

## Original Research Article

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

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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.<sup>1</sup> 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 hemotoxylin 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**

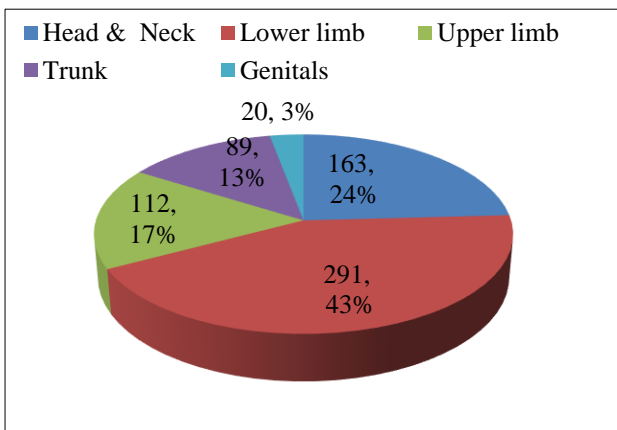
None.

**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).

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

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
Ratio	1.6	1		



**Figure 1: Distribution of cases according to site.**

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, chromoblastomycosis, 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, Grower disease and EBA with less than 1% each.

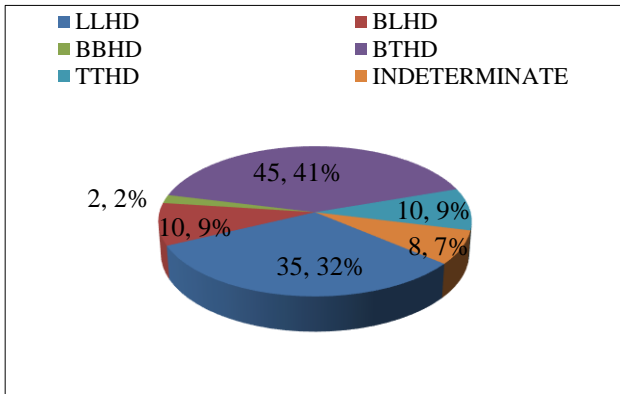
There was good amount of tumour specimen in this study. Total number of benign tumours was 6.37% (43). Sebaceous cyst was most common benign tumour with 2.07% (14) cases. Other benign tumours were epidermoid cyst, ILVEN, seborrheic keratosis, keratoconthoma and

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

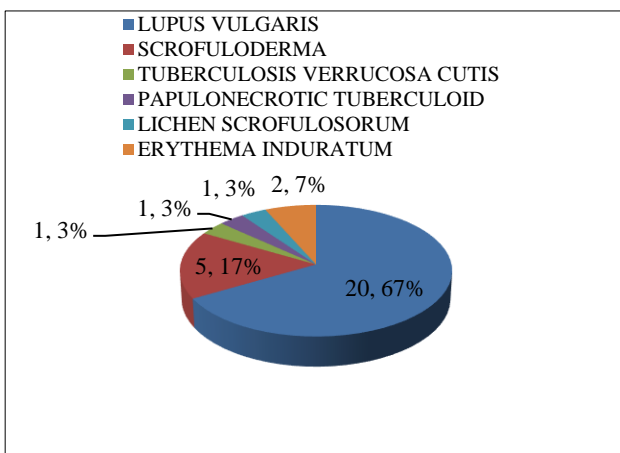
of cutaneous T cell lymphoma were there in list of malignant carcinomas.

**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	Keratocanthoma	5	0.74
Exfoliative dermatitis	7	1.03	Lichen plano pilaris	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	1	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	Morphoea	6	0.88	Mycosis fungoidis	4	
Pemphigus foliaceus	5	0.74	LSEA	4	0.59	Infection	15	22.52
Dermatitis herpetiformis	5	0.74	Atrophoderma	1	0.14	Hansen disease	11	16.29
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
Icthyosis vulgaris	3	0.44	Lupus panniculitis	6	0.88	Sporotrichosis	2	0.29
Palmoplantar keratoderma	3	0.44	Necrobiosis lipoidica	1	0.14	Molluscum contagiosum	6	0.88
Porokeratosis	4	0.59	Appendangeal disorders	31	4.59	Granulomatous disorders	17	2.51
Xeroderma pigmentosum	3	0.44	LMDF	4	0.59	Sarcoidosis	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
			Mastocytosis	3	0.44	Ashy dermatosis	3	0.44



**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 appendangeal disorders in which rosacea had maximum 2.81% (19) cases.

Lupus erythematosus 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 collagenosis 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 dipmentosus was most common pigmentary disorder with 0.74% (5) cases.

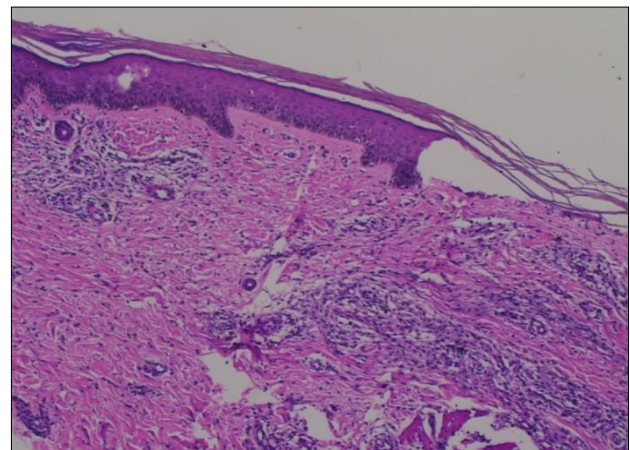
## DISCUSSION

Total 675 specimens were sent for biopsy and report was collected. Age group ranged from 4-78 years. Majority of

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.<sup>2-5</sup>

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.<sup>3</sup>

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 the 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%.<sup>6,2</sup>

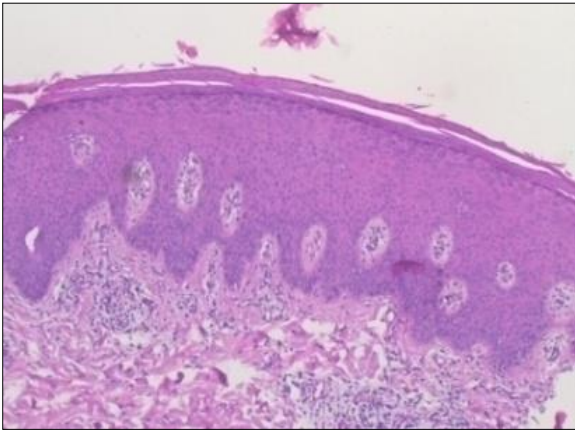


**Figure 4: Lepromatous leprosy (H & E 100x).**

Most common presentation of leprosy was borderline tuberculoid type with 41% case of leprosy followed by lepromatous leprosy which constituted 32% cases of leprosy. Lupus vulgaris was most common type of cutaneous tuberculosis with 67% cases of TB followed by scrofuloderma with 17% in another study Praba et al found a higher number of cases were reported in LL leprosy with 26.6% followed by borderline lepromatous leprosy with 25.3%.<sup>7</sup>

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.<sup>8</sup>

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).



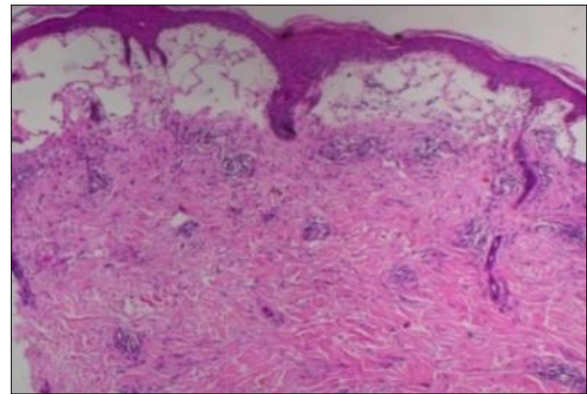
**Figure 5: Psoriasis (H &E 100x).**

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.<sup>9</sup> 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.<sup>9</sup>

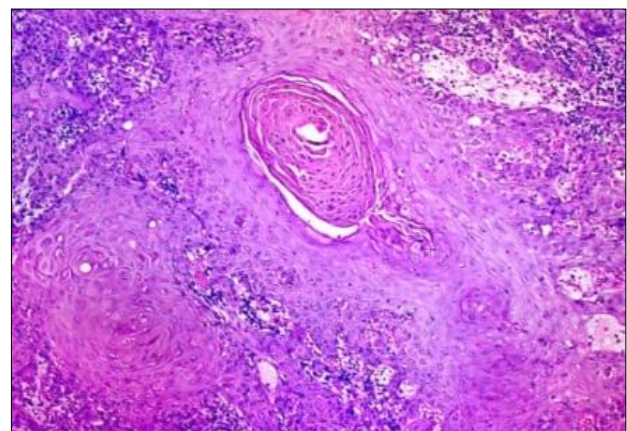
In the segment of bullous disorders pemphigus vulgaris was most common disease with 3.11% followed by bullous pemphigoid with 2.51% (Figure 6). Less common disorders were pemphigus foliaceus, dermatitis herpetiformis, HHD, Darier's disease, Grower disease and EBA with less than 1% each. Anirudha Vasantacharya 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.<sup>10</sup>



**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).<sup>2</sup>



**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.<sup>11</sup>

## 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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*Conflict of interest: None declared*

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

## REFERENCES

1. Korfitis C, Gregoriou S, Antoniou C, Katsambas AD, Rigopoulos D. Skin biopsy in the context of dermatological diagnosis: a retrospective cohort study. *Dermatol Res Pract.* 2014;2014:734906.
2. Adhikari RC, Shah M, Jha AK. Histopathological spectrum of skin diseases in a tertiary skin health and referral centre. *J Pathol Nep.* 2019;9:1434-40.
3. Bezbaruah R, Baruah M. Histopathological spectrum of skin lesions- A hospital based study. *Indian J Appl Res.* 2018;8:51-2.
4. Dayal S, Gupta G. A cross section of skin diseases in Bundelkhand region, UP. *Indian J Dermatol Venereol Leprol.* 1977;43:258-61.
5. Kumar V, Goswami HM. Spectrum of non-neoplastic skin lesions: A histopathological study based on punch biopsy. *Int J Cur Res Rev.* 2018;10:43-8.
6. Yalla ASD, Kambala GM, Natta BR. Histopathological Study of Skin Lesions by Punch Biopsy. *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS).* 2019;18(6):25-30.
7. Praba V, Narmadha C. Evaluation of Leprosy Cases in Correlation of Histopathology and Demonstration of Lepra Bacilli: A Prospective Study. *Int J Sci Stud.* 2019;6(12):209-12.
8. Zhang J, Fan YK, Wang P, Chen QQ, Wang G, Xu AE, et al. Cutaneous tuberculosis in China—A multicentre retrospective study of cases diagnosed between 1957 and 2013. *J Europ Acad Dermatol Venereol.* 2018 Apr;32(4):632-8.
9. Kaur G, Chahal KS, Malhotra SK. Clinicopathological Correlation of Non Infectious Erythematous Papulosquamous Lesions of Skin. *J Adv Med Dent Scie Res.* 2019;7(2):131-5.
10. Kushtagi AV, Neeravari VS, Sidhalingreddy, Pratima S. Clinical and Histopathological Spectrum of Vesciculobullous Lesions of skin- A Study of 40 cases. *Indian J Pathol Oncol.* 2016;3(2):152-8.
11. Shirazi N, Jindal R, Tyagi N, Roy S, Harsh M, Ahmad ÇS. Clinico-histopathological Spectrum of Cutaneous Vasculitis: A Retrospective Study of 62 cases. *Order.* 2015;115(966):7955.

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