Original Research Article

Histopathological pattern of cutaneous disorders in tertiary care center in Shahjahanpur district of India

Amar Singh1*, Astha Pant2

1Department of Dermatology, Venereology and Leprosy, Autonomous State Medical College, Shahjahanpur, Uttar Pradesh, India
2Department of Dermatology, Government Combined Hospital, Dehradun, Uttarakhand, India

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*Correspondence:
Dr. Amar Singh,
E-mail: dr.amar13hims@gmail.com

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ABSTRACT

Background: Histopathological examination is most commonly needed and used investigation in dermatology. The main objective of this study is to share our experience with skin lesions from a tertiary health Centre by describing the histopathological patterns of 675 consecutive cases.

Methods: The study was retrospective and was conducted in those patients who attended the OPD. A total of 675 cases were sent for histopathological examination. Further they were classified into various histological categories based on the site and pattern of involvement. Inclusion criteria involves all skin biopsies sent for histopathology examination, exclusion criteria was none.

Results: Most common histopathological entity was infectious disease with 22.52% cases leading in this study. Out of which Hansen disease is on top with 16.29% which was followed by cutaneous tuberculosis with 3.70% (25) cases. Second most common group was of psoriasiform reactions with 9.77% cases. In this group most common disorder was psoriasis vulgaris with 5.92% (40) cases. Third and fourth most common group were spongiotic dermatitis and lichenoid dermatitis which presented with 9.18% and 9.03% cases with a minimal difference of 1 case.

Conclusions: A huge diversity in skin lesions was noticed in our study ranging from nonspecific dermatitis to malignant melanoma conditions. There was a younger age predominance regarding the patient presentation. Hansen’s disease still remains a single entity in India for which skin biopsy are required.

Keywords: Cutaneous tuberculosis, Histopathological examination, Hansen’s disease

INTRODUCTION

History and clinical examination is base of diagnosing a skin disease. Even after a clinical diagnosis if there is any confusion than dermatologists rely on skin biopsy as a confirmatory tool for diagnosis and further management. Skin biopsy is an established diagnostic procedure which connects clinical diagnostic methodology with the invisible to the unaided eye microscopic field of skin pathology. The main objective of this study is to share our experience with skin lesions from a tertiary health centre by describing the histopathological patterns of 675 consecutive cases.

METHODS

The study was retrospective and was conducted in those patients who attended the OPD in the Department of Dermatology, Autonomous state Medical College, Shahjahanpur over a period of 1 year. Patients of all age group were included in the study. A total of 675 cases were sent for histopathological examination. The
demographic details, history, clinical presentation, routine investigations were done. All the skin biopsies sent for histopathology examination from April 2019 to April 2020 were reviewed. Slides stained with routine hematoxylin and eosin stain and special stains such as Ziehl–Neelsen (ZN) stain, periodic acidSchiff, Alcian blue, Fite-Faraco, Verhoeff’s and Congo red for amyloid were examined under light microscopy. Further they were classified into various histological categories based on the site and pattern of involvement.

**Inclusion criteria**

All skin biopsies sent for histopathology examination.

**Exclusion criteria**

None.

**RESULTS**

Total 675 specimens were sent for biopsy and report was collected. Age group ranged from 4-78 years. Majority of patients belong to third and fourth decade with 32.88% (222) and 32.70% (160) cases respectively. There is significant gender wise predilection for skin diseases was seen with male 61.62% (416) to female 38.38 % (259) and ratio was 1.6:1 (Table 1).

| Age   | Male | Female | Total | Percentage |
|-------|------|--------|-------|------------|
| 0-10  | 14   | 9      | 23    | 3.40       |
| 10-20 | 21   | 37     | 58    | 8.59       |
| 20-30 | 127  | 95     | 222   | 32.88      |
| 30-40 | 110  | 50     | 160   | 23.70      |
| 40-50 | 75   | 42     | 117   | 17.33      |
| 50-60 | 60   | 19     | 79    | 11.70      |
| 70 above | 9 | 7 | 16 | 2.37 |
| Total | 416  | 259    | 675   | 100        |

Table 1: Distribution of cases according to age, sex, male and female ratio.

Most common site involved was lower limb with 43% (291) cases followed by head and neck 24% (163) and upper limb 17% (112). Least common sites were trunk and genitals with 13% (83) and 3% (20) cases respectively (Figure 1).

After histopathological diagnosis, these cases were further categorized into 17 groups based on the pattern of involvement of skin, cytological features and etiological agent (Table 2).

Most common histopathological entity was infectious disease with 22.52% (152) cases leading in this study. Out of which Hansen disease is on top with 16.29% (110) which was followed by cutaneous tuberculosis with 3.70% (25) cases. Other infections included chancroid, donovanosis, mycetoma, charomoblastomycosis, sporotrichosis and molluscum contagiosum counted for less than 1% each.

As Hansen disease and cutaneous tuberculosis were major contributor in this series so they further dived into their subtypes. Most common presentation of leprosy was borderline tuberculoid type with 41% (45) case of leprosy followed by lepromatous leprosy which constituted 32% (35) cases of leprosy. Lupus vulgaris was most common type of cutaneous tuberculosis with 26% (20) cases of TB followed by scrofuloderma with 17% (5) cases (Figure 2, Figure 3).

Second most common group was of psoriasiform reactions with 9.77% (66) cases. In this group most common disorder was psoriasis vulgaris with 5.92% (40) cases. Parapsoriasis, pityriasis rosea and pityriasis rubra pilaris were other disorders of this group which form less than 4% in total.

Third and fourth most common group were spongiotic dermatitis and lichenoid dermatitis which presented with 9.18% (62) and 9.03% (61) cases with a minimal difference of 1 case. Most common lichenoid dermatitis was lichen planus with 4.59% (31) cases followed by lichen planopigmentosus with 2.22% (15) cases. In these group atopic dermatitis was most common spongiotic dermatitis with 4.29% (29) cases. Non-specific dermatitis with 3.11% (21) and exfoliative dermatitis with 1.03% (7) cases were other major contributors.

In the segment of bullous disorders of 8.29% (56) cases pemphigus vulgaris was most common disease with 3.11% (21) followed by bullous pemphigoid with 2.51% (17) cases. Less common disorders were pemphigus foliaceus, dermatitis herpetiformis, HHD, Darier’s disease, Grover disease and EBA with less than 1% each.

There was good amount of tumour specimen in this study. Total number of benign tumours was 6.37% (43). Sebaceous cyst was most common benign tumour with 2.07% (14) cases. Other benign tumours were epidermoid cyst, ILVEN, seborrheic keratosis, keratoacanthoma and...
steatocystoma multiplex. Squamous cell carcinoma and basal cell carcinoma had equal number of cases 2.22% (15) each and 3 cases of malignant melanoma and 4 cases of cutaneous T cell lymphoma were there in list of malignant carcinomas.

Table 2: Distribution of disease according to histopathological patterns.

| Disease                        | N   | Percentage | Disease                  | N   | Percentage | Disease                        | N   | Percentage |
|--------------------------------|-----|------------|--------------------------|-----|------------|--------------------------------|-----|------------|
| Spongiotic Dermatitis          | 62  | 9.18       | Lichenoid dermatosis     | 61  | 9.03       | Benign tumors                  | 43  | 6.37       |
| Non specific dermatitis        | 21  | 3.11       | Lichen planus            | 31  | 4.59       | Seborrheic keratosis           | 5   | 0.74       |
| Atopic dermatitis              | 29  | 4.29       | Lichen planus pigmentosus| 15  | 2.22       | Keratocanthera                 | 5   | 0.74       |
| Exfoliative dermatitis         | 7   | 1.03       | Lichen plano pilaries     | 6   | 0.88       | Steatocystoma multiplex        | 2   | 0.29       |
| Actinic dermatitis             | 5   | 0.74       | Lichen striatus           | 6   | 0.88       | Sebaceous cyst                  | 14  | 2.07       |
| Psoriasiform reaction          | 66  | 9.77       | Lichen nitidus           | 2   | 0.29       | Epidermoid cyst                | 10  | 1.48       |
| Psoriasis vulgaris             | 40  | 5.92       | Benign lichenoid keratosis| 2   | 0.14       | Liven                          | 7   | 1.03       |
| Pityriasis rubra pilaris       | 5   | 0.74       | Drug induced lichen planus| 8   |            | Malignant tumours              | 38  | 5.62       |
| Pityriasis rosea               | 7   | 1.03       | FDE                       | 4   | 0.59       | SCC                            | 15  | 2.22       |
| Parapsoriasis                  | 14  | 2.07       | GVHD                      | 1   | 0.14       | BCC                            | 15  | 2.22       |
| Bullous disorders              | 56  | 8.29       | Connective tissue disorders| 28  | 4.14       | Bowen’s disease                | 1   | 0.14       |
| Pemphigus vulgaris             | 21  | 3.11       | DLE                       | 17  | 2.51       | Malignant melanoma             | 3   | 0.44       |
| Bullous pemphigoid             | 17  | 2.51       | Morphea                   | 6   | 0.88       | Mycosis fungoidis              | 4   |            |
| Pemphigus foliaceus            | 5   | 0.74       | LSEA                      | 4   | 0.59       | Infection                      | 15  | 2.22       |
| Dermatitis herpetiformis       | 5   | 0.74       | Atrophoderma              | 1   | 0.14       | Hansen disease                 | 11  | 0.16       |
| HHD                            | 4   | 0.59       | Deposition disorders      | 20  | 2.96       | Cutaneous TB                   | 25  | 3.70       |
| Darier’s disease               | 1   | 0.14       | Macular amyloidosis       | 12  | 1.77       | Chancroid                      | 4   | 0.59       |
| Grower’s disease               | 1   | 0.14       | Lichen amyloidosis        | 8   |            | Donovanosis                    | 2   | 0.29       |
| EBA                            | 2   | 0.29       | Panniculitis              | 15  | 2.22       | Mycetoma                       | 1   | 0.14       |
| Genodermatosis                 | 13  | 1.92       | Erythema nodosum          | 8   | 1.18       | Chromoblastomycosis            | 2   | 0.29       |
| Ichthyosis vulgaris             | 3   | 0.44       | Lupus panniculitis        | 6   | 0.88       | Sporotrichosis                 | 2   | 0.29       |
| Palmoplantar keratodermatoma    | 3   | 0.44       | Necrobiosis lipoidica     | 1   | 0.14       | Molluscum contagiosum          | 6   | 0.88       |
| Porokeratosis                  | 4   | 0.59       | Appendageal disorders     | 31  | 4.59       | Granulomatous disorders        | 17  | 2.51       |
| Xeroderma pigmentosum          | 3   | 0.44       | LMDF                      | 4   | 0.59       | Sarcoïdosis                    | 14  | 2.07       |
| Vasculitis                     | 33  | 4.88       | Hidradenitis suppurativa   | 7   |            | Granuloma anulare              | 3   | 0.44       |
| Small vessel vasculitis        | 16  | 2.37       | Pseudopelade of Broque    | 1   | 0.14       | Perforating disorders          | 18  | 2.66       |
| Behcet’s disease               | 2   | 0.29       | Rosacea                   | 19  | 2.81       | Reactive perforating collagenosis| 18  | 2.66       |
| Livedoid vasculitis            | 4   | 0.59       | Reactive erythemas        | 26  | 3.85       | Pigmentary dermatosis          | 13  | 1.92       |
| Pigmented purpuric dermatosis  | 6   | 0.88       | Erythema multiforme       | 14  | 2.07       | Nevus depigmentosus            | 5   | 0.74       |
| Wagner’s granulomatosis        | 1   | 0.14       | Erythema annulare centrifugam| 2   | 0.29       | Café au lait macule            | 2   | 0.29       |
| Nodular vasculitis             | 4   | 0.59       | Urticarial vasculitis     | 7   | 1.03       | Becker’s nevus                 | 3   | 0.44       |

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patients belong to third and fourth decade with 32.88% and 32.70% cases respectively. There is significant gender wise predilection for skin diseases was seen with male 61.62% to female 38.38% and ratio was 1.6:1. Findings were almost similar in number of patients, age group, but there is contrast in gender predilection as Ram Chandra Adhikari et al found no gender predilection and female predominance was reported in studies of Bezbaruah R et al, Dayal S et al and Kumar V et al. 2,4

Most common site involved was lower limb with 43% cases followed by head and neck 24% and upper limb 17%. Least common sites were trunk and genitals with 13% and 3% cases respectively in contrast to Bezbaruah R et al where they found most common site involved was head and neck.3

Most common histopathological entity was infectious disease with 22.52% cases leading in this study. Out of which Hansen’s disease is on top with 16.29% which was followed by cutaneous tuberculosis with 3.70% cases (Figure 4). Other infections included chancroid, donovanosis, mycetoma, chromoblastomycosis, sporotrichosis and molluscum contagiosum counted for less than 1% each. Yalla ASD et al found Hansen’s disease was the most common histopathological diagnosis reported (33.34%) followed by non-specific dermatitis (25.34%) while Ram Chandra Adhikari et al concluded most common skin disease is non-infectious vesicobullous and vesicopustular disease with 28.6%, followed by non-infectious erythematous papular and squamous disease 25.9%.6,2

Figure 2: Distribution of Hansen’s disease according to Ridley Joplin classification.

Figure 3: Distribution of cutaneous tuberculosis.

8th most common group involved vasculitis which counted for 4.88% (33) cases. In this group small vessel vasculitis was cause for 2.77% (16) cases. 9th most common histopathological group was appendageal disorders in which rosacea had maximum 2.81% (19) cases.

Lupus erythematos with 2.51% (17) was most common connective tissue disorder. Erythema multiforme with 2.07% (14) was most common reactive erythema. Deposition disorders contributed 2.96% (20) out of which macular amyloidosis was 1.77% (12) and lichen amyloidosis was 1.18% (8).

Reactive perforating collaginosis was only perforating disorder counted 2.88% (18). In granulomatous disorders 2.51% (17) sarcoidosis contributed 2.07% (14). Erythema nodosum was most common panniculitis, counted 1.18% (8). Nevus dypmentosus was most common pigmentary disorder with 0.74% (5) cases.

DISCUSSION

Total 675 specimens were sent for biopsy and report was collected. Age group ranged from 4-78 years. Majority of...
Lupus vulgaris was most common type of cutaneous tuberculosis with 20 cases and 67% followed by scrofuloderma with 5 cases and 17%. J Zhang et al found similar results in 165 cases, 85 were lupus vulgaris, 11 tuberculosis verrucosa cutis, and 39 scrofuloderma.8

Second most common group was of psoriasiform reactions with 9.77% (66) cases. In this group most common disorder was psoriasis vulgaris with 5.92% cases. Parapsoriasis, pityriasis rosea and pityriasis rubra pilaris were other disorders of this group with form less than 4% in total (Figure 5).

Figure 5: Psoriasis (H &E 100x).

Third and fourth group were spongiotic dermatitis and lichenoid dermatitis which presented with 62 and 61 cases with a minimal difference of 1 case. Most common lichenoid dermatitis was lichen planus with 31 cases followed by lichen planopigmentosus with 15 cases and 2.22%. In these groups atopic dermatitis was most common spongiotic dermatitis with 29 cases and 4.29%. Non specific dermatitis, exfoliative dermatitis were other major contributors.

In another study Kaur G et al found out of total samples taken, majority of cases (53%) were histopathological diagnosed as psoriasis.8 While 23% cases were of Lichen planus, 11 cases of lichen planus pigmentosus, 3% cases of lichen planus hypertrophicus, 1% cases of lichen nitidus, 4% cases of lichen chronicus, 1% of lichenoid drug reactions, 2% pityriasis rosea, 1% prurigo nodularis, and 1% of pityriasis rubra pilaris.9

In the segment of bullous disorders pemphigus vulgaris was most common disease with 3.11% followed by bullous pemphigoid with 2.51% (Figure 6). Less common disorders were pemphigus foliaceus, dermatitis herpetiformis, HHD, Darier’s disease, Grower disease and EBA with less than 1% each. Anirudha Vasantacharya Kushtagim et al found, out of 40 skin biopsies obtained, who were clinically diagnosed as non-infectious vesicobullous disorders, Pemphigus vulgaris was detected in 30%. Bullous pemphigoid was detected in 27.5% cases, this was followed by pemphigus foliaceus which was encountered in 12.5% cases and was the second commonest type in pemphigus group.10

Figure 6: Bullous pemphigoid (H &E 100x).

There was good amount of tumour specimen in this study. Total number of benign tumours was 6.37%. Sebaceous cyst was most common benign tumour with 2.07% cases. Squamous cell carcinoma and basal cell carcinoma had equal number of cases 2.22% (15) each and 3 cases of malignant melanoma and 4 cases of cutaneous T cell lymphoma were there in list of malignant carcinomas in another study Adhikari et al found BCC more common than SCC (Figure 7).2

Figure 7: Squamous cell carcinoma (H &E 100x).

8th group involved vasculitis which counted for 4.88% cases. In this group small vessel vasculitis was cause for 2.77% cases similarly Nadia Shirazi et al found small vessel involvement was seen 97% cases in 62 biopsies.11

CONCLUSION

Study of cutaneous lesions were done and divided into various categories to know there prevalence at our centre. Based on clinical and histopathological spectrum, a huge diversity in skin lesions was noticed, ranging from nonspecific dermatitis to malignant conditions like malignant melanoma. There was female and younger age predominance regarding patient presentation. The study
confirmed a higher prevalence of infective dermatosis with predominance of Hansen’s disease. Leprosy still remaining at large in India, urges the need to implement more effective control measures.

Thus skin biopsy is a very simple, cost effective, outpatient procedure which confirms our diagnosis and thus aiding management.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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