

Original Article

Post Earthquake rise in Amebic Liver Abscesses

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Objective: Study the post earth quake incidence of amebic liver abscess in the worst affected area of Muzaffarabad, Azad Kashmir

Study Design: Retrospective, descriptive observational study.

Place and duration of study: Departments of Medicine and Radiology Abbas Institute of Medical Sciences (AIMS) Muzaffarabad. The study included data from 2001 to 2012.

Material and Methods: The records of patients with diagnosis of liver abscess confirmed on ultrasound examination were examined.

Results: There was 5.5 fold rise in cases of liver abscess following the earthquake. That high incidence remained stable for three years from 2006 to 2009. It normalized to pre earthquake levels in 2010.

Conclusion: Amebiasis is a common and serious infectious disease in developing countries. It should be kept in mind in the differential diagnosis of all cases of pyrexia of unknown origin in catastrophic events with destruction of infrastructure and disruption of water supply systems.

Keywords: Amebiasis, Liver abscess, Muzaffarabad, Azad Kashmir

Introduction

Amebiasis is an infection caused by intestinal protozoan *Entameba histiolytica*. The most common extraintestinal visceral involvement is in the form of liver abscess¹. The initial site of infection is colon but less than one third patient have diarrhea². Most patients present with high fever and right upper quadrant abdominal pain³. On physical examination most patients have abdominal tenderness and hepatomegaly. On auscultation of chest there may be rales on right lower lobe and signs of pleural effusion may be present. The complications of liver abscess include rupture into the peritoneum, rupture into the chest with pleuropulmonary fistula or amoebic empyema, rupture into the pericardium causing pericarditis or tamponade^{4&5}. Occasionally hematogenous dissemination of infection may involve central nervous system⁶.

About 10 % of the world's population is infected with *Entameba*. It is the third most common cause of death from parasitic infections after schistosomiasis and malaria. The infection is acquired by the ingestion of vi-

The areas of the highest incidence are in the developing world due to inadequate sanitation, lack of clean drinking water and over crowding⁸. The most affected countries are India, Bangladesh, tropical Asian, central and South American countries⁹.

Liver abscess results from the trophozoites entering the portal circulation from colon¹⁰. The right lobe of liver is involved in most of these cases as it receives maximum blood from caecum and ascending colon¹¹.

There is increased incidence of infectious diseases during natural disasters like earthquakes and floods¹². The lack of clean drinking water predisposes to many water borne diseases including Amebiasis¹³. In 2005 a major earthquake affected the district Muzaffarabad of the State of Azad Jammu and Kashmir. There were more than 75000 deaths and it left several thousand people homeless¹⁴. Most of these internally displaced families were living in refugee camps established in district Muzaffarabad and its surrounding areas. This study was conducted to study the incidence of liver abscess before and after the earthquake.

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able cysts from contaminated water, food or hands⁷.

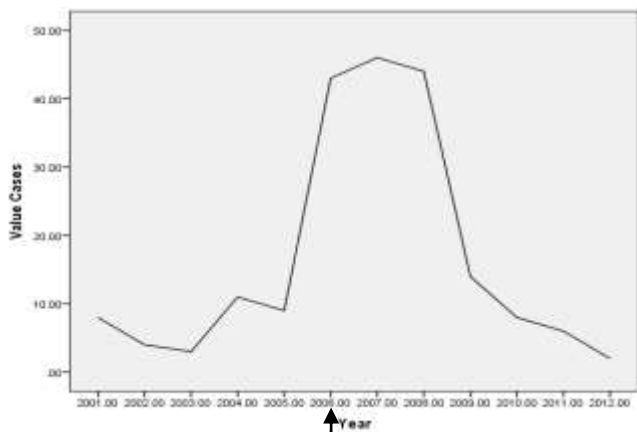
Material and Methods

This retrospective descriptive study was conducted in Abbas Institute of Medical Sciences (AIMS). Medical records of patients diagnosed as cases of liver abscess

were examined from 2001 to 2012. The diagnosis of liver abscess was based on clinical grounds and confirmed on Ultrasonography. Statistical analysis was performed by using SSPS software version 20 (IBM SSPS Statistic data editor-20).

Results

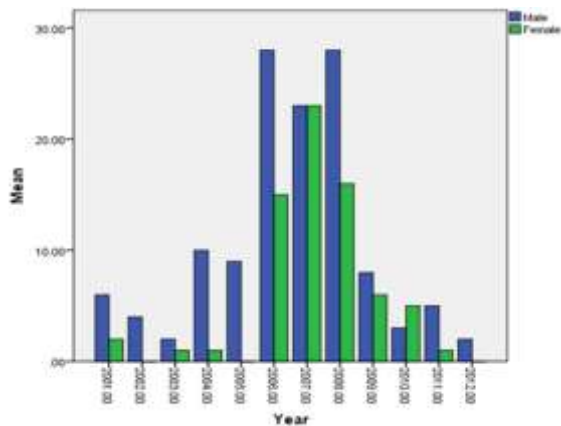
The average number of diagnosed cases of liver abscess from 2001 to 2005 was 8 cases per year. The average number of cases of liver abscess for three years following the earthquake from 2006 to 2009 was 44 cases per year (Graph-1). There was 5.5 fold rise in cases of liver abscess after the earthquake. That high incidence remained stable for three years from 2006 to 2009. The average number of cases per year from 2009 to 2012 dropped to 7 cases per year. It normalized to pre earthquake levels in 2010. The sharp decline in incidence in 2010 was in contrast to steep rise of cases in 2006.



Earthquake 2005
Line represents number of cases of liver abscess

Graph-1

Rise In Cases Of Amebic Liver Abscess



Graph-2

In our study there was male predominance (Graph-2). Out of total of 198 patients included in the study 128

(65%) were male and 70 (35%) female. All age groups from 9 years to 84 years were affected (Table-1). The maximum number recorded of male patients in one year was in 2006 and 2008 (28 patients in each year). The maximum number of female patients was 23 in year 2007.

Descriptive Statistics					
	N	Minimum age	Maximum age	Mean	Std. Deviation
M	128	9.00	84.00	39.4375	15.51466
F	70	6.00	80.00	38.1857	14.81313

Table-1
M=Male
F=Female

Discussion

Amebiasis is a common and serious infectious disease in developing countries¹⁵. The lack of access to clean drinking water and fecal contamination of food leads to propagation of this condition. It is a major cause of diarrheal deaths in children. It has been estimated that 50 % population of tropical and subtropical developing countries are infected with amoeba¹⁶.

Natural disasters result in disruption of normal life leading to displacement and migration of people also cause deficiencies in sanitation and hygiene. The diarrheal outbreaks in these vulnerable communities have been linked to interruption in water supply, low water pressure and increased consumption of water in prevailing circumstances¹⁷.

This study was based on the clinical observation that there had been steady decline in cases of liver abscess in recent years. The analysis of medical records revealed an average of 7- 8 cases of liver abscess per year in Abbas Institute of Medical Sciences (AIMS) from 2001 to 2005. In October 2005 this area was affected by a major earthquake. Most buildings were destroyed and people lived in camps. There were few intact houses but people are afraid of living inside. The majority of population and internally displaced people were living in tents. The water supply system was also destroyed during the earthquake. The water was supplied on mobile water tankers in temporary storage facilities. The initial rehabilitation from that catastrophe took three to five years.

The average number of cases of liver abscess for three years from 2006 to 2008 following the earthquake was 44 cases per year. It coincides with the period of social disruption of internally displaced persons and lack of

civic facilities. The number of cases of liver abscess then steadily declined from 2009 to 2012 to pre earthquake level of 7-8 cases per year as population resumed normal living. The decline in cases of liver abscess coincides with the period when refugee camps were closed in earthquake affected areas and people returned to their homes.

Most common health problems facing internally displaced persons (IDPs) in camps are malaria, diarrhea, acute respiratory infection and scabies¹⁸. In addition to diarrhea and Acute Respiratory Infections; 4% of patients had fever of unknown etiology.

Water and sanitation are two serious health concerns following major earthquakes. The provision of clean drinking water and proper disposal of human excreta can go a long way in decreasing morbidity and mortality from water borne diseases like amebiasis. The possibility of amoebic liver abscess should always be considered in a patient with high fever especially if there is tender hepatomegaly in such circumstances. Without drinkable water and proper disposal of human excreta the possibility of increase in infectious diseases rises dramatically.

Limitation of the study

The diagnosis of liver abscess was made on clinical grounds confirmed on by ultrasonic examination. The serology for Amebiasis was not possible under the prevailing circumstances and it was not done.

Conclusion

There was significant post earth quake increase in the cases of Liver abscess in our study. It should be kept in mind in the differential diagnosis of all cases of pyrexia of unknown origin in catastrophic events with destruction of infrastructure and disruption of water supply systems.

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