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INTERNATIONAL JOURNAL OF CLINICAL AND BIOMEDICAL RESEARCH

Original Article

A COMPARATIVE OVERVIEW OF HISTOPATHOLOGY OF GRANULOMATOUS LESIONS OF SKIN

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ARTICLE INFO

Received: 11th July 2015,
Accepted: 23th Aug 2015.

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ABSTRACT

Granulomatous lesions of the skin and subcutaneous tissue are common in India. They are known as "Dermal Granulomas". In present study following types of Dermal Granulomas were included – Leprosy, Cutaneous Tuberculosis, Syphilis, Fungal, Actinomycosis, Foreign body Granuloma, Granuloma annulare and Sarcoidosis. Histopathology remains a time tested tool for establishing a correct diagnosis. Clinical lesions often reveal surprising underlying pathology. Hence carrying out skin biopsies and microscopic study with routine haematoxylin and eosin (H&E) as well as special stains are must in these disorders so that the type and aetiological agent of the granuloma are properly identified. Besides, follow-up biopsies after the commencement of treatment help in evaluation of the response to therapy. **Methods:** 52 cases were studied over a period of 2 and a half years. Specimens were collected from the patients of skin, surgery and ENT department. A brief clinical history with age presenting symptoms and signs were recorded. Routine investigations like ESR were performed. Comparison of our study was done with others around the country. **Results:** Most common type of dermal granuloma was leprosy (59.6%) followed by cutaneous tuberculosis (21.1%), Foreign Body (5.7%), Granuloma Annulare (5.7%), Fungal (5.7%), Actinomycosis (1.9%) and Sarcoidosis (1.9%). Dermal granulomas were most common between the age group of 31 – 50 years. In leprosy and cutaneous tuberculosis, males were affected more as compared to females. **Conclusion:** Leprosywas most common than other dermal granuloma. Most common type of leprosy and tuberculosis were lepromatous leprosy and lupus vulgaris respectively.

KEYWORDS

Dermal granuloma, Leprosy, Cutaneous tuberculosis, Foreign body granuloma,actinomycosis.

INTRODUCTION

The granulomatous reaction pattern in defined as a distinctive inflammatory pattern characterized by the granulomas[1].Fully developed granulomas with sheets of epithelioid histiocytes and giant cells are easily recognized, but more subtle lesions containing a few epithelioid histiocytes still qualify as granulomatous[2]. Granulomas are small, 0.5 to 2 mm collection of modified macrophages called "epithelioid cells" usually surrounded by a rim of lymphocytes. The modified macrophages have abundant, pale-pink, plump cytoplasm, resembling an epithelial cell[3].

In the skin, four types of granulomas can be recognized. (Epstein)[4]

1. Immunogenic granulomas
2. Infectious granulomas
3. Foreign body granulomas
4. Granulomas associated with tissue injury

CLASSIFICATION OF GRANULOMA AND GRANULOMATOUS INFLAMMATION[5]

1) EPITHELIOID GRANULOMA:

(a) Tuberculosis:
- 1. Primary inoculation
- 2. Lupus vulgaris
- 3. Tuberculosis verucosa cutis
- 4. Scrofuloderma
- 5. Miliary Tuberculosis

(b) Tuberculoid
(c) Tuberculoid Leprosy
(d) Sarcoidosis
(e) Foreign Body Granuloma

2) PALISADING (NECROBIOTIC) GRANULOMA:

(a) Granuloma annulare (b) Necrobiosis lipoidica
(c) Rheumatic nodule (d) Rheumatic fever nodule

3) GRANULOMATOUS INFECTIONS:

(a) North American blastomycosis
(b) South American blastomycosis

(c) Chromoblastomycosis
(d) Coccidiomycosis
(e) Cryptococcosis
(f) Swimming pool granuloma
(g) Syphilis.

Aim of the study

Morphological study of different granulomatous lesions of the skin to determine the relative frequencies and to compare our results with those of other studies.

MATERIALS AND METHODS

Study design:The material studied consists of 52 cases of clinically diagnosed and suspected dermal Granulomas. Punch biopsy were collected from the patients attending out patient department of Skin, Surgery and ENT at our institute during the year May.2012- Oct 2014. Detailed history of all the patients were taken. On histopathologcial examination in H & E stain, 31 cases shows histology of leprosy. Fite Faracostain were done in all 31 cases to see the morphology, site and number of mycobacterium leprae. Gram stain was done in the case of actinomycosis, to stain the mycelium of actinomycosis. Pas Stain were done in cases of Fungal Granuloma and actinomycosis. Inclusion criteria: All age groups who were susupected cases or diagnosed clinically were included in the study. Exclusion criteria: Skin lesions other than dermal granulomas were excluded from the study.

STATISTICAL ANALYSIS

Frequency and confidence interval were used for statistical analysis.

RESULTS

Most common type was leprosy (59.6%) followed by cutaneous tuberculosis (21.2%) (Figure 1).

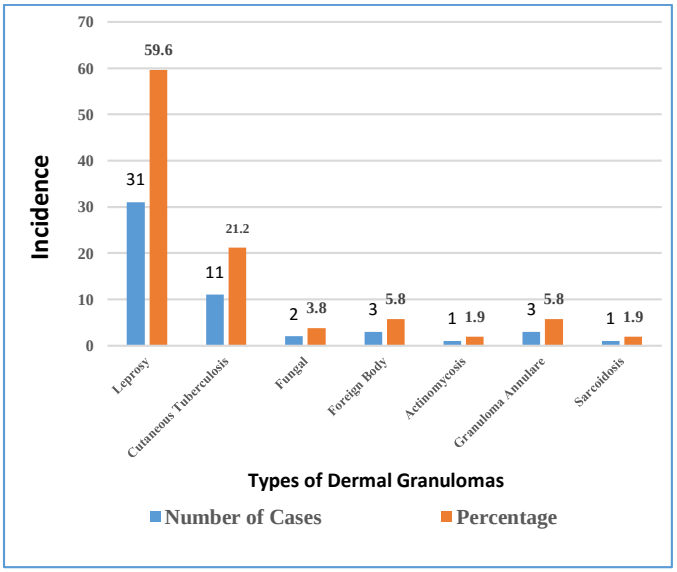

Figure 1. Incidence of various types of Dermal Granulomas

Dermal granulomas were most common in middle age (21-40 years of age. 44.2%). (Figure 2).

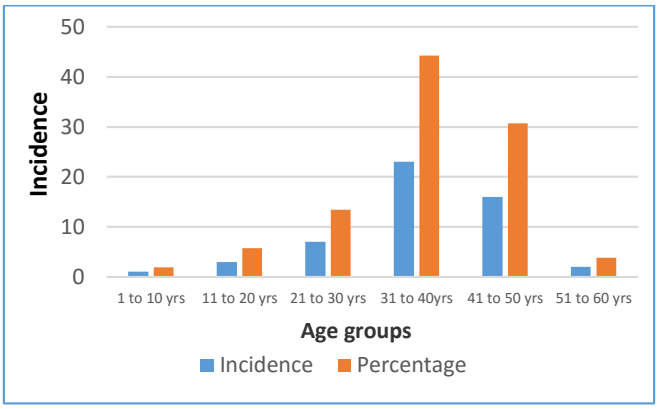

Figure 2. Age incidence in Dermal Granuloma

In the study of 52 cases 32 were male and 20 were female, hence the ratio 1.6:1. Males were affected more in leprosy and cutaneous tuberculosis (Figure 3).

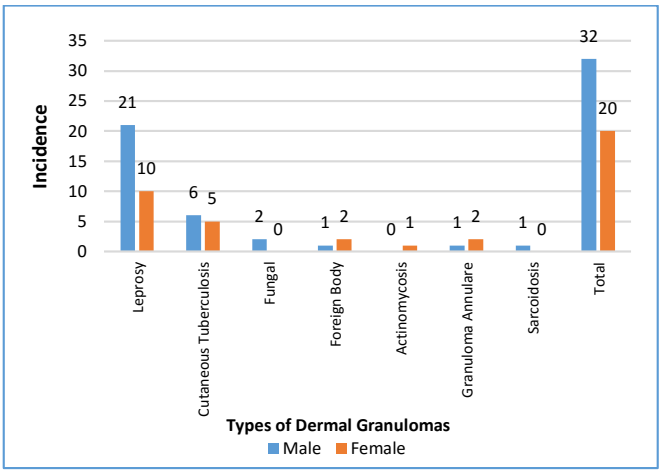

Figure 3. Male - Female Ratio

Incidence of various types of Leprosy

In leprosy, Lepromatous leprosy was the most common type (55%) followed by Tuberculoid Leprosy (29%) (Figure 4).

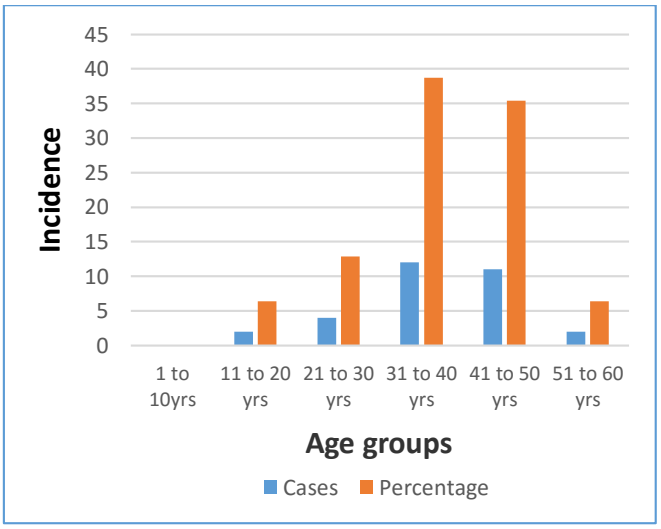

Figure 4. Age Incidence in leprosy

Maximum cases of leprosy were reported between the age of 31 to 40 years (38.7%) (Figure 4).

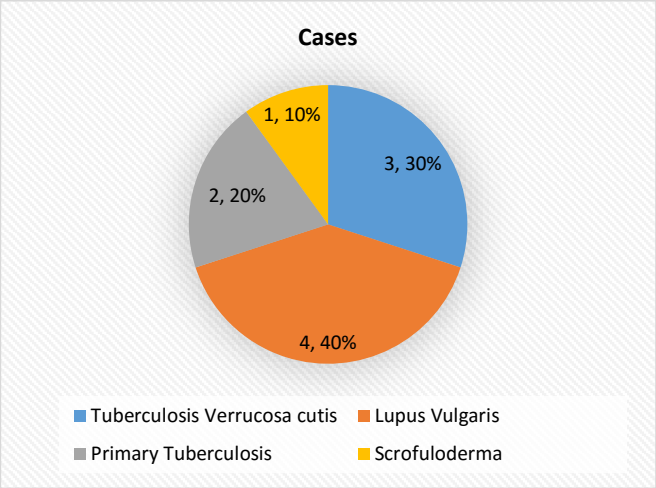

Figure 5. Incidence of various type of Cutaneous Tuberculosis

Age incidence in Cutaneous Tuberculosis

Maximum cases of cutaneous tuberculosis (63.6%) were reported between the age of 31 to 40 years (Figure 5).

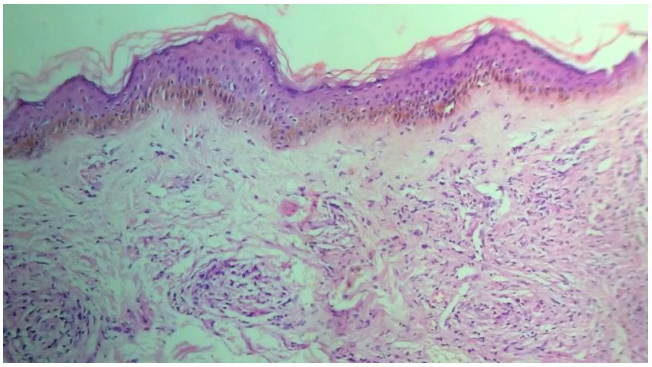

Figure 6. Lepromatous leprosy with prominent grenz zone (H&E 4x)

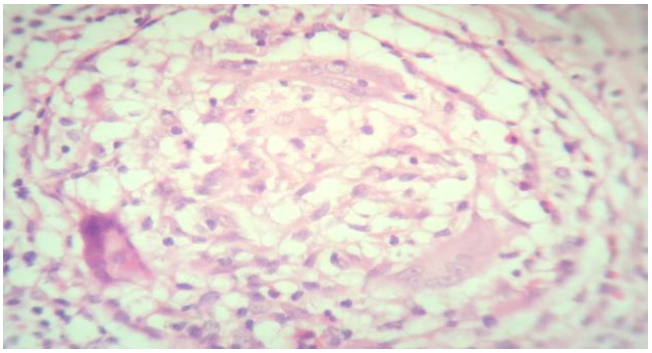

Figure 7. Granuloma formation in cutaneous tuberculosis (H&E 40 x)

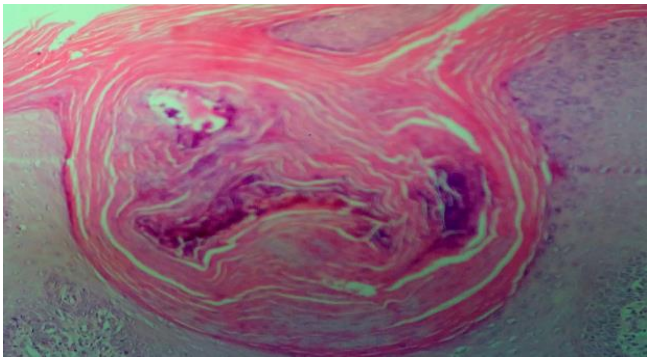

Figure 8. Hyper-keratinization and granuloma formation in tuberculosis verruca cutis. (H&E 10x)

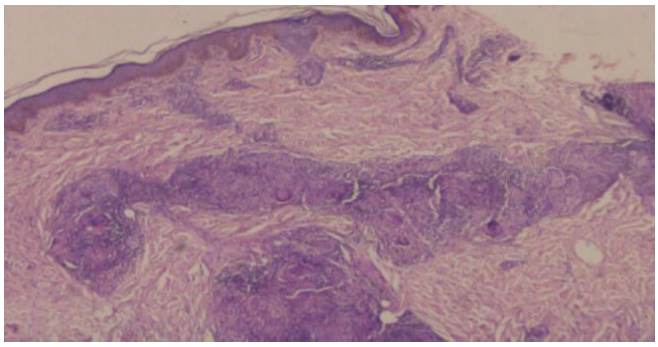

Figure 9. Tuberculoid leprosy showing Pandermal and Perineurovascular granuloma. (H&E 10x)

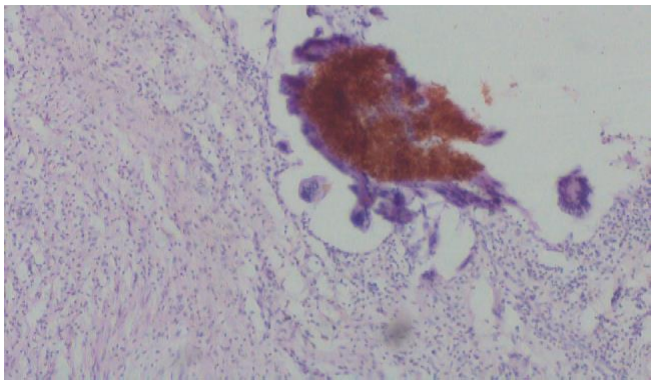

Figure 10. Mycetoma foot showing fungal colonies (H&E 10x)

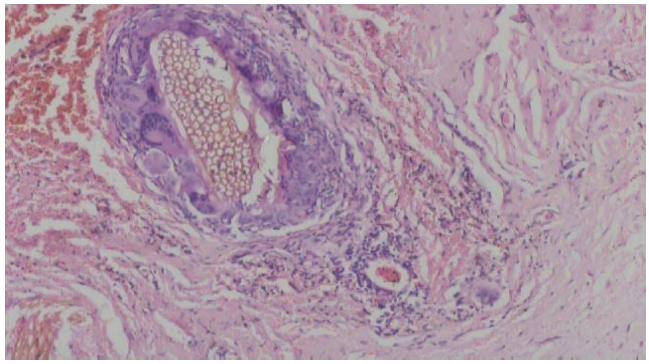

Figure 11. Foreign body granuloma showing foreign material (H&E 10x)

DISCUSSION

A large number of individual studies on granulomatous lesions of skin were found but still no comprehensive comparative study was found on various granulomatous lesions of skin in our region. The above research on various dermal granuloma depicts that the age group affected with most number of incidents were between 31-40 years. Although the results differ from NavedUz Zafar[6] study where the most common group affected was between 11 to 30years. Lupus vulgaris was found to be mutual in both the studies.

When the above statistics were equated with Dhar[7] study, It was conclusive that males were slightly more affected than females.

Maximum cases of lepromatous leprosy were discovered which is not in accordance with Tiwari's[9] study and HO & LO[8] study. In their study, maximum cases were of

tuberculoid leprosy. The cause for the conflict could be that our study was limited to very few cases and majority of patients were illiterate while Tiwaris had carried out the study in Indian armed forces, where regular medical examination has greatly helped in early detection of leprosy cases[9].

When compared with K.O.Wong[11] study, our study testified maximum cases of cutaneous tuberculosis between the age group of 31 to 40years. While his study revealed the same between the age group of 1 to 10years.

CONCLUSION

Out of 52 cases of Dermal Granulomas, leprosy was the most common type (59.6%). In leprosy the most common type was Lepromatous Leprosy. The next common type of dermal granuloma was cutaneous tuberculosis (21.1%). In cutaneous tuberculosis, the most common type was lupus vulgaris. Both the cases of fungal granulomas were of Mycetoma foot. In foreign body granuloma, granuloma were initiated because of the presence of foreign material in the dermis. Sarcoidosis was diagnosed by exclusion of all the other possibilities responsible of epithelioid cell granuloma and clinical correlation.

AKNOWLEDGEMENT

I gratefully acknowledge the guidance of my teacher and cooperation of all technical and non technical staff. I am also thankful to my husband, in laws, parents, brother and the patients without whom this would never have been completed.

CONFLICT OF INTEREST

Nil.

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