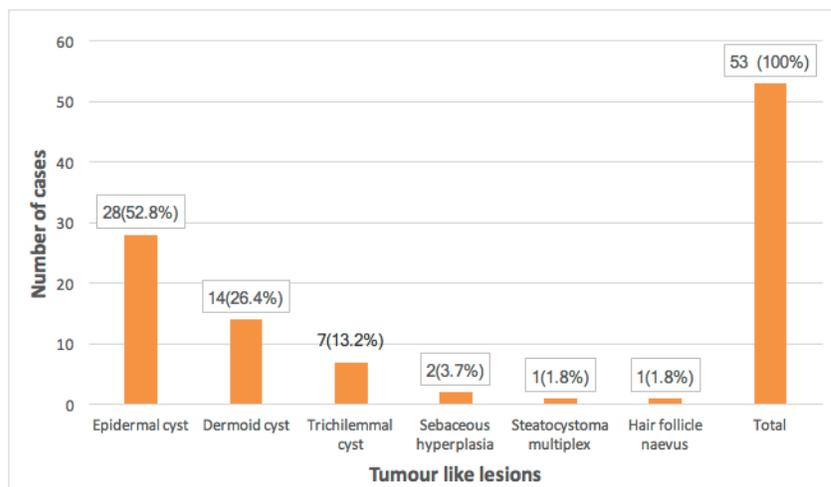


Figure 2: Bar diagram showing frequency of tumour like lesions

Table 5: Frequency of benign neoplasms

S.N.	Benign neoplasms	Number of cases	(%)
1.	Keratinocytic tumours		
	Squamous papilloma	17	11.9
	Seborrhoeic keratosis	14	09.9
	Actinic keratosis	03	02.0
	Keratoacanthoma	02	01.4
2.	Adnexal tumours		
	Hair follicle differentiation		
	Pilomatricoma	04	02.8
	Trichofolliculoma	01	00.7
	Trichilemmoma	01	00.7
	Eccrine and apocrine differentiation		
	Spiradenoma	04	02.8
	Nodular hidradenoma	02	01.4
	Eccrine hidrocystoma	02	01.4
	Eccrine hidradenoma	01	00.7
	Syringoma	01	00.7
	Cylindroma	01	00.7
	Sebaceous differentiation		
	Naevus sebaceous	03	02.0
3.	Melanocytic naevus		
	Intradermal naevus	25	17.6
	Cellular blue naevus	03	02.0
	Compound naevus	02	01.4
4.	Non- melanocytic naevus		
	Verrucous naevus	06	04.2
5.	Soft tissue tumour of dermis		
	Vascular tumours	39	28.0
	Neurofibroma	05	03.5
	Dermatofibroma	05	03.5
	Sclerotic fibroma	01	00.7
	Total	142	100

et al⁸ which showed benign tumours were commonest (51.2%) followed by malignant tumours (48.8%). In another study done by Gundalli et al¹¹ malignant tumours were the most common (60%) followed by benign tumours (40%) with ratio of malignant to benign being 1:0.6.

Out of 142 cases (60%) of benign neoplasms, soft tissue tumour of dermis were commonest followed by keratinocytic tumours. Benign vascular tumours were the most common type of soft tissue tumour of dermis of which cavernous hemangioma (36%) was commonest. However, in a study done by Margileth and Museles¹⁴ capillary hemangioma (81%) was the most common type of vascular tumour followed by cavernous hemangioma (7%).

There were 17 cases (11.9%) of squamous papilloma, which was the commonest benign keratinocytic tumour followed by seborrhoeic keratosis (9.9%), actinic keratosis

(2.1%) and keratoacanthoma (1.4%) in the present study. In a study done by Shiva Prasad et al¹⁵ seborrhoeic keratosis (57%) was the commonest benign neoplasms followed by keratoacanthoma (29%).

Adnexal tumour comprised 10% of total cases, out of which benign adnexal neoplasms (87.0%) were more common than malignant adnexal neoplasm (13.0%). A study by Sharma et al² also showed that benign adnexal tumours (80.3%) were more common than malignant adnexal tumours (19.6%). The face (56.5%) was the commonest site of involvement by adnexal tumour followed by scalp (26.1%). A similar study by Nair¹⁶ in India also showed face to be the commonest site (76%) followed by scalp (12.1%).

In the present study, tumours with eccrine differentiation (7%) was the commonest benign adnexal neoplasm. Spiradenoma was the commonest eccrine tumour. Tumour

Table 6: Frequency of malignant tumours of skin and adnexa

S.N	Malignant neoplasms	Number of cases	%
1	Keratinocytic tumours		
	Squamous cell carcinoma	18	42.0
	Basal cell carcinoma	13	30.2
	Basosquamous carcinoma	06	14.0
2	Melanoma	03	06.9
3.	Adnexal tumours		
	Apocrine carcinoma	01	02.3
	Microcystic adnexal carcinoma	01	02.3
	Sebaceous carcinoma	01	02.3
	Total	43	100

Table 7: Comparison of age range of different malignant tumours in various studies

S.N	Authors	Age in years		
		SCC	BCC	Melanoma
1.	Bari et al ⁸	61-70	61-70	51-60
2.	Adinarayan and Krishnamurthy ¹⁰	41-60	61-80	-
3.	Gundalli et al ¹¹	60-69	60-69	60-69
4.	Present study	61-70	71-80	61-80

Table 8: Comparative frequency of different malignant tumour of skin in various studies

S.N	Authors	Different malignant tumours				Malignant adnexal Tumor
		SCC	BCC	BSC	Melanoma	
1.	Bari et al ⁸	45.9%	34.4%		4.9%	8.2%
2.	Gundalli et al ¹¹	28.0%	16.0%		8.0%	5.0%
3.	Adinarayan and Krishnamurthy ¹⁰	83.9%	13.1%			
4.	Hajheydari et al ¹⁹	23.0%	68.4%		3.0%	
5.	Bhudraja SN et al ¹⁸	49.0%	17.6%		29.4%	0.9%
6.	Present study	41.8%	30.2%	13.9%	6.9%	6.9%

with hair follicle differentiation followed the eccrine tumours (Table 5), which is similar to study by Nair¹⁶ where eccrine differentiation constituted the maximum cases (52%) followed by tumours with hair follicle differentiation (36.3%).

In the present study there were three cases of malignant adnexal tumours (6.9% of total malignant tumours), with one case each of apocrine carcinoma (fig.3), microcystic adnexal carcinoma and sebaceous carcinoma.

The present study showed benign melanocytic lesions (21%) with intradermal nevus being the commonest, far exceeding melanoma (6.9%), which correlated with the study done by Suvernakar et al¹⁷ where benign melanocytic naevi (27.27%) exceeded the cases of melanoma (11.36%).

In the present study, malignant neoplasm constituted 18% of total cases (43 cases out of total 238 cases), of which

malignant keratinocytic tumour were the commonest followed by three cases each of melanoma and malignant adnexal tumour. The finding in this study was similar to four studies done in India by Bari et al,⁸ Adinarayan and Krishnamurthy,¹⁰ Gundalli et al,¹¹ Bhudraja SN et al.¹⁸ However, in a similar study by Hajheydari et al¹⁹ in Iran, BCC (68.4%) exceeded SCC (23%), followed by melanoma (3.3%). The frequencies of different malignant tumours in different studies are compared in Table 8.

In present study, out of total number of cases, six cases of SCC and nine cases of BCC were noted on face. In a similar study done in Iran by Hajheydari¹⁹, head and neck was the most common site of involvement by SCC (49%) and BCC (93%). The reason for common involvement of face by these tumours could be due to actinic exposure.

Tumour like lesions of skin and adnexa constituted 53 cases of total surgical biopsies (0.7% of total 7275 cases).

A similar study done by Bari et al⁹ showed that tumour like lesions of skin constituted 175 cases (1.9% of total 9100 surgical biopsy specimen). Epidermal cyst was the commonest (52.8%) tumour like lesion followed by dermoid cyst (26.4%) in present study which correlated with study by Bari et al.⁹

CONCLUSION

Biopsies for tumours and tumour like lesions of skin and adnexa constituted the majority of skin biopsies. Frequency of skin biopsies for tumour and tumour like lesions was at 11-30 year of age groups. Face was the most common location for such lesions. Benign neoplasms outnumbered the malignant neoplasms. Tumour like lesions are clinically diagnosed by their presentation. However, early biopsy would help in rulling out any possibilities of malignancies.

Conflict of Interest: None

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