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POST KALA-AZAR DERMAL LEISHMANIASIS A CLINICO-PATHOLOGIC STUDY

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Post kala-azar dermal leishmaniasis (PKDL), a rare cutaneous lesion is now occurring with increasing frequency in endemic zones in India. Analysis of 20 cases of PKDL revealed previous history of kala-azar in all cases. Types of skin lesions were: hypopigmented macular (75%), erythematous macular (15%) and nodular (10%). Lesions were present mostly in face (64%). Amastigotes of *L. donovani* were present in 60% of dermal scraping smears and 50% cases on histopathologic examination. Histopathologically 80% showed non-specific mononuclear infiltration, including all the hypopigmented lesions. Amastigotes were detected in 37.5% of these cases. Non-specific compact granuloma was observed in 20% cases including 2 cases each of erythematous and nodular types. Parasites were detected in all these cases.

Key Words : Post kala-azar dermal leishmaniasis, *Leishmania donovani*, Cutaneous leishmaniasis

Introduction

Post kala-azar dermal leishmaniasis (PKDL) is a rare non-ulcerative cutaneous lesion occurring in kala-azar patients after 1 to 5 years of apparent recovery in a small number of patients, where the visceral infection disappears but the skin infection persists. Nowadays such lesions are being observed with increasing frequency in our country. It is particularly prevalent in the endemic zones of kala-azar in India, chiefly in Bihar and West Bengal. The clinical manifestations as well as the pathologic features are widely variable. The clinicopathological study of 20 such cases is reported here.

Materials and Methods

Twenty patients presenting with skin lesions resembling PKDL during a period of five years (April 1987 - March 1992) have been included in this study. Detailed clinical history, past history of kala-azar infection and treatment thereupon were recorded. The clinical examination of the local lesion was done. The haemoglobin estimation and aldehyde test were performed. Bone marrow examination by sternal puncture was made in 10 cases. Skin smear examination by dermal scraping for *Leishmania donovani* (LD bodies) and biopsy examination of the skin lesions was performed in all the cases.

All the patients were treated with Inj. sodium stibogluconate 5 ml intramuscularly daily for 2 weeks, repeated twice more in the same dose at a gap of 2 weeks each time.

Results

The observations of clinical findings have been depicted in Table I. Fifteen patients (75%) had hypopigmented macular lesion and in all these cases lesion in the face was present. More than one lesion were present in 5 cases. Erythematous lesion was observed in 3 cases (15%) and the remaining two cases had papulonodular type of skin lesion

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(Fig. 1). The investigational findings have been shown in Table II. LD bodies could be demonstrated in 12 cases (60%) of dermal scraping smear (Fig.2). Eight of these were from hypopigmented macular lesion and 4 were from the nodular and erythematous lesions.

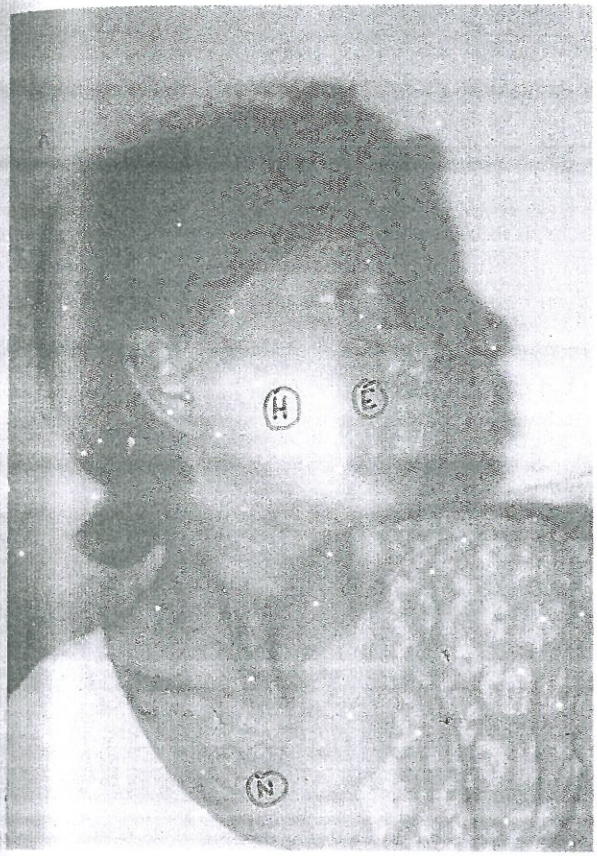

Fig. 1. Hypopigmented macular lesion (H), erythematous macular lesion (E) and nodular lesion (N) in one patient

Histopathologically 16 cases (80%) had non-specific mononuclear infiltrate in upper dermis and 4 cases (20%) showed compact granuloma. Out of the 16 cases with non-specific mononuclear infiltrates 15 belonged to the hypopigmented macular lesions. Out of the 3 cases of erythematous macular type, 1 showed non-specific mononuclear infiltrate and 2 showed compact granuloma. Both the cases of nodular lesions showed compact granuloma. LD bodies could be demonstrated in biopsy of 10 cases (50%)

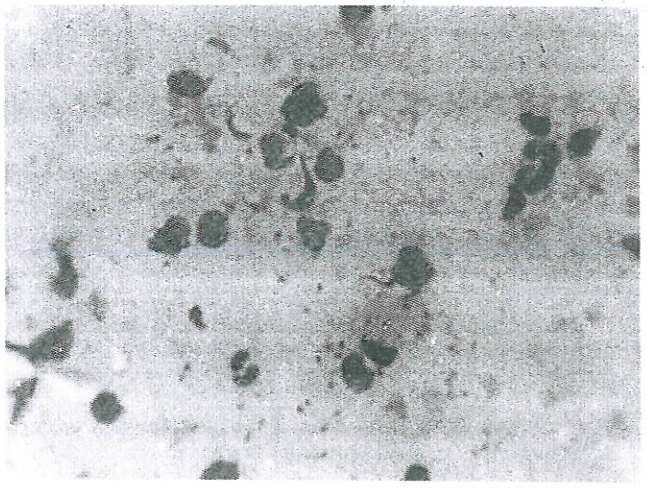

Fig. 2. Microphotograph showing LD bodies in dermal scraping smear (Leishmain stain x 1000)

which included 4 cases of compact granuloma comprising 2 cases each of erythematous and nodular lesions, and 6 cases with non-specific mononuclear infiltrate belonging to hypopigmented macular type (Fig.3) (Table III).

With a single course of treatment the lesions healed completely in 15 cases (75%). In 4 cases (20%) a second course was required for healing. The remaining

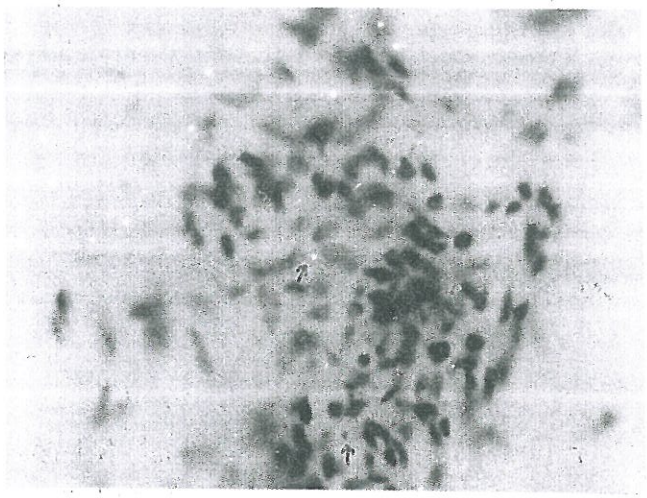

Fig. 3. Microphotograph showing non-specific granuloma with presence of amastigotes (arrow) (H and E x 800)

case, needed two more courses for resolution of lesions. No toxic effect with the treatment developed in any patient.

Table I. Clinical features of PKDL (Total Cases - 20)

Age range years (Average)	Sex	Previous history of kala-azar with irregular treatment	Hepato-splenomegaly	Type of lesion			Site of lesion (Total: 25)			
	Male / Female			Hypo. mac.	Eryth. mac.	Nodular	Face	Axilla	Back	Chest
15-40 (26.4 years)	19 : 1	20	20	15 (75%)	3 (15%)	2 (10%)	16 (64%)	3 (12%)	3 (12%)	3 (12%)

Hypo.mac. - Hypopigmented macular
Eryth.mac. - Erythematous macular

Table II. Laboratory investigations in PKDL (Total Cases - 20)

Aldehyde test		LD bodies in dermal scraping	LD bodies in Bone-marrow (Total-10)	Histopathologic finding	
Positive	Negative			Non specific mononuclear infiltration	Compact granuloma
Nil	20	12(60%)	Nil	16(80%)	4(20%)

Table III. Correlation of histopathologic type with gross skin lesion and parasite in tissue section in PKDL (Total Cases - 20)

Histopathologic lesion	No. of cases	Gross skin lesion	No. of cases	Parasite in section No. of cases	Percent	Grade of parasite
Non specific mono-nuclear infiltrate	16	Hypopigmented macular	15	6	37.5	+
		Erythematous macular	1	Nil		
Compact granuloma	4	Erythematous macular	2	2	100	+
		Nodular	2	2	100	+,++

Comments

Clinicopathological study of PKDL cases showed a positive past history of kala-azar in all cases with inadequate treatment during initial illness. All the patients were young with a marked male preponderance. Such observations are well documented in literature and females are probably protected by the female sex hormones.[2-4] Our study commensurates well with reported observations of hypopigmented type of lesion and face being the commonest type and site of lesion.[4-6] Anaemia and hepatosplenomegaly were constant features, which were probably due to the patients suffering from systemic kala-azar in recent past. Although there are reports of 100% positive demonstration of LD bodies in dermal smears,[6] we could demonstrate them in 60% cases only. The histopathologic features are usually a non-specific granulomatous lesion and LD

bodies are demonstrated in a few of them.[4,7-9] We have also observed non-specfic mononuclear infiltrate in 80% cases and compact granuloma in the rest. The parasite was demonstrated in 50% of tissue sections . However the parasites were scanty. In 6 cases no parasites could be demonstrated either in dermal smear or tissue section. In these cases the diagnosis was confirmed as the lesions healed completely with specific treatment of sodium stibogluconate. Treatment with sodium stibogluconate has shown excellent result. Majority (75%) were cured with a single course, the remaining the additional courses. No toxic effect was observed with the drug.

We may thus conclude that although the clinical features of PKDL are more or less characteristic, the pathologic features are not always confirmatory as it is often not possible to demonstrate the parasite in local lesions. In such cases one has to depend on the clinical features and response to treatment.

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