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Original Research Article

A study on histopathological changes in lesions of vitiligo in Karnataka population

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ABSTRACT

Background: Vitiligo is considered to be symptom less and its presentation is boundless varying from isolated focal lesion to bizarre generalized lesions. The present study was undertaken to study the histopathological changes in lesions of vitiligo in south Indian population.
Methods: 150 patients with mild to moderate vitiligo features attending the outpatient department of Dermatology, Venereology and Leprology at Chitageri General Hospital and Bapuji Hospital attached to J.J.M Medical College, Davengere were utilized to study the histopathological features in vitiligo and its association with other diseases.
Results: Destruction of melanocytes at dermo-epidermal junction was noted. We have observed presence of melanocytes in the basal layer of the epidermis on left side of the lesion, whereas decreased melanocytes in the basal layer of the epidermis on the right side of the same lesion in the present study. Dermis with mild perivascular lymphocytic infiltration and acanthosis along with mono nuclear cell infiltration in the upper dermis was observed.
Conclusions: The present study gives better knowledge to the clinicians about the lesions of vitiligo and its pathogenesis.

Keywords: Epidermis, Melanocytes, Vitiligo

INTRODUCTION

Vitiligo affects all races of the world. The highest incidence has been recorded in India and Mexico.[1] Vitiligo is a disorder or group of disorders characterized by the destruction of some or more commonly all epidermal melanocytes. The disappearance of melanocytes results in complete absence of melanin and then skin appears to be white.[2,3] Prolonged consumption of a diet poor in proteins and cuprominerals was thought to be contributory for the disease.[4] Vitiligo may start at any age, onset of unilateral dermatomal type is usually in childhood within in 10 years of age, whereas most cases with bi lateral non-dermatomal lesions begin in second to fourth decades of life.[5] 10-76% of patients with vitiligo implicate a precipitating antecedent such as a physical injury, sunburn, emotional trauma, illness or pregnancy.[6] The present study was under taken to study the histopathological changes in lesions of vitiligo in south Indian population.

METHODS

150 patients attending the outpatient Department of Dermatology, Venereology and leprology at Chitageri General Hospital and Bapuji Hospital attached to J.J.M

Medical College, Davengere from January 2013 to February 2014 were utilized for the present study. The patients were selected with vitiligo from mild features to moderate at randomly, irrespective of the age, sex and socioeconomic status. The detailed history and pre-existing lesions repeated friction of pressure and associated systemic disorders and previous treatment was also enquired and recorded. The biopsy of the affected part with full lesion thickness was taken by removing normal skin by eleptical excision method and the specimen was placed in 10% formalin and submitted for histopathological examination by using Haematoxylin and Eosin in Department of Histopathology, J.J.M Medical College, Davengere. The study was explained and consent obtained from the patients and also clearance from ethical committee.

RESULTS

Table 1: Distribution of histopathological changes in lesion of vitiligo.

S.NO	Distribution of histopathological changes in lesion of vitiligo	No. of cases
1	Hyper keratosis of epidermis	20
2	Absence of melanocytes	78
3	Presence of melanocytes (mild)	20
4	Lymphocytic infiltration	56

Figure 1: Section of the skin; Epidermis showed loss of melanocytes (arrow), mild hyperkeratosis and acanthosis dermis shows mild perivascular lymphocyte infiltration.

On histopathological examination we have observed 20 cases with mild hyperkeratosis and acanthosis in the epidermis and also observed melanin pigment cells in 28 cases and absence of the melanin pigment cells in 78 cases of the present study. Perivascular lymphocytic infiltration in the dermis was observed in 56 cases in the current study (Table 1). On histopathological examination, changes in epidermis were related to melanocytes only (Figure 1). Melanocytes appeared normal in the initial lesions and they were absent in well-established patches and patches of long duration. Destruction of melanocytes at dermo-epidermal junction was noted. We have observed presence of melanocytes in the basal layer of the epidermis on left side of the lesion, whereas decreased melanocytes in the basal layer of the epidermis on the right side of the same lesion in the present study (Figure 2). Dermis with mild perivascular lymphocytic infiltration and acanthosis along with mono nuclear cell infiltration in the upper dermis was observed (Figure 1).

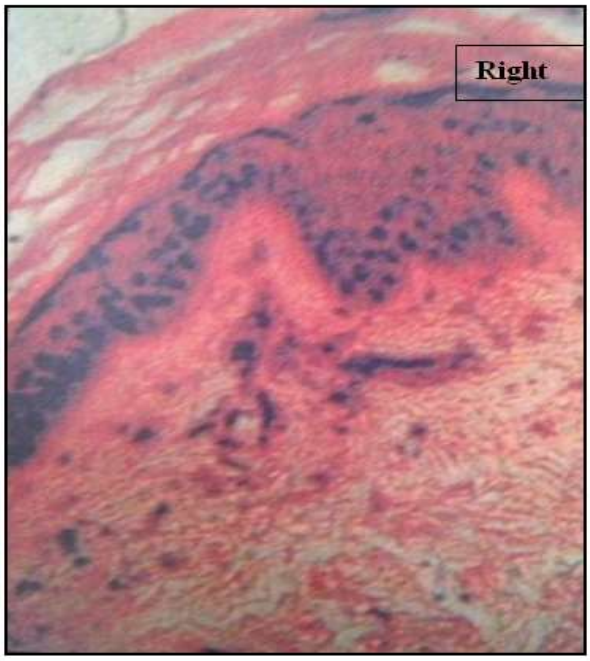

Figure 2: Section of the skin; part of the epidermis on left side showed presence of melanocytes in the basal layer and decreased melanocytes in the basal layer of the epidermis on the right side.

DISCUSSION

On histopathological examination, destruction of melanocytes at dermo-epidermal junction and absence of melanocytes in well-established patches and patches of long duration was noted. Electron microscopic studies show signs of degeneration of melanocytes and absence of melanocytes in long standing cases.[7,8] Studies demonstrated that peripheral damage to keratinocytes and melanocytes suggesting that a cytotoxic agent is directed towards these cells.[7] Presence of melanocytes in the basal layer of the epidermis on left side of the lesion, whereas decreased melanocytes in the basal layer of the epidermis on the right side of the same lesion in the present study. The periphery of expanding lesions that are hypo pigmented rather than de-pigmented still show dopa positive melanocytes and some melanin granules in the basal layer.[7,9,10] Mild perivascular lymphocytic

infiltration and acanthosis along with mono nuclear cell infiltration in the dermis was observed in the present study. Studies demonstrated that mononuclear cell infiltrate in dermis is observed during early inflammatory stage.[11] PN Behl observed perivascular lymphocytic infiltration at the dermo-epidermal junction and it is said that mononuclear cells may the cause of destruction.[2,6] Ultrastructure study demonstrated the absence of melanocytes in the patch in contrast the presence of melanosomes with Schwann cells, neurium and perineurium of cutaneous nerves were observed under electron microscopy.[12-14] Majority of the histopathological changes in lesions of vitiligo in our study are in agreement with the previous literatures which gives better knowledge in understanding the pathogenesis of lesions of vitiligo to the clinicians.

CONCLUSION

The present study gives basic knowledge in understanding the pathogenesis and its incidence in lesions of vitiligo to the clinicians before planning surgical procedure or treatment.

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