

## Spectrum of study of Skin lesions in a teaching Hospital

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### ABSTRACT

**Background:** Skin is the largest organ that covers and protects the body. Skin holds body fluids and prevents from dehydration, restricts harmful microbes entering into the body and prevents infections, nerve endings in the skin makes the feel of warm, cold and touch, maintains the temperature of the body and also helps in synthesis of vitamin D from the sunlight. Anything that causes irritation of the skin, clogging, or inflammation of the skin leads to symptoms such as redness, swelling, burning sensation, and varying degrees of itching.

**Materials & Methods:** A total of 150 cases were included in the study for a period of one year. All the patients with various skin lesions with complaints of itching, redness and pain/painless were included in the study. Age group included in the study was ranged from 15 years to 64 years.

**Results:** Out of 150 cases, most of the cases were noted in females than male, 58 cases in males and 92 cases in females. Male to Female ratio 1:1.6. In our study the histopathological examination turned out to be the most important diagnostic aid in skin lesions as most of the clinical diagnoses were not accurate- which could be due to the similar way of presentation of various lesions and close relation with the other skin lesions.

**Conclusion:** Most of the skin lesions mimic each other due to the site and symptoms of presentation. In such case histopathological examination of the biopsy tissue gives a confirmed diagnosis.

**Keywords:** Skin Biopsy, Nevus Comedonicus, Lichen Planus, Lupus Vulgaris, Psoriasis, Lichen Sclerosus et Atrophicus.

### INTRODUCTION

Most of the skin lesions are benign. The plethora of dermatological conditions makes a correct diagnosis challenging. To combat this, the dermatologist or the clinician must approach the evaluation of these lesions in a systematic way. In addition to the physical characteristics of the lesions, the patient's demographics, presence and absence of associated symptoms, other related systemic disorders, and site of the lesions and growth patterns of the lesions all give

clues to better diagnosis and treatment. The accurate diagnosis of any skin lesion can be made by histopathological examination (HPE) of a skin tissue or biopsy material. However, clinicians must gain the clinical acumen to correctly identify common and benign skin lesions and also distinguish those skin conditions that do need a biopsy and possible further treatment. Most of the skin lesions are benign but these lesions must be differentiated from malignant lesions. This is best done by being familiar with clinical and histopathological characteristics of common malignant lesions. The clinician should try to categorize any skin lesion as one of the following: most likely benign, most likely malignant, or unclear. The last 2 categories should be biopsied. Once the benign nature of the lesions is assumed, the diagnosis must be made accurately in order to assess any future malignant potential. A critical caveat is that all benign lesions must be watched by the patient and examined by a clinician should any changes occur.

### MATERIALS AND METHODS

This study was done by the department of pathology and dermatology, Malla Reddy Institute of Medical Sciences (MRIMS), Hyderabad, India. A total of 150 cases were included in the study for a period of one year. All the patients with various skin lesions with complaints of itching, redness and pain/painless were included in the study. Age group included in the study was ranged from 15 years to 64 years. Proper history was taken and clinical examination of the lesions was done and later skin biopsy under all the aseptic precautions and under local anesthesia, skin bit was taken and sent in 10 % buffered formalin for histopathological examination for confirmation of the diagnosis. The skin biopsy included shave biopsy, punch biopsy, excision biopsy and incisional biopsy.

### RESULTS

Out of 150 cases, most of the cases were noted in females than male, 58 cases in males and 92 cases in females. Male to Female ratio 1:1.6. Out of the 150 cases most of the cases are seen in the age group of 25 years to 34 years followed by age group 35 to 44 years and least skin lesions were noted in age group 55- 64 years (Table 1).

**Table 1: Showing age group and number of cases**

Age Group	Number of Cases
15-24 years	24
25-34 years	49
35-44 years	32
45-54 years	28
55-64 years	17
<b>TOTAL</b>	<b>150</b>

In this study, most of the lesions were seen in the upper extremities followed by head and neck, multiple sites of occurrence, face and the scalp (Table 2).

**Table 2: Showing various sites involved**

SITE OF THE LESION	NUMBER OF CASES
Upper Extremities	33
Trunk	09
Scalp	13
Face	17
Head and Neck	24
Genitals	11
Eyelids	09
Lower Limbs	14
Multiple Sites of the Body	20
<b>TOTAL</b>	<b>150</b>

When the incidence of various lesions was studied, it was found that most common lesion/swelling was epidermoid cyst followed by psoriasis and the least common entities were granuloma annulare, darier’s disease , histioid leprosy and nevus comedonicus [Table 3].

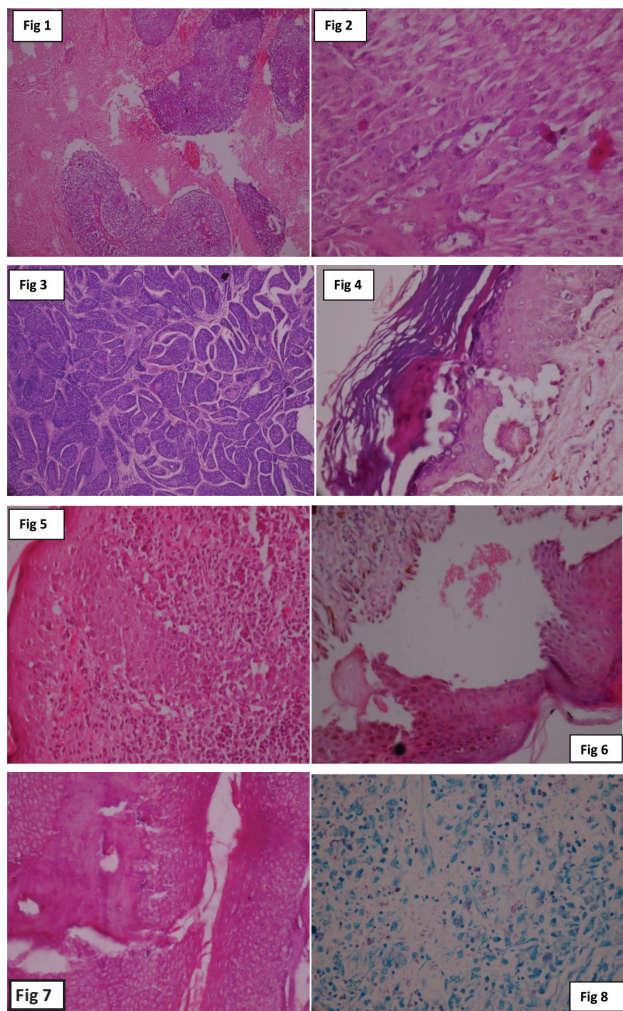
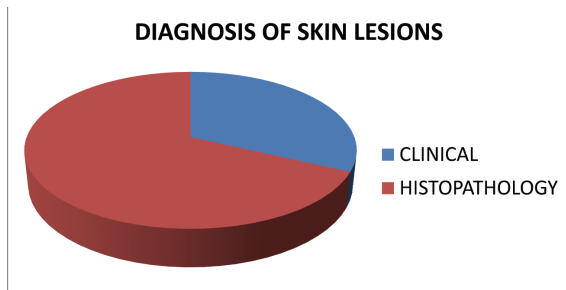
**Table 3: Showing lesions diagnosed**

SKIN LESION	NUMBER OF CASES
Epidermoid Cyst	18
Psoriasis	12
Lichen Planus	10
Borderline Tuberculoid Leprosy	09
Tuberculoid leprosy	08

Verruca Plana	07
Molluscum Contagiosum	07
Verruca Vulgaris	06
Pemphigus Vulgaris	06
Lepromatous Leprosy	05
Bullous Pemphigoid	05
Tinea Pedis	05
Indeterminate Leprosy	05
Neurofibroma	04
Tinea Capitis	04
Lichen Sclerosus et Atrophicus	04
Discoid Lupus Erythematosus (DLE)	04
Pilomatrixoma	04
Nevus Sebaceous	03
Basal Cell Carcinoma	03
Papulonecrotic Tuberculid	03
Lupus Vulgaris	02
Leukocytoclastic Vasculitis	02
Apocrine Hidrocystoma	02
Cylindroma	02
Clear Cell Hidradenoma	02
Xanthelasma	02
Sarcoidosis	02
Granuloma Annulare	01
Histioid Leprosy	01
Darier’s Disease	01
Nevus Comedonicus	01
<b>TOTAL</b>	<b>150</b>

In our study the histopathological examination turned out to be the most important diagnostic aid in skin lesions as most of the clinical diagnoses were not accurate- which could be due to the similar way of presentation of various lesions and close relation with the other skin lesions. Most of the final diagnoses were made on histological features on skin biopsy (Chart 1).

Chart 1: Showing various diagnosis of skin lesions



**Figure 1: Basal Cell Carcinoma**  
**Figure 2: Clear Cell Hidradenoma**  
**Figure 3: Cylindroma**  
**Figure 4: Darier’s Disease**  
**Figure 5: Discoid Lupus Erythematosus**  
**Figure 6: Pemphigus Vulgaris**  
**Figure 7: Pilomatrixoma**  
**Figure 8: Leprosy with Acid Fast Lepra Bacilli**

**DISCUSSION**

Skin acts as a waterproof and insulating shield, guarding the body against various physical and chemical agents. It also exudes antibacterial substances that prevent infection and manufactures vitamin D for converting calcium into healthy bones. Skin is made up of three layers. The outermost is the epidermis. This consists mainly of cells called keratinocytes, made from the tough protein keratin. Keratinocytes form several layers that constantly grow outwards as the exterior cells die and flake off. It takes roughly five weeks for newly created cells to work their way to the surface. This covering of dead skin is known as the stratum corneum and its thickness varies considerably, being more than ten times thicker on the soles of the feet than around the eyes. The epidermis contains defensive Langerhans cells, which alert the body's immune system to viruses and other infectious agents.

The epidermis is bonded to a deeper skin layer below known as the dermis, which gives the organ its strength and elasticity. Blood vessels here help regulate body temperature by increasing blood flow to the skin to allow heat to escape, or by restricting the flow when it's cold. A network of nerve fibers and receptors pick up feelings such as touch, temperature, and pain, relaying them to the brain.

The dermis houses hair follicles and glands with ducts that pass up through the skin. Sweat glands bring down internal temperature through perspiration while ridding the body of the waste fluids urea and lactate. Apocrine glands, which develop during puberty, produce a scented sweat linked to sexual attraction that can also cause body odor, especially around the armpits. Sebaceous glands secrete oil-like sebum for lubricating the hair and skin.

The skin's base layer is the subcutis, which includes a seam of fat laid down as a fuel reserve in case of food shortage. It also works as insulation and cushions us from knocks and falls.

Epidermoid cysts are benign lesions and are characterized by cystic spaces lined by simple squamous epithelium (epidermoid cyst), containing skin adnexae or tissues of all three germ layers, like muscle, teeth, bone, cartilage etc.<sup>1,2</sup>. Cystic masses in the head and neck region are common presentations and epidermoid cysts in the form of cutaneous lesions are traditionally said to occur commonly in the face, scalp, neck and trunk<sup>3</sup>. But, in the deeper tissue planes, and as supported by a thorough review, both of recent and older literature, dermoid and epidermoid cysts in head and neck seem less common, constituting about 1.6–6.9% of all cases in the body<sup>4</sup>. In one retrospective study among 89 children, only 13.33% cases of head cysts were found to be epidermoid, compared to 58.88% of dermoid cysts<sup>5</sup>. Overall however, only 7% of all the epidermoid and dermoid cysts are found to occur in the head and neck area<sup>6,7</sup>, 1.6% in the oral cavity, and constitutes only 0.01% of all the oral cysts<sup>7,8,9</sup>.

Psoriasis is an autoimmune disease which is characterized by patches of abnormal skin<sup>10</sup>. These skin patches are typically red, itchy, and scaly. They may vary in severity from small and localized to complete body coverage<sup>11</sup>. There are five main types of psoriasis: plaque, guttate, inverse, pustular, and erythrodermic<sup>10</sup>. Plaque psoriasis, also known as psoriasis vulgaris, makes up about 90% of cases. It typically presents with red patches with white scales on top. Areas of the body most commonly affected are the back of the forearms, shins, around the navel, and the scalp<sup>12</sup>. Guttate psoriasis has drop-shaped lesions<sup>10</sup>. Pustular psoriasis presents with small non-infectious pus-filled blisters. Inverse psoriasis forms red patches in skin folds<sup>10</sup>. Erythrodermic psoriasis occurs when the rash becomes very widespread, and can develop from any of the other types. Fingernails and toenails are affected in most people at some point in time. This may include pits in the nails or changes in nail color<sup>12</sup>. There is no cure for psoriasis. However, various treatments can help control the symptoms<sup>12</sup>. These treatments may include steroid creams, vitamin D3 cream, ultraviolet light, and immune system suppressing medications such as methotrexate. About 75% of cases can be managed with creams alone<sup>12</sup>. The disease affects 2–4% of the population. Men and women are affected with equal frequency<sup>10</sup>. The disease may begin at any age<sup>13</sup>. Psoriasis is associated with an increased risk of psoriatic arthritis, lymphomas, cardiovascular disease, Crohn's disease, and depression<sup>12</sup>. Psoriatic arthritis affects up to 30% of individuals with psoriasis.

Lichen planus (LP) is an uncommon disease of the skin with a prevalence of 0.1% in men and 0.3% in women. The cause is unknown, but it is thought to be the result of an autoimmune process with an unknown initial trigger. There is no cure, but many different medications and procedures have been used in efforts to control the symptoms.

The cause of lichen planus is unknown<sup>14</sup>, but it is not contagious and does not involve any known pathogen<sup>15</sup>. It is thought to be a T cell mediated autoimmune reaction (where the body's immune system targets its own tissues)<sup>16</sup>. This autoimmune process triggers apoptosis of the epithelial cells<sup>16</sup>. Several cytokines are involved in lichen planus, including tumor necrosis factor alpha, interferon gamma, interleukin-1 alpha, interleukin 6, and interleukin 8. This autoimmune, T cell mediated, process is thought to be in response to some antigenic change in the oral mucosa, but a specific antigen has not been identified.

In general, leprosy affects the skin, peripheral nerves, and eyes. Systemic symptoms of leprosy are also possible. Specific symptoms vary with the severity of the disease. Prodromal symptoms are generally so slight that leprosy is not recognized until a cutaneous eruption is present. However, 90% of patients have a history of numbness first, sometimes years before the skin lesions appear. Temperature is the first

sensation that is lost. Patients cannot sense extremes of hot or cold. The next sensation lost is light touch, then pain, and, finally, deep pressure. These losses are especially apparent in the hands and feet; therefore, the chief complaint may be a burn or ulcer in an anesthetic extremity.

Molluscum contagiosum (MC), sometimes called water warts, is a viral infection of the skin and occasionally of the mucous membranes. MC can affect any area of the skin, but is most common on the trunk of the body, arms, groin, and legs. It is caused by a DNA poxvirus called the molluscum contagiosum virus (MCV). MCV has no non human reservoir (infecting primarily humans, though equids can rarely be infected). The virus that causes molluscum contagiosum is spread from person to person by touching the affected skin.

Lichen sclerosus (LS) is a chronic inflammatory dermatosis that results in white plaques with epidermal atrophy and scarring. Lichen sclerosus has both genital and extragenital presentations and also goes by the names lichen sclerosus et atrophicus (dermatological literature), balanitis xerotica obliterans (glans penis presentation), and kraurosis vulvae (older description of vulvar presentation). Inflammation and altered fibroblast function in the papillary dermis leads to fibrosis of the upper dermis. Genital skin and mucosa are affected most frequently, but extragenital lichen sclerosus does occur, and even rare oral presentations are reported. The role that hypoxia and ischemia have in the initial cellular and vascular damage is supported by the finding of increased glut-1 and decreased vascular endothelial growth factor (VEGF) expression in affected skin<sup>17</sup>. The effect of cell-mediated cytotoxicity has been better defined at the biochemical level<sup>18</sup>.

In 1895, Kofmann<sup>19</sup> described the first case of nevus comedonicus. It manifests as groups of closely set, dilated follicular openings with dark keratin plugs resembling comedones. The majority of cases are isolated. However, nevus comedonicus may be part of nevus comedonicus syndrome in association with skeletal or central nervous system anomalies, ocular abnormalities, and cutaneous defects<sup>20,21,22</sup>. Many consider nevus comedonicus to be a hamartoma deriving from a failure of the mesodermal part of the folliculosebaceous unit to develop properly, with subsequent abnormal differentiation of the epithelial portion. The follicular structures that result are unable to form terminal hair or sebaceous glands and are capable only of producing soft keratin, which accumulates in the adnexal orifices and produces the comedone like lesions observed in persons with this condition. Another view is that nevus comedonicus is an epidermal nevus involving hair follicles or an appendageal nevus of sweat ducts. Lesions that extend onto a palm or sole typically demonstrate sweat duct dilatation with keratin in the volar portion of the lesion. Most patients are asymptomatic. Uncommonly, the lesions become repeatedly inflamed and infected, leading to painful cysts, abscesses, fistula formation, and scarring.

**CONCLUSION**

Skin biopsy is the most important diagnostic test for skin disorders. In selected patients, a properly performed skin biopsy almost always yields useful diagnostic information. Punch biopsy is considered the primary technique to obtain diagnostic, full-thickness skin specimens. Most of the skin lesions mimic each other due to the site and symptoms of presentation. In such case histopathological examination of the biopsy tissue gives a confirmed diagnosis.

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