A STUDY ON HISTOPATHOLOGICAL FEATURES OF VITILIGO

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ABSTRACT

Background: Vitiligo is an acquired, progressive melanocytopenia of unknown etiology, characterized by circumscribed achromatic macules often associated with leukotrichia. Various theories like autoimmune, genetic, neural and biochemical theory have been reported in its pathogenesis. In this study, we tried to observe the histopathological features of vitiligo in our population. Materials and Methods: This study is a cross sectional study which included 30 patients who presented to the skin outpatient department with vitiligo. Skin biopsy was done in all these patients to study the histopathological features and the observations were tabulated. Results: Among the 30 patients included in the study, absence of melanocytes was seen in 20 patients and few melanocytes were present in 5 patients. 10 patients showed the presence of inflammatory infiltrates in the dermis. Giant melanosomes were seen at the periphery of the lesion in 7 patients. Conclusion: In this study, absence of melanocytes was evident in the well-established vitiligenous lesions. Histopathological examination is required to differentiate vitiligo from other skin diseases which clinically mimic vitiligo.

INTRODUCTION

Vitiligo is an acquired disorder of skin depigmentation. It occurs worldwide with an incidence of 1%. It can affect all the races, without any sex predilection. 30-40% of patients, diagnosed with vitiligo have a positive family history with genetic predisposition (relative risk for 1st degree relatives is increased by 7-10 folds). In accordance with the autoimmune theory, antibodies to normal melanocytes have been demonstrated by immnoprecipitation assay. Clinically, many skin diseases with depigmentation can simulate vitiligo. The present study was done to observe the histopathological features in patients with vitiligo.

METHODS

A total of 30 patients diagnosed with vitiligo (all types), attending skin outpatient department were involved in this study. The patients were selected randomly, irrespective of the age, sex and socio-economic status. A detailed history, presence of any pre-existing skin lesions, family history, associated systemic disorders and history of previous treatment were documented. The procedure was explained to the patient and consent was obtained. All these patients were subjected to full thickness skin biopsy and the specimen was placed in 10% formalin and sent for histopathological examination. The present study was done after getting clearance from the ethical committee.

OBSERVATION

RESULT

Among the patients included in the study, histopathological examination revealed absence of melanocytes in 20 patients. Few melanocytes were present in 5 patients. 10 patients showed the presence of inflammatory infiltrates in the dermis. Giant melanosomes with long dendritic processes were observed at the periphery of the lesion in 7 patients.
Table 1. Distribution of histopathological changes in patches of vitiligo

<table>
<thead>
<tr>
<th>S.NO</th>
<th>Histopathological Changes Observed</th>
<th>Number of Patients</th>
</tr>
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<tbody>
<tr>
<td>1.</td>
<td>Absence of melanocytes</td>
<td>20</td>
</tr>
<tr>
<td>2.</td>
<td>Presence of melanocytes (mild)</td>
<td>5</td>
</tr>
<tr>
<td>3.</td>
<td>Presence of inflammatory infiltrates</td>
<td>10</td>
</tr>
<tr>
<td>4.</td>
<td>Presence of giant melanosomes (at the periphery of the patch)</td>
<td>7</td>
</tr>
</tbody>
</table>

**DISCUSSION**

Vitiligo is an acquired, progressive, autoimmune disorder of unknown etiology, characterized by circumscribed achromic macules often associated with leukotrichia. Even though there is no sex predilection, it is commonly seen in females. Various theories like autoimmune, genetic, neural and biochemical theory have been reported. Among which autoimmunity seems to play a significant role, as it is associated with other autoimmune diseases such as diabetes mellitus, thyroid disorders, hyper-parathyroidism, psoriasis, alopecia areata, rheumatoid arthritis, psoriasis, SLE, hypertension, etc.

Clinically, vitiligo is classified as generalized (vitiligo vulgaris), acrofacial vitiligo, vitiligo areata, segmental vitiligo and mucosal vitiligo [1]. Based on the clinical pattern, it can also be divided into trichrome, quadrichrome and pentachrome vitiligo. Various skin diseases which can mimic vitiligo are Nevus –anemicus, achromicus, depigmentosus, albinism, Hansen's disease, pityriasis albs, pityriasis versicolor, etc. Various syndromes are found to be associated with vitiligo.

Melanocyte destruction seen in vitiligo is a slow process resulting in a progressive decrease in melanocyte numbers. Normal skin has a typical reticulate pigmenatory pattern which corresponds to the pigmentation along rete pegs with pale stained areas corresponding to the papillary dermis. This reticulate pigmenatory pattern is altered in various pigmentary disorders including vitiligo.

Skin biopsy of the patients with vitiligo reveals alteration in the number of melanocytes. In stable vitiligo, there is complete absence of melanocytes [Figure 1, 2 &3]. The periphery of the vitiligenous lesion reveals Dopa positive melanocytes and few melanin granules [2]. In the outer border of the patch, the melanocytes are prominent with long dendritic process filled with melanin granules. Early lesions show the presence of superficial dermal perivascular and perifollicular inflammatory infiltrates. In late lesions, degenerative changes in cutaneous nerves and adnexal structures are seen [3]. Special stains like Dopa, Fontana Masson, Silver nitrate, Melan – A and S100 immunoperoxidase stains can be done to demonstrate.
melanocyte. In the present study, absence of menalocytes in the basal layer in well-established patches with long duration was noted. The peripheral damage to melanocytes and keratinocytes suggests that a cytotoxic agent is directed towards these cells [4]. Previous studies have demonstrated the presence of mononuclear cell infiltrates in the dermis during early stage [5]. The ultrastructural studies (electron microscopy) show the signs of degeneration of melanocytes [6]. The majority of the histopathological changes in the present study are in concordance with the previous studies in literature, which provides better knowledge in understanding the pathogenesis of vitiligo.

CONCLUSION
The present study provides the information about the pathogenesis and the histopathology of vitiligo. Histopathological examination of vitiligo is performed to confirm the clinical diagnosis and to differentiate it from the other depigmented skin conditions. Early diagnosis and early treatment aids in good prognosis.

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CONFLICT OF INTEREST:
The authors declare that they have no conflict of interest.

REFERENCES