Acute disseminated histoplasmosis in infancy in Brazil: report of a case and review

Luiz Carlos Severo, Isabele Berta e Zardo, Eliane Wurdig Roesch and Antônio Atalíbio Hartmann

Laboratorio de Microbiología Clínica,IPD-Santa Casa, Annes Dias, Porto Alegre, Brasil

Summary

Although early age is an important risk factor for the occurrence of acute disseminated histoplasmosis in non immunosuppressed infants, cases of this condition have been rarely reported, even in highly endemic areas [1-3]. This is a reason to add a new case, the first one diagnosed in the state of Rio Grande do Sul, and, also, to review and comment on the Brazilian literature of histoplasmosis in patients under three years of age.

Key words

Disseminated histoplasmosis, Early infancy, *Histoplasma capsulatum* var. *capsulatum*

Histoplasmosis diseminada aguda en la infancia en Brasil: descripción de un caso y revisión

Resumen

A pesar de que la edad temprana es un factor de riesgo importante en la histoplasmosis diseminada aguda en los niños, se han descrito muy pocos casos de esta enfermedad, incluso en áreas de alta endemia [1-3]. Presentamos un caso de histoplasmosis diseminada aguda en un niño de 19 meses de edad. La literatura brasileña sobre el tema fue revisada.

Palabras clave

Histoplasmosis diseminada, Infancia, *Histoplasma capsulatum* var. *capsulatum*

A 19 month-old white male child, from Cruzeiro do Sul (RS), was admitted to the ICU of Hospital Santo Antônio with a generalized tonic-clonic convulsive crisis. Five months previously the child presented with fever and diarrhoea; and, four days prior to admission, he had convulsions associated with high fever, followed by apathy and disturbed sleep. The patient's past history included: a normal birth, weighing 4,500 g, a normal neuropsychomotor development; and, pneumonia and measles at 8 months.

On admission physical examination showed a child in a poor general state, underweight (10.2 kg.), cyanosed, anemic and tachycardic. Liver and spleen were enlarged and tender; there were signs of ascitis and slight dyspnea. A chest X-ray revealed a fibroatelectatic lesion on the left upper lobe, diffuse micronodular infiltrations and bilateral hilar adenopathy. Laboratory findings were: hematocrit 32% and Hb 8.1g/dl; normal leukocyte and platelet values; alkaline phosphatase, 132 UI/l; aspartic transaminase 52 UI/l, alanine transaminase: 14 UI/l, direct bilirubin 0.7 mg/dl; indirected bilirubin 0.2 mg/dl; hyponatremia, hypoalbuminemia but normal values of potassium, glucose, urea and creatinine. Mantoux and ELISA test for HIV antibodies were negative. The patient was treated with antibiotics, anticonvulsants, packed red cell transfusion and parenteral nutrition. No clinical improvement was observed. A CT scan of the cerebrum revealed a great dilatation of the cerebral ventricles due to the obstruction of the sylvian aqueduct (Figure 1).

Laboratory examination of the cerebrospinal fluid showed decreased glucose and elevated proteins values;

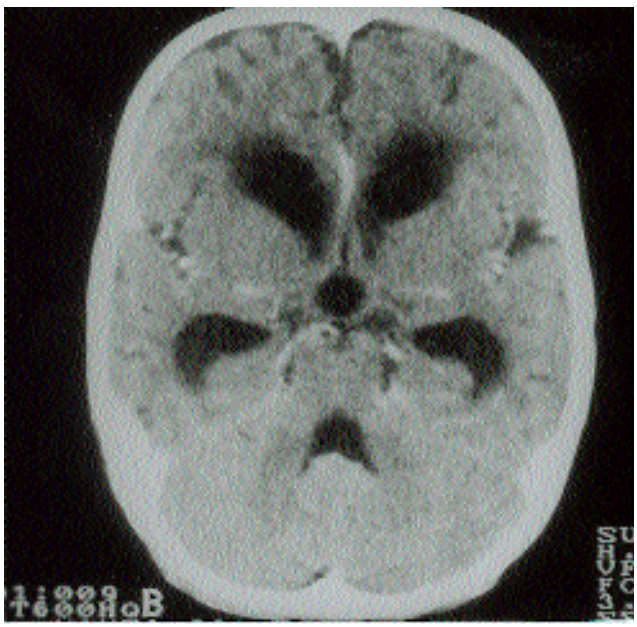

Figure 1. CT shows ventricular dilatation secondary to aqueduct obstruction.

Dirección para correspondencia:
Dr. Luiz Carlos Severo
Laboratório de Microbiologia Clínica,
IPD Santa Casa, Annes Dias 285,
90020-090 Porto Alegre, RS, Brasil
Fax: +005551 2148435,
E-mail:severo@santacasa.tche.br

Aceptado para publicación el 24 de marzo de 1997

hypercellularity with a predominance of neutrophils; two mycological microscopic examination were negative. A CT scan of abdominal organs revealed ascites and retroperitoneal lymphadenopathies (Figure 2). A microscopic examination of the ascitic fluid evidenced a great number of polymorphonuclear leukocytes and few lymphocytes and plasmocytes.

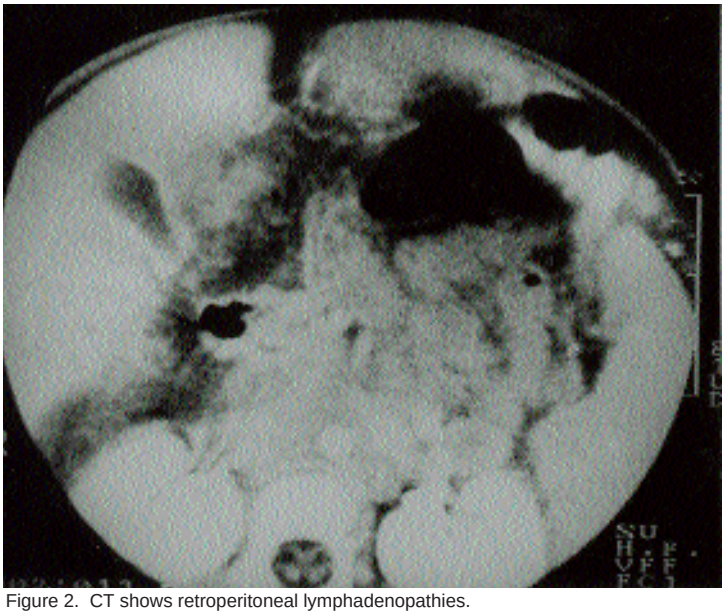

Figure 2. CT shows retroperitoneal lymphadenopathies.

Table. Disseminated histoplasmosis in early infancy (less than three years of age) in Brazil.

No. [Ref.] (Sex, age)	UF*	Lung	Liver	Other site of infection	Diagnosis		
					H	C	ID
1 [6] (M, 19 months)	SP	-	+	-	+	ND	ND
2 [7] (M, 23 months)	BA	+	+	Spleen, lymph nodes, central nervous system	+	ND	ND
3 [8] (M, 9 months)	SP	+	+	-	+	ND	ND
4 [9] (M, 16 months)	PR	-	-	Central nervous system	+	ND	ND
5 [10] (M, 2 months)	RJ	+	+	Spleen, lymph nodes	+	ND	ND
6 [10] (M, 3 days)	RJ	+	+	Spleen, lymph nodes	+	ND	ND
7 [10] (F, 2 months)	RJ	+	+	Spleen, lymph nodes, kidneys, bone marrow	+	ND	ND
8 ** (M, 19 months)	RS	+	+	Spleen, lymph nodes, adrenals, kidneys, central nervous system	+	+	+

(*) Brazilian provinces; (**) Present case.
H=histopathology; C=culture; ID=immunodiffusion test; ND=not done.

A laparotomy was performed. After removing 500 ml of an yellowish fluid, a swollen, whitened colored, hardened liver was seen. Lesions in the epiploon and multiple voluminous lymph node were also observed. fragments of the liver, peritoneum and lymph nodes were obtained. Histologic sections of these biopsied tissue revealed a granulomatous reaction and numerous yeast like cells. *Histoplasma capsulatum* was isolated from the ascitic fluid and also from urine. An immunodiffusion test for histoplasmin presented an M band.

On the 13th day after admission the patient began to receive antifungal drugs (amphotericin B 0.5 mg/kg and fluconazole 6 mg/kg, daily). In spite of the treatment, the patient died 8 days later. Autopsy showed: edema and areas of bronchopneumonic consolidations in both lungs; enlarged hilar nodes, which constricted the main bronchus; the abdominal lymph nodes were also swollen, particularly those of the mesentery region, which had adhered together, forming an extensive mass which dislocated the intestinal loops; hepatosplenomegaly; signs of leptomeningitis and many small areas of inflammation in the brain parenchyma. The important findings in the histologic examination were: in sections stained by H&E extensive areas of necrosis in the lymph nodes; and areas of chronic suppurative reaction with multinucleated cells in the lung and liver. In sections stained by Gomori-Grocott, large aggregates of yeast-like cells compatible with those of *H. capsulatum* were observed in the brain parenchyma, lung, liver, kidneys and adrenal glands.

DISCUSSION

It is noteworthy that the first diagnosis of histoplasmosis in a living human being was made in a six month-old child. He died from an acute disseminated histoplasmosis [4]. Also for the first time the isolated fungus was characterized in its dimorphic phases and its pathogenicity demonstrated for experimental animals [5].

Earthly age is an important risk factor for acquiring the mycosis by non-immunosuppressed hosts. However these cases have rarely been reported, at least in Brazil, even in highly endemic areas.

In early infancy, histoplasmosis usually runs an acute course. It begins as an acute pulmonary infection that rapidly progresses, involving multiple organic systems. Sepsis leukopenia and hepatosplenomegalia are striking symptoms. Death is caused by respiratory failure, digestive hemorrhage, disseminated intravascular coagulation or bacterial sepsis [1-3].

In Brazil, the first case of acute disseminated histoplasmosis in infants was diagnosed in 1946, in a 19 month-old child, when *H. capsulatum* was disclosed in a liver biopsied fragment [6]. Since then, only six other cases have been reported in infancy (less than three years of age) [7-10]. The table presents a summary of these cases, including the present one.

Our patient come from a city situated in the Jacui's river valley, an area of high endemicity, where the H. capsulatum was isolated from soil [11] and sensitization to histoplasmin is the highest (89%), in Rio Grande do Sul [12]. In addition, the grandfather of the patient frequently gathered chicken manure for organic fertilizer, probably the contamination occurred in one of these moments.

References

1. Butler JC, Heller R, Wright PF. Histoplasmosis during childhood. South Med J 1994; 87:476-480.
2. Morse TS, Schultz L. Histoplasmosis in children. Ohio State Med J 1962; 58:429-433.
3. Goodwin RA, Shapiro JL, Thurman GH, Thurman SS, Des Prez, RM. Disseminated histoplasmosis. Clinical and pathologic correlations. Medicine 1980; 59:1-23.
4. Dodd K, Tompkins EH. A case of histoplasmosis of Darling in an infant. Am J Trop Med 1934; 14:127-137.
5. DeMonbreum WA. The cultivation and cultural characteristicas of Darling's *Histoplasma capsulatum*. Am J Trop Med 1934; 14:93-125.
6. Pará M. Histoplasmosis in Brazil. Am J Trop Med 1946; 26:273-292.
7. Lacaz CS, Luisi A, Del Negro G, Castro RM. Histoplasmose na infância. Comentários sobre um caso. Revisão da literatura nacional. Novos dados sobre a histoplasmina em nosso meio. Rev Paul Med 1955; 47:495-509.
8. Moraes CR, Simão C, Rigatto H, Rolando E. Histoplasmose. Ped Prát 1967; 38:317-324.
9. Moraes LC, Guembarowski AL, Adum S. Histoplasmose pontina. Registro de um caso. Arq Neuro-psiq 1984; 42:398-401.
10. Ferreira CS, Sznejder MA, Wanke B, Rego STA, Martins RM. Histoplasmose disseminada fatal - relato de três casos em lactentes no primeiro trimestre de vida, sendo um em neonato de três dias (histoplasmose congênita). J Ped 1988; 64:34-40.
11. Severo LC, Petrillo VF, Camargo JJ, Geyer GR, Porto NS. Acute pulmonary histoplasmosis and first isolation of *Histoplasma capsulatum* from soil of Rio Grande do Sul, Brazil. Rev Inst Med Trop São Paulo 1986; 28:51-55.
12. Zembrzuski MM, Bassanesi MC, Wagner M, Severo LC. Inquérito intradérmico com histoplasmina e paracoccidioidina em duas regiões do Rio grande do Sul. Rev Soc Bras Med Trop 1996; 28:1-3.