Visceral Leishmaniasis - A Study of 38 Cases on the Basis of Geographical Distribution

Pages with reference to book, From 125 To 127

Khalid Hassan, Nadeem Ikram, Khalid Pervaiz Bukhari (Departments of Pathology, Rawalpindi Medical College, Rawalpindi.)
Sajid Hussain Shah (Departments of Pathology, King Edward Medical College, Lahore.)
Mumtaz Hassan (Children Hospital, Pakistan Institute of Medical Sciences, Islamabad.)

Abstract

Geographical distribution of thirty-eight cases of visceral leishmaniasis (VL), who were diagnosed in the department of Pathology, Rawalpindi Medical College and two private laboratories in Rawalpindi and Islamabad is presented. Majority (84.2%) came from Azad Kashmir, especially from areas around Poonch (e.g., Rawlakot - 28.9%; Bagh - 23.7%; Dirkot - 5.3% and Pallandari - 2.6%) and areas around Muzaffarabad (e.g., Chakothi - 13.2% and Punja Sharif - 5.3%). Only two patients (5.3%) belonged to Gilgit agency. Four cases came from villages around Murree, Rawalpindi and Abbottabad. These places are not known as endemic areas of VL. It is proposed that epidemiological studies for VL should be carried out in areas of Azad Kashmir, especially concentrating on the places Worn where patients keep on presenting for treatment in various hospitals of Rawalpindi and Isla.mabad (JPMA 45:125, 1995).

Introduction

Visceral leishmaniasis (VL) (Kala Azar) is endemic in many places in China, South America, Southern Europe, Africa, Southern Saudi Arabia and India, where it is endemic in Bihar, Bengal, Assam and Madras[1-5]. In Pakistan, human VL was first reported in 1960 and 1962 amongst patients from Baltistan[6,7]. Burney et al in 1979 presented an overall picture of the epidemiology of VL in northern areas of Pakistan, after an extensive, longitudinal survey[8]. In 1986, Saleem et a! reported a new focus of this parasitic disease in Azad Kashmir[9]. Resorts on sporadic cases have been published from Karachi[10] and Multan[11] Visceral leishma.niasis is caused by Leishmania donovanii, which is transmitted to human beings throughthe bite of Phlebotomine sand files[12]. The amastigote forms of parasite multiply within the histiocytes in spleen, liver, bone marrow and lymph nodes. The disease is characterized by fever, hepatosplenomegaly, anaemia, leucopenia and hypergammaglobulinaemia[2]. In untreated cases, mortality is very high (90%) and even in treated patients, it canbe 5-30%[2-4]. In various hospitals of twin cities of Rawalpindi -Islamabad, cases of VL are frequently diagnosed. Most of these patients belong to Azad Kashniir and some are referred from northern areas of Pakistan, e.g., Gilgit agency. The present study was aimed at focusing on endemic and non-endemic areas of VL cases who sought treatment in various hospitals of Rawalpindi - Islamabad, were referred for diagnosis to the places of study, i.e., department of Pathology, Rawalpindi Medical College and two private laboratories in Rawalpindi - Islamabad.

Patients and Methods

Selection of cases: All 38 cases of VL diagnosed at the department of Pathology, Rawalpindi Medical College and in two private laboratories of Rawalpindi and Islamabad, between 1987 and 1993, have been included in this study. In every case, the following data was obtained: age, sex and clinical

features with special reference to fever, splenomegaly, hepatomegaly, lymphadenopathy, bleeding manifestations, cough, diarrhoea and weight loss. A special note was made of the areas to which the patient belonged and had visited during the past few years. Peripheral blood picture: About 3 ml of EDTA-blood sample was obtained from every patient and following hematological parameters were studied: Haemoglobin level by Cyanmet-haemoglobin method, white cell and platelet counts by visual methods using improved neubauer chamber and differential leucocyte count aftei staining with May-Gmnwald-Giemsa stain. Bone marrow aspiration was performed at upper end of tibia in children below 2 years age and at posterior superior iliac spine in older children (>2 years) and adults. In one patient, in whom marrow aspiration was unsuccessful, the diagnosis was established on examining a trephine imprint. Diagnosis of VL was based on finding intracellular and/or extracellular amastigotes of Leishmania donovarni in the marrow smears.

Results

Between January, 1987 and December, 1993, 38 cases of visceral leishmaniasis were diagnosed. Age and Sex distribution: In a total of 38 cases, 37(97.4%) were children (below 10 years age) and one (2.6%) adult. Majority of cases (89.5%)were below 4 years of age. The age ranged from 6 months to 40 years, with a median age of 1 year and 10 months. Twenty-five patients were male and 13 female, witha male: female ratio of 1.9:1. Clinical features (Table I):

Table I. Clinical features in visceral leishmaniasis.

Clinical features	Number of cases	Percentage
Fever	38	100
Pallor	38	100
Splenomegaly	38	100
Hepatomegaly	34	89.5
Cough	17	44.7
Weight loss	13	34.2
Ecchymoses	9	23.6
Diarrhoea	9	23.6
Lymphadenopathy	7	18.4
Epistaxis	7	18.4

Fever, pallor and splenomegaly were invariably observed. Other common clinical features were hepatomegaly (89.5%), cough (44.7%), weight lops (34.2%), diarrhoea (23.6%) and ecchymoses (23.6%).

Haematological features:

Table II. Ranges and Mean±SD values of haemoglobin level, white cells count, platelet count, neutrophil count and lymphocyte count in 38 cases of visceral leishmaniasis.

Parameter	Range	Mean	±SD
Haemoglobin level (G/dl)	2.9-10.0	6.75	1.90
White cell count ($x10^9$/l)	1.4-9.45	3.43	1.73
Platelet count ($x10^9$/l)	10-110	62.26	33.80
Neutrophils ($x10^9$/l)	0.19-3.97	1.08	0.89
Lymphocytes ($x10^9$/l)	0.84-4.35	2.35	0.92

Table II shows the averages and mean±SD values of haemoglobin level, white cell count, platelet count, neutrophil count and lymphocyte count. Pancytopenia was observed in 22(57.9%) cases. The diagnosis of VL was established on finding intracellular and/or extracellular amastigotes of leishmania donovanii in the bone marrow smears in 37 patients and in trephine imprints in one patient.
Distribution of cases according to area:

Table III. Distribution of 38 cases of visceral leishmaniasis according to the area to which they belonged.

Areas	Number of cases	Percentage
A. Known endemic areas		
(a) Azad Kashmir	32	84.2
1. Around Poonch		
Rawlakot	11	28.9
Bagh	9	23.7
Dirkot	2	5.3
Pallandri	1	2.6
2. Around Muzaffarabad		
Chakothi	5	13.2
Punja Sharif	2	5.3
(b) Gilgit agency		
Chilas	2	5.3
B. Not known as endemic areas		
Murree	2	5.3
Rawalpindi	1	2.6
Abbottabad	1	2.6

As shown in Table III majority of patients (84.2%) were from Azad Kashmir, mostly from the areas aroundPoonch(Rawlakot, Bagh, Dirkot and Pallandari), 18.5% patients belonged to areas around Muzaffarabad(Chakothi and Punja Sharif). Only two patients (5.3%)belonged to Gilgitagency (Chilas). Fourcases(15.8%) were residents of non-endemic areas, i.e., villages around Murree (2 cases), Rawalpindi (1 case) and Abbottabad (1 case).

Discussion

In haematology laboratories in twin cities of Rawalpindi- Islamabad, cases of visceral leishmaniasis are frequently diagnosed. Even in the clinical units in various hospitals in these cities, every case who presents with fever and hepatosplenomegaly and belongs to Azad Kashnur or northern areas (especially Gilgit agency) is seen with a suspicion of VL. Saleem et al[9], were the first to report a new focus of VL in Azad Kashmir. They presented a series of 14 cases amongst which 9 (64.3%) came from Azad Kashmir, mostly from Poonch (42.8%) and Muzaffarabad (2 1.7%). Two patients (14.3%) belonged to Gilgit. Three cases came from non-endemic areas of Abbottabad and Rawalpindi. All 14 cases of VL in this series were children (<8 years age). At National Institute of Health[13], 22 cases of VL were observed between January, 1985 and August, 1987; amongst these patients, 15 (68.1%) came from different localities in Azad Kashmir, 3 (14.6%) from Gilgit agency and 4(17.3%)from neighbouringfoci

in NWFP and Punjab. In the same study, sera of 289 children from five localities in Azad Kashmir (around Rawlakot, Dirkot and Chikar) were tested for leishmania specific antibodies by (IFAT) and low levels of these antibodies were detected in 15.4% of the cases. The mean age of patients in this series was 4.2 years.

In the present study of 38 cases of VL, majority of patients belonged to Azad Kashmir (84.2%); most of them (60.5%) came from areas around Poonch (Rawlakot. Bagh, Dirkot and Pallandn); l8.5%were from Muzaffarabad(Chakothi and Punja Sharif). Two patients (5.3%) belonged to endemic areas of Gilgit agency (Chilas). The remaining four cases (10.5%) came from non-endemic areas, i.e., rural areas around Rawalpindi, Murree and Abbottabad. Majority of cases (97.4%) in the present series were children below 10 years of age. Males were more common than the females, with a male:female ratio of 1.92:1. All the patients presented with fever, pallor and splenomegaly. Additional findings were hepatomegaly, cough, weight loss, diarrhoea and ecchymoses, etc. Pancytopenia was observed in 57.9% cases. In all the patients, diagnosis was established on finding intra-cellularorextra-cellularamastigotes of leishmama donovanii in the bone marrow smears. It can be appreciated that most of the cases of VL diagnosed at the places of study belonged to endemic areas, i.e., different localities of Azad Kashmir; a few cases came from endemic belt of Gilgit agency. In additionasmall number of sporadic cases belonged to rural areas around Murree, Rawalpindi and Abbottabad, thereby supporting the view southwards in the country. Furthermore, it is proposed that appropriate epidemiological surveys of the disease should be carried out in different localities, especially the places from where the patients keep on presenting in Rawalpindi and Islamabad for treatment. Such studies would be instrumental in understanding the pattern of VL in areas of its prevalence, so that appropriate measures can be undertaken for control of the disease.

References

1. Hui-Lan, Z. and Nai-Zheng, Z. Studies on leishmaniasis in China. Historical background, epidemiology, clinical aspects, legislature and control program. Chin. Med. J., 1986;99:281-300.
2. Badaro. R.. Jones. T. C.. Lorenco. R. et a!. A prospective study of visceral leishmaniasis in an endemic areaof Brazil. J. Infect. Dis., 1986;154:639-49.
3. Bellini, S., Maroli, M. and Gradoni, L. Leishmaniasis in Tuscany (Italy): (IV) An analysis of all recorded human cases. Trans. R.Soc. Trop. Med. Hyg., 1981 ;75:338-44.
4. Thakur, C. P. Epidemiologica!, clinical and therapeutic features of Bihar Kala-azar (including post-Kala-azar dermal leishmaniasis) Trans. R. Soc. Trop. Med. Hyg., 1984;78:391-98.
5. Al.Orainey, I. 0., Gasim, I. Y., Singh, L. M. et a!. Visceral leishmaniasis in Gizan, Saudi Arabia. Ann. Saudi Medicine, 1994; 14:396-98.
6. Ahmad, N., Burney, M. 1. and Wazir, Y. A. Preliminary report on the study of Kala-azarinBaltistan(Pakistan). Pak. Armed. F Med. J., 1960;10:1-4.
7. Ahmad, N. and Burney. M. I. Leishmaniasis in northern areas of Pakistan (Baltistan). Pak. Armed F. Med. J., 1962;12: 1-3.
8. Bumey, M. I., Wazir. Y. A. and Lari, F. A. A longitudinal study of visceral leishmaniasis in northern areas of Pakistan. Trop. Doct., 1979;30:66-68.
9. Saleem, M., Anwar, C. M. and Malik, I. A. Visceral leishmaniasis in children. A new focus inAzad Kashmir. J. Pak. Med. Assoc., 1986;36:230-33.
10. Rahman, M., Rab, S. M., Kazmi, K. A. et al. \\‘isceral leishmaniasis (Kala-azar) in Karachi. J. Pak. Med. Assoc., 1989;39:244-45.
11. Noor, N. A., Qazi, A. W., Saleem, M., eta!. Kala-azar in Multan (a case report). 3. Pak. Med. Assoc., 1986;36:212-13.
12. Gamham, P. C. C. The genus leishmania. Bull. WHO., 1971 ;44:477-89.

13. Rab, M. A., Iqbal, J., Azmi, F H. et al. Visceral leishmaniasis: A seroepidemiological study of 289 children from endemic foci in Azad Jammu and Kashmir by indirect fluorescent antibody technique. J. Pak. Med. Assoc., 1989;39:225-28.