

HISTOPATHOLOGICAL SPECTRUM OF GRANULOMATOUS DERMATOSES

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ABSTARCT

Title: A Histopathological Spectrum of Granulomatous Dermatoses

BACKGROUND

Granulomatous inflammation is a common histological pattern encountered in skin biopsies which pose a diagnostic challenge to pathologists because of overlapping histological features produced by various aetiological agents. Pathologists come across the lesion frequently and through knowledge of Granulomatous lesions are very much essential to discriminate them from other lesions, in the skin as they closely mimic each other. Incidence and prevalence of different types of granulomatous dermatitis depend on geographical Location.

AIMS AND OBJECTIVES

To know the types of different granulomatous dematoses, their prevalence and histopathological spectrum.

MATERIAL AND METHOD

A total of 1152 skin biopsies received from a period of January 2016 to October 2018 at Histopathology department of AMC MET Medical College, Ahmedabad. All specimens were fixed in 10% formalin and processed by routine paraffin embedding technique. All specimens were stained with Hematoxylin and eosin stain & some special stains like 5% AFB and 20% AFB were used as required. Slides were examined and histopathological diagnoses were given.

RESULT

A total of 1152 skin biopsies received, out of which 80 cases were diagnosed as granulomatous dermatoses. Among 80 cases 54 (67.5%) were males and 26 (32.5%) were females. So ratio was 2.1:1 . The most common type was leprosy (52.50%) followed lesions consisting of lupus vulgaris(11.25%), Granuloma annulare (7.50%). Dermal granulomas were most common between age group of 21 to 30 years of age (38.75%). In leprosy , Borderline tuberculoid was the most common type (66.66%),followed by lepromatous leprosy (23.80%).

CONCLUSION

Histopathology is gold standard for diagnosis and categorization of Granulomatous skin lesions which will help in implicating health programs and management of individual cases.

KEY WORDS

Granulomatous dermatoses, histopathology, leprosy

INTRODUCTION

Granulomatous dermatoses frequently present a diagnostic challenge. An identical histological pattern may be produced by several causes and conversely, a single cause may produce several histological patterns.¹ The granulomatous reaction pattern is defined as a distinctive inflammatory pattern characterized by the granulomas.² Six types of granulomatous skin lesions are identified according to cellular constituents & associated changes. (1) Tuberculoid (2) Sarcoidal (3) Necrobiotic (4) Suppurative (5) Foreign body (6) Histoid type granuloma. Incidence and prevalence of different types of granulomatous dermatitis depend on geographical location.³

AIMS AND OBJECTIVES

To know the types of different granulomatous dermatoses, their prevalence and histopathological spectrum.

MATERIAL & METHOD

All skin biopsies of granulomatous skin lesions received from various departments of Skin, ENT, Surgery etc. in histopathology department at L.G. hospital; AMC MET medical college, Ahmedabad over a period of 3 years from January 2016 to November 2018. All specimens were fixed in 10% formalin and processed by routine paraffin embedding technique. All specimens were stained with Hematoxylin and eosin stain. Some special stains like 5% AFB and 20% AFB were used as required.

RESULTS

Over a period of three years of study total 1152 skin biopsies were evaluated in histopathology department, out of which 80 cases were diagnosed as granulomatous dermatoses. Among 80 cases 54 (67.5%) were males and 26 (32.5%) were females. Age of the patients in present study varied from 8 yrs to 76 yrs.

Table:I
Distribution of cases according to histopathological types of granulomas

Types	Cases	Per cent age
Leprosy	42	52.50%
Lupus Vulgaris	09	11.25%
Foreign body granuloma	23	28.75%
1.Tattoo granuloma	10	12.50%
2.Epidermal cyst with foreign body granulomatous reaction	11	13.75%
3.Others- Implantation, Drug reactions	02	2.50%
Granuloma Annulare	06	7.50%
Total	80	100%

Most common cases were of leprosy followed by foreign body granulomatous lesions.

Table:II

Age Incidence in Dermal Granulomas

AGE (YEAR)	CASES	PERCENTAGE%
0-10	01	1.25%
11 to 20	13	16.25%
21 to 30	31	38.75%
31 to 40	10	12.50%
41 to 50	15	18.75%
51 to 60	06	7.50%
Above 60	04	5.00%
Total	80	100%

Most common age incidence was in 3rd decade followed by the 5thdecade.

Table: III
Gender distribution of cases

Types	Male	Female
Leprosy	33	09
Lupus Vulgaris	05	04
Foreign Body Granuloma	14	09
1.Tattoo Granuloma	06	04
2.Epidermal cyst with foreign body granulomatous reaction	07	04
3.Others- Implantation, Drug reactions etc.	01	01
Granuloma Annulare	02	04
Total	54	26

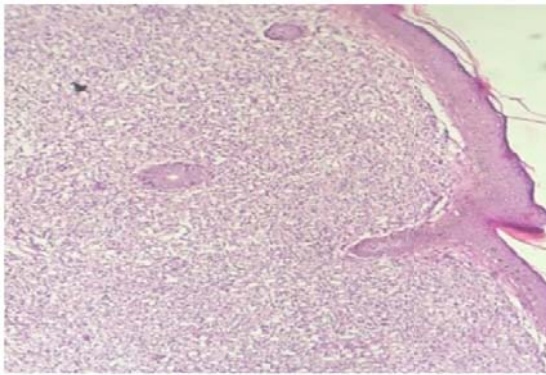
Male- Female ratio – 2.1:1

In our study Infectious granulomatous lesions(51 cases) including Leprosy (42 cases) & Lupus vulgaris (09 cases) are most common. Among which incidence of leprosy was highest.

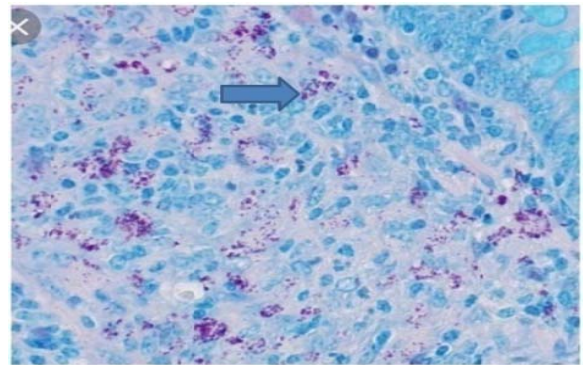
Table:IV
Incidence of various types of Leprosy

Type	Cases	Percentage
Lepromatous leprosy	10	23.82%
Borderline leprosy	28	66.66%
Tuberculoid leprosy	04	9.52%
Total	42	100%

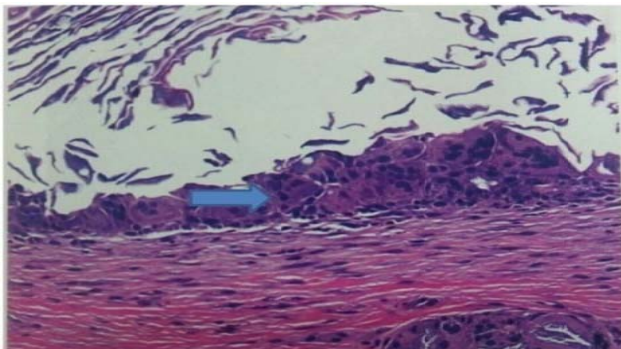
Total forty two cases of leprosy in which most common type was Borderline leprosy.



(a) Lepromatous Leprosy,(H and E 10X)



(b) (Acid fast stain 100X)



(c) Epidermal cyst with foreign body giant cell reaction, (H and E 40X)

DISCUSSION

Granulomatous inflammation was recognized as a distinct entity in the early nineteenth century and has been of continuing interest since then. Arrival at a proper diagnosis is mandatory, so that appropriate treatment can be meted out. Histopathology remains a time tested tool for establishing a correct diagnosis.⁴ Granulomatous inflammation is defined as a special variety of chronic inflammation in which the mononuclear phagocyte system cells take the form of macrophages, epithelioid cells and multinucleated giant cells admixed with other cells, especially lymphocytes, plasma cells and fibroblasts.⁵ Granulomatous inflammation in the skin could be due to infectious or noninfectious causes. In tropical countries infectious aetiology predominates.⁶

Leprosy was the most common cause of granulomatous dermatoses in our study. Among the Leprosy most common was Borderline leprosy. Histomorphology and AFB stain are very useful to differentiate leprosy from its subtypes and lupus vulgaris.

Skin biopsies of tuberculoid leprosy resembles those of cutaneous tuberculosis, especially lupus vulgaris. Well formed granulomas without caseation can be seen throughout the dermis without a grenz zone; they are composed of epithelioid cells, giant cells and lymphocytes; they frequently surrounds neurovascular bundles, erector pili muscle, and may destroy the eccrine glands. They can erode the overlying epidermis and / or extend into peripheral nerves or pilar muscles. Acid fast bacilli are rarely identified.

In the borderline tuberculoid leprosy, the non caseating granulomas are less evident and nerve destruction is less prominent. The lymphocytic mantles about tubercles may be incomplete or poorly developed. A subepidermal grenz zone may or may not be present. Acid fast bacilli are often absent.

Borderline leprosy shows collections of epithelioid histiocytes with no giant cells and very few lymphocytes. Acid fast bacilli are easy to find in this condition. Borderline lepromatous granulomas consist of aggregate of lymphocytes and macrophages containing abundant granular to foamy cytoplasm numerous acid fast bacilli are seen.

Lymphocytes and histiocytes infiltrate the nerve producing laminated perinuerium sheaths of macrophages with a granular to foamy cytoplasm arranged in a perinueral, perivasuclar, periappendiceal fashion characterized lepromatous leprosy. The foamy histiocytes of leprosy resemble those seen in Xanthoma, they are called Lepra or Virchow cells. Acid fast Bacilli load the cytoplasm of macrophages, endothelial cells sweat glands, nerves and schwann cells. Effacement of epidermal Rete ridges with a distinct grenz zone is often present along with scattered lymphocytes and plasma cell.⁷

In present study among the cases of foreign body granulomas the most common was epidermal cyst with foreign body granuloma correlating well with the findings of Gautam et al⁸ Other cases of foreign body granulomas due to tattoo pigment, implantation and drug reactions which correlates well with exposure history revealed in clinical history. Incidences of tattoo granulomas are increasing due to recent fashion trend of tattoo.

Table:V**Comparative study of Age incidence**

AGE	Naved UzZafar Study ⁹		Present Study	
	CASES	PERCENTAGE	CASES	PERCENTAGE
1 to 10	03	2.5%	01	1.25%
11 to 20	47	40.1%	13	16.25%
21 to 30	26	22.25	31	38.75%
31 to 40	17	14.5%	10	12.5%
41 to 50	08	6.83%	15	18.75%
51 to 60	11	9.4%	06	7.50%
Above 60	05	4.27%	04	5.0%
TotalL	117	100%	80	100%

Our results are comparable with Zafar study but differ in that , in our study highest incidence was in 3rd decade while in Zafar study it was in 2nd decade.

Table:VI**Comparative study of Gender predilection**

Gender	Dhar Study ⁴		Present Study	
	Cases	Percentage	Cases	Percentage
Male	12	54.55%	54	67.5%
Female	10	45.46%	26	32.5%
Total	22	100%	80	100%

In both studies males are predominate than females.

Table:VII

Comparative study of various types of Leprosy

	HO-LO Study¹⁰	Tiwari Study¹¹	Present Study
Lepromatous leprosy	30%	28.5%	23.82%
Borderline leprosy	25%	12.7%	66.66%
Tuberculoid leprosy	45%	58.6%	9.52%
Total	100%	100%	100%

In present study Borderline leprosy had higher incidence than tuberculoid leprosy as compared with HO-LO &Tiwari Studies.

Incidence of cutaneous tuberculosis in present study (11.25%) was higher than world wide incidence (3.5%) due to poor nutrition and poverty, poor personnel hygiene of our patients.

Incidence of Granuloma annulare in our study was 7.5% while in studies of Gautam et al⁸ was 3.7%, Pawale et al¹² 3.77% and Qureshi¹³ 5.41%.

CONCLUSION

Cooperation between the clinician and the pathologist is more important in the field of dermatology. Adequate clinical data and workup in combination with pathological resources can help in elucidation of specific diagnosis. Histopathology is gold standard for diagnosis and categorization of granulomatous skin lesions which will help in implicating health programs and management of the individual cases.¹⁴

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