

# Liver Abscesses in General Surgery at Cs Ref CI in Bamako Mali

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## Abstract

Liver abscesses correspond to a newly formed cavity created by necrosis of the liver parenchyma induced by the pathogen. The aim of the present work was to study liver abscesses; determine the frequency; describe the clinical and paraclinical aspects, therapeutic and evolutionary modalities; determine the follow-up of treatment in order to assess the cost of treatment in the Reference Health Center of Commune I of Bamako in Mali. This prospective study, involving 30 cases of liver abscess, took place over a period of 24 months from January 2015 to December 2016 in the general surgery department of the Cs Ref of commune I. The liver abscess is very often the consequence of amoebiasis which is rampant in the underprivileged population and it remains topical in surgical practice in Mali. Our hospital frequency was 0.081% with an average age of 34.40 years and extremes of 16 and 61 years; a sex ratio of 2.3 in favor of men. The main clinical signs were fever (56.7%), hepatalgia (73.3%) and hepatomegaly (26.7%). Hepatic collections objectified on abdominal ultrasound were located in the right lobe in 70% of cases and unique in 62%. Amebic serology carried out in 100% was negative in 20%; 10% of cases had undergone surgical treatment. The consequences were simple for all our patients. The average cost of care, approximately 100,000 FCFA, was significantly higher than the minimum wage (28,460 FCFA) in Mali.

## Keywords

Liver, Abscess, Guided Ultrasound Puncture, Surgery, Bamako, Mali

## 1. Introduction

Abscesses correspond to a newly formed cavity created by necrosis of the hepatic

parenchyma induced by the pathogen [1]. The incidence has clearly increased from 13/100,000 admissions between 1952 and 1984 to more than 20/100,000 in two of the largest North American centers, a trend confirmed by other recent series [2]. The frequency varies from region to region [3].

According to the WHO, 10% of the population is infected, which corresponds to approximately 500 million people [4] [5] [6] [7].

In Southeast Asia: Amebiasis disease occurred in 15% of healthy carriers (13 to 43% of the general population) and was responsible for 25% of liver abscesses.

In Europe: It was an imported pathology due to immigration and tourism [4] [6].

In Senegal, its prevalence is 1 to 2% in the general population [4] [6] [7].

In Burkina Faso, its incidence is 0.08% [5].

In Mali: SANOGO M., in 2007 recorded 21 cases of amoebic liver abscess in 3 years in the "A" surgery department of the CHU Point G [8]. DIABY G.S in 2012, 50 cases of liver abscess in the general and pediatric surgery department of CHU GABRIEL TOURE [9].

The diagnosis is clinical in front of the FONTAN triad: hepatomegaly, hepatalgia and fever; confirmed by the exploratory puncture [10].

The treatment is medical if the size of the abscess is less than 6 (six) centimeters in the absence of complications associating an antiparasitic, a broad-spectrum beta-lactam and secondarily targeted on the isolated germ. It is medico-surgical if the height is greater than 6 (six) centimeters and/or in the presence of complications [11].

Non-parasitic liver abscesses are rare but their incidence has doubled over the past two decades thanks to the growing influence of HIV/AIDS. We are in a second reference structure where no study has been carried out on liver abscesses, hence the present work in order to popularize the operative indications and the management.

## 2. Research Methodology

This work was carried out in the Reference Health Center of Commune I of the District of Bamako in Mali. This was a 24-month prospective cross-sectional study from January 2015 to December 2016. We collected 30 cases of liver abscess.

We proceeded to a systematic recruitment of all patients meeting our inclusion criteria. All patients admitted for liver abscess diagnosed on ultrasound and treated in the department during the period were included.

The study included phases: bibliographic research, development of the survey sheet, data collection, monitoring, data entry and analysis.

The variables studied were divided into:

- Administrative data (age, sex, nationality, profession, address, ethnicity);
- Clinical and paraclinical parameters (functional signs, general signs, physical signs, additional examinations);

- Treatment and post-operative follow-up in the short and medium term;
- The cost of care (consultation fees, operating kit, additional examinations, post-operative prescriptions and hospitalization).

Data entry and analysis were performed using Word 2013 and IBM SPSS software. The comparison tests used are Chi<sup>2</sup> and P with a significance level  $P < 0.05$ .

### 3. Results

We performed 3700 hospitalized patients from January 2015 to December 2016 in the general surgery department. We collected 30 cases of liver abscess, *i.e.* a hospital frequency of 0.81%.

We operated on 1000 patients during the study period, of which 30 cases of liver abscess were treated, *i.e.* 3% of cases.

The average age was 35.40 years (extreme 16 and 61 years). The sex ratio was 2.3 (70/30) in favor of the male sex (**Table 1**). The contributing factors were: Intestinal amoebiasis (43.3%), Alcoholism (16.7%) and toxic product (3.3%); Morbidities: hypertension (20%), asthma (3.3%) and ulcer (6.7%). The clinical signs were dominated by abdominal pain (73.3%), fever (56.7%) and painful hepatomegaly (53.3%) (Fontan's Triad). (**Tables 2-4**)

**Table 1.** Socio-demographic data.

	Socio-demographic	Number	Frequency
Age	<18 - 25 years old	8	26.70
	26 years old - 45 years old	<b>17</b>	<b>56.70</b>
	>45 years old	5	16.60
Sex	Male	<b>21</b>	<b>70</b>
	Feminine	9	30
Ethnic group	Bambanan	<b>7</b>	<b>23.33</b>
	Malinke	6	20
	Sarakole/Soninke	6	20
	bobo	5	16.67
	Senufo	3	10
	Dogon	3	10
Origin	Bamako	<b>16</b>	<b>53</b>
	Koulikoro	9	30
	Kayes	5	17
Total		30	100

The age group from 26 to 45 years old accounted for 56.70% of cases. The average age was 35.4 years, the extremes 16 and 61 years and a standard deviation of 3.41 years. The sex ratio was 2.3 in favor of the male sex. The Bamanan ethnic group was the most represented, *i.e.* 23.33% of the cases. The patients resided in the district of Bamako, *i.e.* 53% of the cases.

**Table 2.** Medical history.

Medical history		Number	Frequency
History of amoebiasis	Yes	<b>13</b>	<b>43.30</b>
	No	17	56.70
Risk factors	Chronic alcoholism	<b>5</b>	<b>16.70</b>
	Chemical (Chemist)	1	3.30
	None	24	80
Total		30	100

The history of intestinal amoebiasis was found in 43.30% of patients. Chronic alcoholism represented 16.70% and chemicals 3.30% of risk factors.

**Table 3.** Clinical data.

Questionnaire data		Number	Percentage
signs functional	Abdominal pain	<b>22</b>	<b>73.30</b>
	Anorexia	3	10
	Vomiting	2	6.70
	Cough	1	3.30
	chest pain	2	6.70
signs generals	Fever	<b>17</b>	<b>56.70</b>
	Conjunctival pallor	12	40
	weight loss	1	3.30
Start Mode	Brutal	19	63.30
	Progressive	11	36.70
seat of pain	Right hypochondrium	<b>22</b>	<b>73.30</b>
	Epigastrium	3	10
	Diffuse abdominal	5	16.70
Intensity	Moderate	22	73.33
	Strong	7	23.33
	Very strong	1	3.33
type of pain	Sting	11	36.70
	Gravity	<b>12</b>	<b>40</b>
	Stab	7	23.33
Radiation of pain	Fixed	<b>11</b>	<b>36.70</b>
	On suspenders	6	20
	In the back	1	3.33
	Epigastric	6	20
	Diffuse	6	20
Total		30	100

Abdominal pain represented 80% of cases, fever 56.70%. The onset of pain was sudden in 63.30%, localized in the right hypochondrium in 73.30% of cases. The intensity of pain was moderate in 73.33% of cases, heavy in 40% and fixed in 36.70% of cases.

**Table 4.** Physical signs.

physical signs	Effective	Percentage
Painful hepatomegaly	<b>16</b>	<b>53.30</b>
abdominal defense	2	6.70
Shaking pain	8	26.70
Abdominal contracture	4	13.30
Total	30	100

Painful hepatomegaly was present in 53.30% of cases.

Abdominal ultrasound was the paraclinical examination of choice to aid in diagnosis, performed in 96.7% of patients: 70% in the right liver, 17% in the left liver and 13% mixed including (segments VI = 40%; V = 33.4%; IV = 13.4%; VII = 10% and II = 3.3%). The average size of the liver abscess was equal to 47.1 mm (Extremes 39 and 97 mm); image of abscess collected in 96.7% including 10% ruptured and cutaneous fistulization (3.3%).

Amebic serology was positive in 80% of cases, HIV serology negative (100%), viral hepatitis serology negative (100%), Escherichia coli 6 (20%). (**Table 5**)

Metronidazole 500 mg combined with amoxicillin plus clavulanic acid 1 g was the medical treatment of choice in the department, second-line imipenem.

The surgical means were: Echo-guided puncture (33.3%); drainage by laparotomy (10%). The aftermath of treatment was simple at six months (100%). The average cost of care 84166.7 FCFA (standard deviation 10741.064 FCFA and extremes 50,000 and 120,000 FCFA).

#### 4. Comments and Discussion

Our work was a prospective study, involving 30 cases of liver abscess over 3700 hospitalizations (0.81% of cases) and 1000 surgical procedures (3% of cases), ranging from January 2015 to December 2016 in the surgery department general of the Cs ref of the commune I of Bamako. Our hospital frequency of 0.81% does not differ from that of Diaby G.S. [7] who found 0.86%. Liver abscess occurs at any age [1] [2] [4] [5] [6] [12] our average age of 35.4 years does not differ from those found by Sanogo and Ibara [13] with ( $p > 0.05$ ) but it is lower than that of Kouamé [14] with a statistical difference of  $p = 0.00031$  ( $p < 0.05$ ). This difference is explained by the size of the sample and the age of the patients.

Our sex ratio of 2.3 as in the literature, is a risk factor but not elucidated [2]. The classic form of liver abscess included painful and febrile hepatomegaly (FONTAN's triad). Hepatalgia (73.3%) in our study does not differ from those of Lodhi [9], (87%); and Diaby [7], (68%). The fever (56.7%) is lower than Diaby's (84%). This difference could be explained by the quantity of the abscess, the etiology and the qualitative evaluation of the pain by our patients. The typical, inconstant hepatomegaly (26.7%) in our series was found contrary to those of Diaby (50%) and Lodhi (74%) with  $P < 0.05$  explained by the experience of examiner and the volume of the abscess.

**Table 5.** Distribution of patients according to the result of serology and ECB of pus.

		Effective	Percentage
Amebic serology	Positive	<b>24</b>	<b>80</b>
	negative	6	20
Result of cyto-bacteriological examination of pus	Escherichia coli	<b>6</b>	<b>20</b>
	Sterile	7	23.30
	Not done	17	56.70
Total		30	100

Amoebic serology was positive in 24 patients, *i.e.* 80% of cases. The cyto-bacteriological examination could not be carried out in 56.70% of cases.

**Table 6.** Location of abscesses according to authors.

Authors	Effective	right lobe	left lobe	Mixed
LODHI Pakistan 2004	471	<b>344 (73%)</b> <b>P = 0.716</b>	80 (17%) P = 0.964	47 (10%) P = 0.781
DIABY mali 2011	50	<b>22 (44%)</b> <b>P = 0.023</b>	19 (38%) P = 0.043	9 (18%) P = 0.814
Our study mali	30	<b>21 (70%)</b>	5 (17%)	4 (13%)

In our series the right lobe was involved in 70% of cases. Tissue mass is greater on the right than on the left, and imperfect voiding in the portal vein carries flows from the superior mesenteric vein and the splenic vein: one flows selectively to the right lobe, the other towards the left lobe.

Abdominal ultrasound was for diagnosis and follow-up of the abscess [2] [3] as in our series. The right lobe was involved in 70% of cases, comparable to that of Lodhi (73%) with  $p > 0.05$ ; but lower than that of Diaby (44%) with a statistical difference of  $p = 0.023$  ( $p < 0.05$ ). The tissue mass of the right lobe is greater than on the left; selective outflow from the superior mesenteric vein to the right lobe and the splenic vein to the left lobe. The single abscess (62%) in our series does not differ from those of Diaby [7], (74%) and Lodhi [9], (65%) ( $P > 0.05$ ) and multiple locations (38%). (**Table 6**).

Amebic serology in (100%); 6 (20%) of negative serology, probably false negative on the one hand or early examination on the other hand (the puncture: typical “painless chocolate pus” aspects). In the literature, the detection of serum antibodies can be negative before the first week of disease progression and become positive in intestinal amoebiasis [5] [10]; Only Escherichia coli in 6 (20%) of our patients. Previous treatments have decapitated our pus samples, although the demonstration of amoeba on pus examination is inconsistent [11] [14]. Retroviral serology was negative (100%) although in the literature an emergence of liver abscess with the AIDS pandemic [1] [13] [15].

The medical treatment, metronidazole and or aminoglycosides + cephalosporins of third general [2] [3] [10] [15] our rate (56.7%) corroborates with those of Djossou [8], (90%) in the absence of signs of complication and regardless of the size of the abscess and is secondarily suitable for isolated germination, as in some authors [8] [12]. Evacuating ultrasound-guided puncture is very common [1] [2] [11]; 33.3% in our series; volume of the abscess: useful factor. Surgery is reduced nowadays [3], our rate (10%): rupture of the abscess in the large abdominal cavity and fistulization to the skin (3.3%).

The average cost = 84166.7 FCFA; higher than the Malian SMIG (28,460 FCFA).

## 5. Conclusion

Liver abscess is a newly formed necrotic cavity of the liver parenchyma induced by the pathogen (*Entamoeba histolytica histolytica*). Rupture of the abscess and extension were serious complications. The diagnosis is clinical (painful and febrile hepatomegaly) and ultrasound (image of abscess). The treatment is medical, in surgical practice in our country. Ultrasound-guided puncture is a very widespread therapeutic means nowadays, reducing the hospital stay.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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