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RESEARCH ARTICLE

HISTOPATHOLOGICAL SPECTRUM OF SKIN LESIONS-EXPERIENCE AT RURAL BASED HOSPITAL

Dr. Sheela L Gaikwad, *Dr. Uddhav D Kumawat, Dr. Nagsen A Sakhare and Dr. Grace F D'costa

Department of Pathology, SRTR, GMC, Ambajogai, Maharashtra, India

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ABSTRACT

Introduction: The skin acts as a buffer against the external environment and thus is more vulnerable to a variety of disease-causing microorganisms and physical assaults. The skin is affected by wide range of diseases comprising of inflammatory disorders to highly malignant neoplasms.
Material & Methods: All the skin lesion received from Jan 2016 to June 2016, excluding those of oral & nasal mucosa and tongue, are studied retrospectively in the dept. of Pathology at Swami Ramanand Teerth Rural Government Medical College, Ambajogai.
Results: Total 113 (10%) skin lesion specimens out of 1130 specimens were received during study period. Patient's age ranged from 7 years to 80 years with maximum numbers of patients were from age group of 31 to 40 years and with male predominance (M:F= 2.1:1). Neoplastic (58%) lesions outnumbered non-neoplastic ones (42%). Epidermal cysts and squamous cell carcinoma were the most common benign and malignant neoplastic lesions respectively. Non-specific chronic inflammation was most common non-neoplastic lesion.
Conclusion: Diversity of skin lesions were obtained among rural population in this study. Meticulous histopathological examination combined with awareness in mind regarding prevalence of diverse skin lesions in rural population can help in correct diagnosis.

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INTRODUCTION

The skin is the largest organ of the integumentary system in human. The integumentary system constitutes the skin (integument) together with its accessory organs (hair, glands, and nails). The skin acts as a buffer against the external environment and thus is more vulnerable to a variety of disease-causing microorganisms and physical assaults. The skin is affected by wide range of diseases comprising of inflammatory disorders to highly malignant neoplasms (Abubakar *et al*., 2016). Skin lesions can be classified as following: Disorders of Pigmentation and Melanocytes, Benign Epithelial Tumours, Premalignant and Malignant Epidermal Tumours, Tumours of the Dermis, Tumours of Cellular Immigrants to the Skin, Disorders of Epidermal Maturation, Acute Inflammatory Dermatoses, Chronic Inflammatory Dermatoses, Blistering (Bullous) Diseases, Disorders of Epidermal Appendages, Panniculitis, Infection and Infestation (Kumar *et al*., 2014). The WHO Classification of skin tumours editorial and consensus conference in Lyon, France classified skin tumours into: Keratinocytic Tumours, Melanocytic Tumours, Appendageal Tumours, Haematolymphoid Tumours, Soft Tissue Tumours, Neural Tumours, and Inherited Tumour Syndromes. As per WHO Classification of tumours the lifetime risk for the development of skin cancer in the USA is now 1 in 5 (LeBoit, 2006). Non-melanoma skin cancers (NMSC) constitute major form of cancer in Caucasians with increasing incidence. Among NMSC, Basal cell carcinoma is most common (75%) followed by Squamous cell carcinoma (Samarasinghe V & Madan V, 2012). In Caucasians, annual increase in the incidence rate of melanoma has been approximately 3–7% per year worldwide (Erdei and Torres, 2010). Epithelial cysts of the skin form heterogenous group among which epidermal cysts are commonest (Warvi and Gates, 1943). We studied various skin disorders in this research at department of pathology aiming to provide essential data of skin lesions in rural area.

MATERIALS AND METHODS

This is a six month retrospective study of skin lesions carried out at the Department of Pathology, Swami Ramanand Teerth Rural Government medical college, Ambajogai from Jan 2016 to June 2016. All the lesions related to skin and subcutaneous

Corresponding author: Dr. Uddhav D Kumawat,
Department of Pathology, SRTR, GMC, Ambajogai, Maharashtra, India.

tissue are included in this study. Lesions of oral mucosa, tongue and nasal mucosa are excluded form study. Demographic data such as age, sex and site of the biopsies were obtained from patients' histopathology request cards and histopathology registers. Stained Haematoxylin and Eosin (H&E) slides were reviewed. Whenever needed, slides were stained with special stains.

RESULTS

Total 113 (10%) skin lesion specimens out of 1130 specimens were received in histopathology section from January 2016 to June 2016. Patient's age ranged from 7 years to 80 years with mean and median age being 44.1 and 40 respectively. Maximum numbers of patients were from age group of 31 to 40 years.

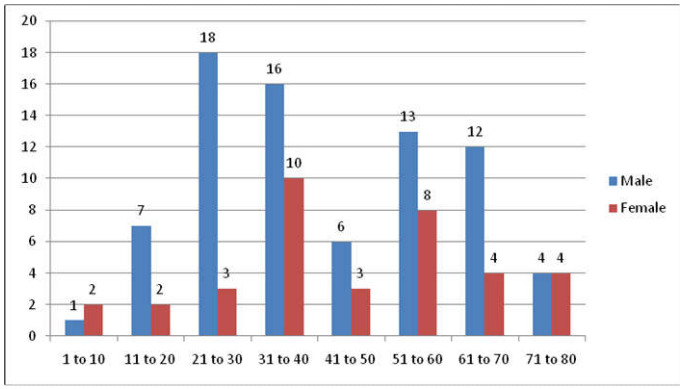

Figure 1. Bar diagram showing age wise distribution of skin lesions among males and females (n=113)

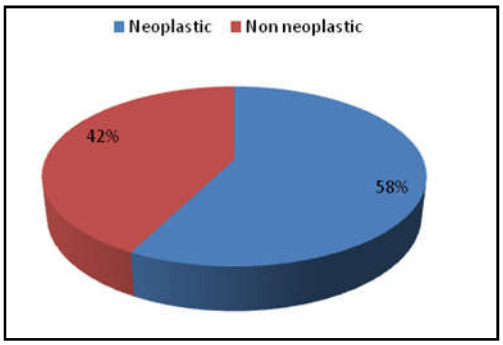

Figure 2. Pie diagram showing frequency distribution of neoplastic and non-neoplastic lesions (n= 113)

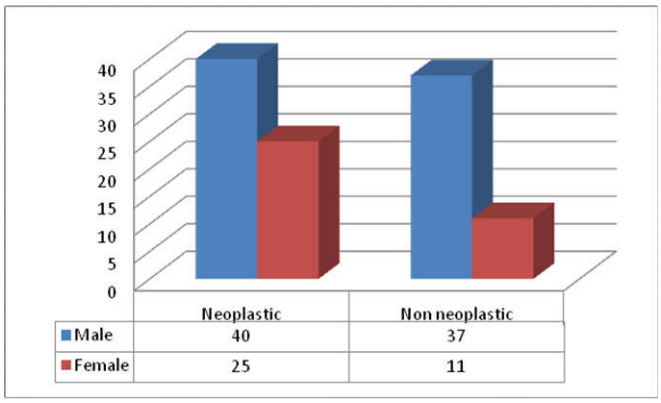

Figure 3. Bar diagram showing sex wise distribution of neoplastic and non-neoplastic lesions (n=113)

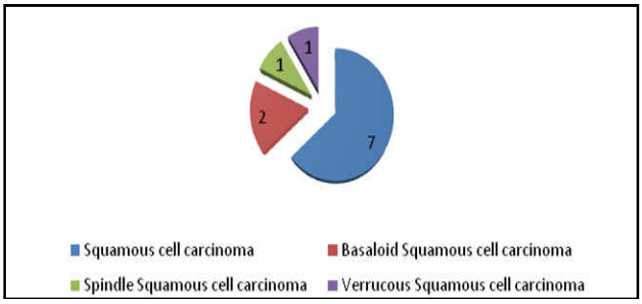

Figure 4. Pie diagram showing keratinocytic malignancies

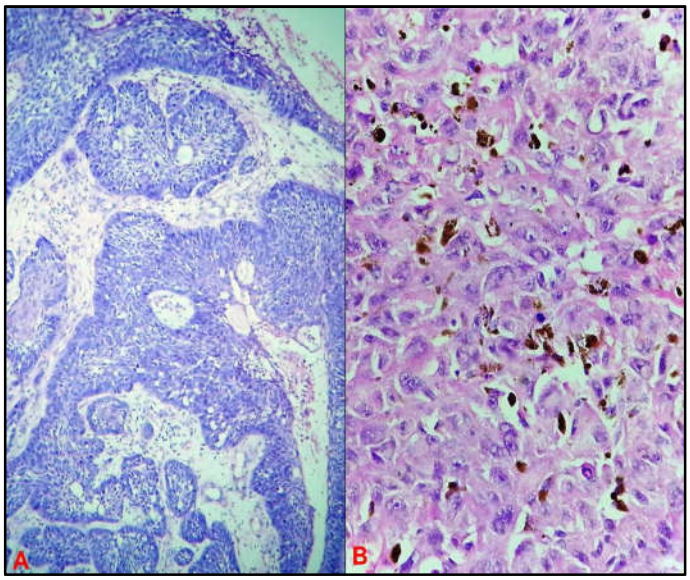

Figure 5. 5A. Basaloid squamous cell carcinoma (H&E x100). Nuclei palisade at the periphery of basaloid nests. B. Malignant melanoma (H&E x400). Showing sheets of malignant melanocytes with hyperchromatic nuclei and prominent nucleoli

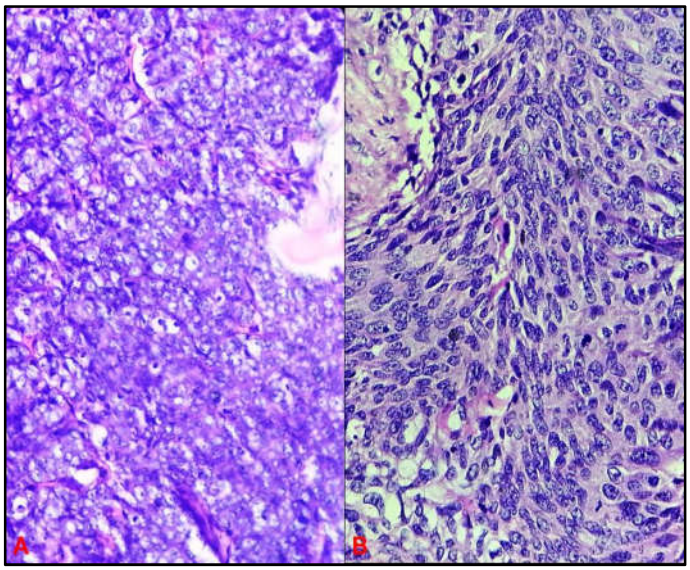

Figure 6. A. Sebaceous carcinoma (H&E x400). Undifferentiated cells and sebaceous cells are showing cytologic atypia and nuclear pleomorphism. B. Spindle squamous cell carcinoma (H&E x400). Epithelial band is showing spindloid configuration of squamous cells

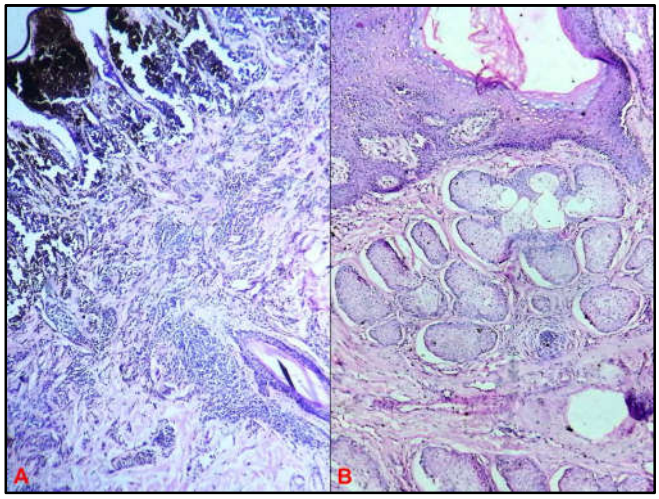

Figure 7. A. Congenital nevus (H&E x100). Nevus cells are deep within reticular dermis and in close association with appendages. B. Nevus sebaceous (H&E x100). There is epidermal hyperplasia, hyperplastic sebaceous glands and immature hair follicle

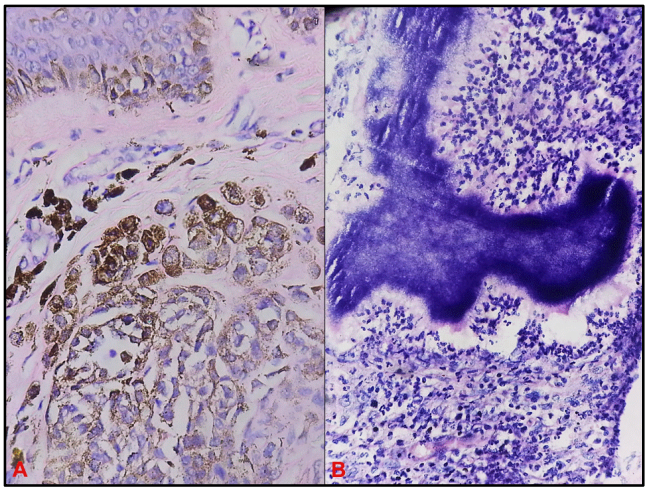

Figure 8. A. Intradermal nevus (H&E x400). Nests of nevus cells are present within the dermis. B. Actinomycetoma (H&E x400). Colonies of filamentous bacteria rimmed by eosinophilic material and is surrounded by dense neutrophilic reaction

Table 1. Neoplastic lesions (n=65)

Benign (50)	Epidermal cyst	15
	Trichilemmal cyst	11
	Dermoid cyst	6
	Wart	1
	Condyloma acuminatum	1
	Congenital nevus	1
	Intradermal nevus	2
	Nevus sebaceous	1
	Pilomatricoma	1
	Hidradenoma	1
	Fibroepithelial polyp	3
	Fibroma	1
	Keloid	1
	Neurofibroma	2
	Leiomyoma	1
	Nevus lipomatous cutaneous superficialis	1
	Capillary haemangioma	1
Malignant (15)	Squamous cell carcinoma	11
	Malignant melanoma	2
	Sebaceous carcinoma	1
	Myxofibrosarcoma	1

Table 2. Non neoplastic lesions (n=48)

Inflammatory (27)	Nonspecific chronic inflammatory lesion	22
	Granulomatous inflammation	2
	Necrotising granulomatous inflammation	1
	Folliculitis	1
	Chronic abscess	1
Infectious (4)	Actinomycosis	1
	Mycetoma	2
	Eumycetoma	1
Other(17)	Sebaceous hyperplasia	2
	Calcified cysts	3
	Mucous cyst	1
	Corn	3
	Idiopathic calcinosis of scrotum	2
	Calcinosis cutis	4
	Pseudoepitheliomatous hyperplasia	1
	No specific pathology	1

In that 77 specimen were from male and 36 from female with male to female ratio being 2.1:1 (Fig. 1). Neoplastic lesions of skin were the major lesions that we got in our study (Fig.2, Table 1). In that, benign lesions were maximum with Epidermal cysts contributing higher proportion. Among malignant cases squamous cell carcinoma was the predominant malignancy followed by malignant melanoma. In 11 squamous cell carcinoma 4 were its variants accordingly two Basaloid squamous cell carcinoma, one Spindle squamous cell carcinoma and one Verrucous carcinoma (Fig.4). Inflammatory lesions of epidermis and dermis were the second most lesions following neoplastic lesions (Table 2). Most of inflammatory lesions were reported as nonspecific chronic inflammation. One lesion was given as necrotising granulomatous inflammation which on Ziehl-Neelsen staining was negative for acid fast bacilli. We reported 6 adnexal lesions in our study. In this 4 were of sebaceous differentiation, 1 of eccrine and 1 with follicular differentiation. We reported two lesions as Sebaceous hyperplasia and placed in non-neoplastic category.

DISCUSSION

Skin lesion prevalence in general population varies from 6.3% to 11.16% (Grover *et al*., 2008; Gangadharan *et al*., 1976; Dayal and Gupta, 1977; Kuruvilla *et al*., 2000; Rao and Kumar 2003; Das, 2002; Devi and Zamzachin, 2006; Pradeep Nair and Gopalakrishnan Nair, 1999), our result of skin lesion prevalence fall within this range. We found male predominance of skin lesions in our study (Fig.1). It is comparable to findings of Dayal and Gupta (1977), Grover *et al*. (2008) and Rao and Kumar (2003) where they noticed male predominance. This male predominance again encountered on classifying these lesions into neoplastic and non-neoplastic category (Fig.3). Vaghela and Jha, (2016) also found male predominance among non-neoplastic lesions. In consistent with observations of Abubakar *et al*. (2016), we also got neoplastic lesions as major entity (Fig.2). Epidermal cysts are intradermal or subcutaneous tumors that are slow growing, elevated and round. These cysts have wall composed of true epidermis and are filled with keratin material that are arranged in laminated layers (Lever, 2005). We reported 15 skin lesions as epidermal cyst (Table 1). Among these 11 showed typical histopathology as earlier described and 4 cysts revealed foreign body inflammatory reaction in the wall, probably as response

to released keratin following rupture of cysts. As per Park and Ko (2013), changes in wall of the cysts wall are indicative of rupture of cysts which we got in the form of foreign body reaction. In contrast to epidermal cysts, the wall of Trichilemmal cyst shows characteristic absence of granular layer of epidermis and no clearly visible intercellular bridges with abrupt keratinisation. In our study, all 11 Trichilemmal cysts showed typical histomorphology without signs of rupture. Proliferating Trichilemmal cysts can also show trichilemmal type of keratinisation, but these are usually solid with tumor like proliferation which was not present in our case (Lever, 2005; Ramaswamy *et al*., 2013).

Squamous cell carcinoma was the predominant malignancy in our study (Table 1) which is comparable to findings of Abubakar *et al*. (2016), Brand and Ackerman (2000) and Wassberg *et al*. (2001). Among proper squamous cell carcinoma, four were well differentiated and 3 were moderately differentiated. Degree of anaplasia in tumor and invasion into underlying dermis helped us to grade these tumors. Grading is essential as features of deep invasion, poor differentiation and associated perineural invasion give tumor more chances of recurrence or metastasis (LeBoit, 2006). Basaloid squamous cell carcinoma is a variant of squamous cell carcinoma with aggressive behaviour which was first described by Wain *et al*., Its most common site is aerodiagestive tract in head and neck region (Wain, *et al*., 1986; Ereño *et al*., 2008). In our study, we got two basaloid squamous cell carcinoma (Fig.5A); one at lateral canthus of eye and other at occipital region. Upon searching in literature, male predominance is evident in basaloid squamous cell carcinoma (Ereño *et al*., 2008) but in our study both were females above 60 years. Spindle squamous cell carcinoma is an unusual variant of squamous cell carcinoma. Head and neck region is the common site for this malignancy. Though male predominance is observed in literature for this lesion (Viswanathan *et al*., 2010), in our case we observed it in a 72 year female (Fig.6B). Viswanathan *et al*., (2010) and Thompson *et al*., (2002) noted median age for this lesion as 53 and 66 respectively. Intermittent exposure to ultraviolet rays (UVR) is the major environmental risk factor for melanoma, especially in combination with endogenous factors (immune deficient status, genetic predisposition). It predominantly affects adults and elderly patients, with a peak of incidence around the sixth decade of life. Sun exposed parts are commonly affected by it(LeBoit PE, 2006). In this study, two malignant melanoma lesions were present in males with age being 60 and 65. Both these lesions were present on foot (Fig.5B). Among inflammatory lesions of skin, non-specific chronic inflammation was predominant in which histopathology showed epidermis with variable acanthosis, presence of lymphoplasmacytic infiltration of underlying dermis and absence of pathologic organism. One 35 year male patient presented with multiple swelling over scalp region which upon histopathologic examination turned out to be folliculitis. In this lesion inflammatory cells are present within the wall and ostia of the hair follicle (Lever WF, 2005). One lesion was sebaceous carcinoma (Fig.6A). It was present in a 60 year female on upper eyelid. Eyelid is commonly affected by it. Poorly differentiated sebaceous carcinoma is susceptible to misdiagnosis because of its similarities with squamous cell carcinoma (Pereira *et al*., 2005). As per literature, it commonly present in old age though it is also reported in younger age (Pereira, 2005; Sung *et al*., 2011). Sebaceous hyperplasia is characterised by enlargement of single sebaceous gland composed of numerous lobules which are arranged around wide sebaceous duct. It commonly affect facial region. It has been reported in association with Muir-Torre syndrome which consist of visceral malignancies, sebaceous neoplasm and keratoacanthoma. We got two lesions as sebaceous hyperplasia; one was at lateral angle of mouth and other over nose. Still alone presence of sebaceous hyperplasia without associated neoplasms does not predispose to cancer or represent sign of Muir- Torre syndrome (Lever, 2005). Intradermal nevi are one of the types of acquired melanocytic nevi without junctional activity. These usually consist of nests and cords of nevus cells in upper dermis. Two lesions of this study was intradermal nevus present in females (Fig. 8A). In our case there was no hyperkeratosis and papillomatosis, which less commonly may presents in these lesions and resemble as seborrheic keratosis of epidermis (Lever, 2005). Congenital melanocytic nevus (CMN) is benign cutaneous melanocytic neoplasm which presents since birth. These are characterised by presence of nevus cells around or in association with hair follicle, erector pili, sebaceous glands and sweat ducts (Lever, 2005). These nevi are classified according to their gross size into small (<1.5 cm), medium (1.5-19.9 cm) and large or giant (>20 cm). Giant CMN have increased risk of malignant transformation and need referral to specialist (Nikfarjam and Chambers, 2016). We reported one lesion as CMN in an 18 year female which was of medium size (6 cm) and present since birth (Fig. 7A). Nevus sebaceous is a hamartomatous lesion which predominantly composed of sebaceous glands. It was first described by Jadassohn in 1885. Usually it is solitary and presents as warty growth. Simi *et al*. (2008) studied 21 cases of nevus sebaceous in which they found female predominance and maximum patients were in the range of 21-30 years. One female patients of 40 years age in our study presented with warty growth on nose which on microscopy came as nevus sebaceous (Fig.7B). We reported one lesion as Nevus Lipomatous Cutaneous Superficialis in a 40 years male which is a rare disease characterised by groups of ectopic fat cells in the papillary or reticular dermis. It was first described by Haffman and Zurhelle in 1921. It occurs in two clinical forms. The multiple form (classic type) is characterized by multiple soft nontender skin-colored or yellow papules, nodules, or plaques that usually develop shortly after birth or during the first two decades of life. It usually develops shortly after birth or during the first two decades of life. The solitary form presents after the second decade of life (Goldblum *et al*., 2013). We reported three cases as actinomycetoma. All three were male presented with discharging sinuses over foot. In these, lesions composed of filamentous bacteria surrounded by neutrophils, plasma cells and foreign body giant cell reaction (Fig. 8B). One lesions was diagnosed as Eumycetoma in which pathologic organism was septate with hyphae. Mycetoma is a chronic infection of skin and subcutaneous tissue, characterised by discharging sinuses and presence colonial grains in the exudate. It is classified as Actinomycotic Mycetoma and eumycotic Mycetoma in which first one is caused by filamentous bacteria while fungus is etiologic agent in later one. Though Gram stain

(actinomycetoma) or Gomori methenamine silver or periodic acid-Schiff stains (eumycetoma) can differentiate these lesions, meticulous histopathological examination can also be helpful in diagnosis (Alam *et al*., 2009). To conclude, diversity of skin lesions we got among rural population in this study. These lesions were present predominantly in patients with age more than 30. Neoplastic skin lesions were the major entity, with epidermal cysts being the most common lesions. Though less in number, non-neoplastic lesions also were noticeable. So meticulous histopathological examination combined with awareness in mind regarding prevalence of diverse skin lesions in rural population can help in correct diagnosis.

Conflicts of interest: None

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