ABSTRACT

Introduction: Leprosy or Hansen’s disease is a chronic disease caused by Mycobacterium leprae, primarily and predominantly affecting peripheral nerves and secondarily affecting various organs in the body including Skin. It presents as many different forms. In this study, we tried to determine the prevalence of each type of Hansen’s in our population. Aim: To study the histopathological features of different clinical types of leprosy. Materials and Methods: This study is a cross sectional study which included 20 patients who have presented to our OPD with Leprosy. A skin smear examination and biopsy were taken to identify the form of leprosy and observations tabulated. Results: This study showed male predominance of 70%. It had shown that the borderline tuberculoid is the commonest followed by borderline lepromatous. Typical tuberculoid seems to be the rarest form in this study. Conclusion: In this study, it is concluded that different types of leprosy have its characteristic histopathological features. The commonest type of leprosy in this study is Borderline tuberculoid leprosy.

INTRODUCTION

Leprosy is a chronic disease caused by Mycobacterium leprae, infectious in some cases and primarily and predominantly affecting the peripheral nervous system and secondarily affecting skin, and certain other tissues like the bones, eyes, reticuloendothelial system, kidney and testes. Mycobacterium leprae is a capsulated, straight or slightly curved, non-motile, non-sporing, acid-fast, rod shaped organism. The polar forms of leprosy are the tuberculoid leprosy and lepromatous leprosy. The sub-polarforms are the borderline tuberculoid, borderline - borderline and the borderline lepromatous, according to the Ridley and Jopling classification.

MATERIALS AND METHODS

We conducted a cross sectional study with 20 patients diagnosed as leprosy. The recruited patients were subjected to full history taking, thorough general and dermatological examination, and skin smear study and skin biopsy for histopathology.

OBSERVATION

<table>
<thead>
<tr>
<th>TYPE OF LEPROSY</th>
<th>NUMBER (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Typical Tuberculoid</td>
<td>1 (5)</td>
</tr>
<tr>
<td>2. Borderline Tuberculoid</td>
<td>8 (40)</td>
</tr>
<tr>
<td>4. Lepromatous Leprosy</td>
<td>4 (20)</td>
</tr>
<tr>
<td>5. Histoid Leprosy</td>
<td>2 (10)</td>
</tr>
</tbody>
</table>

RESULTS

A total of 20 patients were included in this study, consisting of 14 male and 6 female patients. The age group was between 30 to 68 years. Out of the 20 patients, the borderline tuberculoid spectrum was the commonest, with the histopathological features of thinned out epidermis and the dermis shows peri-appendageal and perivascular infiltrates consisting of lymphocytes with foreign body giant cells and granuloma formation in the dermis.
Figure 1. Histopathological Picture of Typical Tuberculoid – epidermal atrophy and dermis shows periappendageal infiltrates with epitheloid cell granuloma and giant cells.

Figure 2. Histopathological Picture of Borderline Tuberculoid – epidermal atrophy is seen and dermis shows epitheloid cell granulomas with giant cells and periappendageal infiltrates.

Figure 3. Histopathological Picture of Borderline – Borderline – epidermal atrophy and dermis shows inflammatory infiltrates (lymphocytes) around the appendages.

Figure 4. Histopathological Picture of Lepromatous Leprosy – epidermal atrophy with sub-epidermal clear zone and dermis shows foamy macrophages and periappendageal inflammatory infiltrates.
DISCUSSION

Leprosy or Hansen’s disease or Hanseniasis is a chronic disease caused by Mycobacterium leprae which is an acid-fast organism. Mycobacterium leprae is an obligate intracellular parasite seen predominantly within the macrophages. It is the only mycobacterium that infects the peripheral nerves.

Many classification systems of leprosy exist. The Ridley and Jopling classification consists of Typical tuberculoid (TT), Borderline tuberculoid (BT), Borderline -borderline, Borderline Lepromatous and Lepromatous leprosy (LL) [1].

According to IAL classification Hansen’s disease is divided into Tuberculoid, Lepromatous, Boderline, Indeterminate and Pure neuritic type [2]. Histoid leprosy and Lepra Manchada are sub forms of lepromatous leprosy. The three cardinal signs of leprosy are hypopigmented anesthetic patch; peripheral nerve thickening and demonstration of Mycobacterium leprae in slit skin smear [3]. Depending upon the type of the leprosy specific clinical features occurs like in tuberculoid type- hypopigmented macules, patch or plaques upto 4 in number with well-defined borders distributed asymmetrically with pebbling and with peripheral nerve enlargement. Borderline tuberculoid type is a dimorphous type either tuberculoid or lepromatous, so it shows features of both depending upon the immunity.

Borderline type shows hypopigmented macules, patches or plaques 11-20 in number, inverted saucer shaped lesion, annular plaque, satellite lesions and geographic appearance of the lesion with punched out center. Borderline lepromatous type shows multiple infiltrated hypo pigmented macules, papules and plaques>20in number with ill-defined borders. Lepromatous leprosy shows polymorphic skin lesions with glove and stocking type of anesthesia and systemic involvement like epistaxis, pedal edema, ciliary and supra ciliary madarosis, leonine fascies, enlarged lymphnode, hepatomegaly, glomerulonephritis [4], renal amyloidosis etc. The common investigations done are slit skin smear and skin biopsy.

A 4mm punch biopsy is taken from the skin lesion and the histopathological features are studied.

The histopathological feature of TT is thinning of epidermis with perivascular and periappendageal inflammatory infiltrates consisting of lymphocytes and epitheloid cells and tuberculoid granuloma in the dermis [Fig 1].

The Borderline tuberculoid spectrum shows thinned out epidermis, with periaappendageal and perivascular infiltrates consisting of lymphocytes with Langhan’s giant cells and granuloma formation in the dermis surrounding the blood vessels and appendages [5] [Fig 2].

The Borderline borderline type of leprosy shows atrophic epidermis with epitheloid cell granulomas surrounded by rim of lymphocytes in the dermis [Fig 3].

The Borderline lepromatous type of leprosy shows atrophic epidermis with subepidermal clear zone and macrophage granulomas with typical onion skin perineurium in the dermis.

The Lepromatous leprosy shows atrophic epidermis with subepidermal clear zone, with foamy macrophages containing bacilli and macrophage granuloma in the dermis [Fig 4].

Histoid leprosy shows atrophic epidermis with subepidermal clear zone, with lesion in lower dermis and subcutis with pseudocapsule formation. The lesion consists of spindle shaped histiocytes [6] [Fig 5]. Treatment of leprosy is Multi drug therapy which is paucibacillary if the lesions are 2 to 5, one or no nerve involved or multibacillary if the lesions are more than 5 and one or more nerve involved. In paucibacillary type – monthly Rifampicin 600mg and daily Dapsone100mg is given for 6 months. In multibacillary type – monthly Rifampicin 600mg and Clofazimine 300mg and daily Dapsone 100mg and Clofazimine 50mg is given for 12 months [7].
CONCLUSION

We conclude that the different types of leprosy have its characteristic histopathological features. The commonest type of leprosy in this study was the Borderline tuberculoid leprosy. Types of Hansen’s disease have to be identified early, to prevent complications and for proper management.

REFERENCES