

To Evaluate Different Features of Pyogenic Liver Abscess

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ABSTRACT

Objective: To evaluate different features of pyogenic liver abscess .

Study Design: Prospective descriptive study.

Place and Duration of Study: This study was conducted in the Medical Department of Al Tibri Medical College & Hospital, Karachi from Jan 2011 to Jan 2013.

Materials and Methods: Patient presented with upper abdominal pain and fever of more than two weeks duration. All patients undergone ultrasound of abdomen reported at Al Tibri Medical College & hospital were enrolled in the study. All data was recorded in a preset proforma and features like biodata, symptoms, sign, biochemical test, ultrasonographic finding, culture and sensitivity of pus were assessed. The data were analyzed on SPSS version 15.

Results: Total cases were 67. Male were 47 and female were 20. The mean age was 47 ± 18 . With range from 29 to 65 years. Male were more as compared with females. The commonest symptoms were abdominal pain in 43 cases (64%), fever was in 39 cases (58%), anorexia was in 39 cases (58%), jaundice was in 29 cases (43%), weight loss in 24 cases (37%), raised ESR was in 42 cases (62%), raised leukocyte count was in 57 cases (86%), raised bilirubin in 46 cases (69%) ALT was raised in 27 cases (40%) and alkaline phosphatase was raised in 20 cases (29%), ultrasound abdomen showing single abscess in 55 cases (83%) and multiple in 12 cases (17%), right lobe involvement in 53 cases (79%), left lobe involvement in 14 cases (21%), 37 cases (55%) were under gone therapeutic percutaneous ultrasound guided aspiration of the abscess. Culture were positive in 49 cases (73%), in which *Klebsiella pneumonia* was the commonest organism found in 22 cases (45%), *Enterococcus* spp were in 11 cases (23%), *E-coli* were in 9 cases (18%), While the culture is negative in 18 cases (27%). No mortality were recorded.

Conclusion: The pyogenic liver abscess is one of the common cause of upper abdominal pain and fever of longer duration.

Key Words: Liver Abscess, Abdominal Pain, Ultrasound Abdomen.

INTRODUCTION

The incidence¹ of liver abscess is 3.6 % per 100,000 population in USA. Initially it was not a common cause as the advancement of the techniques and the world wide traveling it is now not as uncommon as was previously considered. The abscesses may be single² or multiple. It may be due to extra traveling in the endemic areas. The liver abscess are of two types amoebic and pyogenic. The pyogenic is most commonly seen with portal pyaemia from intra-abdominal sepsis and some time without known aetiology. The liver³ can be invaded by bacteria via bile duct, portal vein, hepatic artery, direct extension and traumatic implantation through the anterior abdominal wall. Risk factor for the liver abscess⁴ are male gender, older age group, malignancy, diabetes mellitus, cirrhosis and inflammatory bowel disease. Portal inflammation results with the development of multiple⁵ abscess and eventually a single or multiple large one. The organism found most commonly⁶ is *E-coli*, *klebsiella pneumonia*, *proteus vulgaris*, *enterobacter aerogenes*, *streptococcus Milleri* and *bacteroides*. Other less common or mixed infections were *enterococcus faecalis* and *staphylococcus aureus*.⁷ In 40 % of cases

there is no demonstrable cause and classified as cryptogenic.

Onset is gradual and patients were not acutely ill. Patients⁸ complained of fever and malaise, anorexia, vomiting and weight loss. The patient has with no finding to toxic look and shock. Tender Hepatomegaly and right sided pleural effusion may be the presenting complains. The investigation really helped were raised leukocytosis and ESR, anemia, raised bilirubin and alkaline phosphatase. Ultrasound was the useful tool to diagnose the case. The antibiotics were started should cover gram positive, gram negative and anaerobic organisms. The diagnostic and therapeutic aspiration⁹ of the pus is sometimes required when necessary. The guidelines for ultrasound guided drainage of an abscess are if the abscess is of more than 7cm in size and not responding to antibiotics rapidly. With the advancement of the technique there is no surgical^{10 11} intervention required but only in those cases where deep seated abscess in the left lobe, very large abscess or delayed diagnosis where rupture lead to peritonitis surgery is indicated.

The over all mortality depends on the nature of the underlying pathology and has been reduced to 16 % with needle aspiration and antibiotics. Single large

abscess has better prognosis¹² than with scattered multiple abscesses.

MATERIALS AND METHODS

This is an prospective descriptive study conducted in the medical department of Al Tibri Medical College & hospital, a 300 bedded hospital in district Malir. It is situated near AL Ibrahim Eye Hospital old thana. The college has an OPD of 200/day patients in different areas of the field of undergraduate teaching MBBS. The average OPD is 45 /day in the medical department. The OPD was conducted daily. All the patients were adults and resident of Malir. The duration of the study was two years i.e. from Jan 2011 to Jan 2013. The patients were taken in this study were complaining of fever and abdominal pain for more than two weeks.

Detailed history and clinical examination was done in every case and the basic biodata was recorded in a preset proforma. The symptoms and sign and detailed laboratory investigations were recorded. The data was analyzed on SPSS version 15.

Inclusion Criteria:

- 1) Patients were adults
- 2) Resident of Malir district
- 3) Upper abdominal and fever for more than two weeks
- 4) Ultrasound confirmed the diagnosis
- 5) Only pyogenic liver abscesses were included

Exclusion Criteria:

- 1) Amoebic liver abscess cases as their anchovy sauce appearance
- 2) Age less than 12 years
- 3) All those cases with abdominal pain and fever of more than two weeks with negative ultrasound.

RESULTS

Total cases were 67 cases. Male were 47 and female were 20. The mean age was 47 ± 18 . With range from 29 to 65 years. The basic biodata were recorded in table No. 1. Male were more as compared with females. The commonest symptoms were abdominal pain in 43 cases (64%), fever in 39 cases (58%), anorexia in 39 cases (58%), tender hepatomegaly in 35 cases (51%), Jaundice in 29 cases (43%), weight loss in 24 cases (37%), raised ESR in 42 cases (62%) mean 55 with range 47 to 107mm in 1st hour, raised leukocyte count in 57 cases (86%) the total leukocyte count mean 15000 range 7000 to 29000 per c/mm, raised bilirubin with predominant conjugated type in 46 cases (69%) mean was 2.5 mg/dl and range was 1.5 to 4.5, alanine transaminase raised in 27 cases (40%) mean is 127 with range 37 to 550 and alkaline phosphatase raised in 20 cases (29%) mean was 275 with range 207 to 780 i.u. Anemia was seen in 23 cases (34%) mean

is 9.3 with range 8.7 to 15.3 where less than 10g/dl was considered as anemia shown in Table No. 2.

Table No. 1: Biodata

Total No. of cases	67
Male	47
Female	20
Mean age	47 $\pm$ 18 years
Range of age	29-65 years
Abdominal pain	43 cases (64%)
Fever	39 cases (58%)
Anorexia	39 cases (58%)
Weight loss	24 cases (37%)
Tender hepatomegaly	35 cases (51%)
Jaundice	29 cases (43%)

Table No.2: Laboratory findings

Test	Mean	Range	Total No. of cases
Hemoglobin	9.3mg/dl	8.7-15.3mg/dl	23 cases (34%)
WBC	15000 per c/mm	7000-29000 c/mm	57 cases (86%)
ESR	55mm 1 st hr	47-107 mm 1st hr	42 cases (62%)
Bilirubin total	2.5	1.5-4.5	46 cases (69%)
ALT	127	37-550	27 cases (40%)
Alkaline Phosphatase	275	207-780	20 cases (29%)

Table No. 3: Ultrasound findings

ultrasound	Finding
Right lobe	53 cases (79%)
Left lobe	14 cases (21%)
Single	55 cases (83%)
multiple	12 cases (17%)
Abscess > 7cm in diameter	37 cases (55%)

Table No. 4: Organism on culture

Organism positive on culture	Total No. of cases
Klebsella pneumonia	22 cases (45%)
Enterococcus supp.	11 cases (23%)
E-coli	09 cases (18%)
Streptococcus fecalis	04 cases (8%)
Pseudomonas A.	03 cases (6%)
Culture negative	18 cases (27%)

Ultrasound abdomen showing single abscess in 55 cases (83%) and multiple in 12 cases (17%), right lobe involvement in 53 cases (79%), left lobe involvement in 14 cases (21%), the abscess at an average greater than 7 cm in size should be percutaneously drained under ultrasound guidance and it was done in 37 cases (55%) as shown in Table No. 3. the remaining abscess were treated with antibiotics alone. Culture were positive in 49 cases (73%). Klebsella pneumonia was

the commonest organism found in 22 cases (45%), *Enterococcus* spp were in 11 cases (23 %), *E-coli* were in 9 cases (18%), *Streptococcus fecalis* were in 4 cases (8%) and *Pseudomonas A.* in 3 cases (6%). While the culture is negative in 18 cases (27%) shown in Table No 4.

DISCUSSION

Hepatic abscess was first described in the times of Hippocrates around 400B.C. In 1938, Ochsner's⁸ review of 47 cases of pyogenic liver abscesses and had opened surgical drainage as the definitive therapy.

The study was designed because in our OPD, the patients were referred from the remote area of district Malir. Most of the fever was considered as typhoid fever in the area they were treated. The patients belonged to poor class and so were interested in quick relief so they were un-diagnosed. The fever of more than two weeks and accompanied abdominal pain were included in this study.

The liver abscess is one of the commonest diseases of the tertiary care setup as the acumen and clinical diagnosis of the doctors working in this setup is high. The early diagnosis is also influenced with the advancement of the medical technicality. Pyogenic abscesses account for almost 80% of all liver abscesses in the developed world and are most often polymicrobial⁴ the incidence of pyogenic hepatic abscesses 0.5-0.8% in the Western world. There is a need to recognize and treat this condition as the aetiology of these abscesses¹³ had changed over the last few decades as the microorganism had different behavior over the co-morbidities of the patients. Liver abscess was previously regarded a high morbidity disease requiring open surgical drainage, with mortality rates between 9% and 80%. If untreated, it was uniformly¹⁴ fatal but now with the advancement of treatment, microbiological identification and ultrasound guided percutaneous drainage the mortality had markedly decreased.

With the development of more sophisticated diagnostic techniques and longer lifespan, the demographic for peak incidence of liver abscess is shifting towards the sixth and seventh decades of life. Liver abscesses are rare in children and adolescents, and are usually associated with an underlying immune deficiency state or trauma. In our study the mean age was 47 ±18 that was comparable with the other studies. Though it was a little younger than the rest it was because the population we were dealing in this study was less privileged. Clinical presentation¹⁵ of pyogenic hepatic abscess is non-specific. A combination¹⁶ of nonspecific systemic symptoms is the most common presentation; including fever and rigors, nausea and vomiting, right upper quadrant pain, anorexia, weight loss, weakness and malaise. Symptoms included cough or hiccups due to diaphragmatic irritation, with referred pain to the

right shoulder were reported less. In our study the commonest symptoms was abdominal pain and it was in 43 cases almost 64% followed fever that was in 39 cases almost 58%. It was quite similar with Bugti¹⁷. The liver function test were abnormal in 46 cases almost 69 % the ALT and alkaline phosphatase were raised. It was an infective cause so the raised total leukocyte count was seen in 57 cases almost 86% and this was quite comparable with the other authors. The anemia was also seen in 23 cases and it was 34 % and it was quite similar with the study by Bugti¹⁷ et al.

The advance and quick technique of ultrasonography almost diagnosed the liver abscess. It was done in every case and it was found that in 53 cases (79%) involved the right lobe and in 14 cases the left lobe was involved (21%). The abscess was single in 55 cases i.e. 83% and multiple were in 17% i.e. 12 cases the result were similar with the studies conducted by Rustum K¹⁸. and Bugti¹⁷. The average size of a abscess if greater than 7cm in diameter should be percutaneously drained¹⁹ and it was happened in 37 cases 55%. All the cases were treated medically²⁰ and no surgical intervention was required during the study it was a little bit different with other studies but the reason behind this was early percutaneous aspiration of the abscess and prompt antibiotics for longer duration.

In the culture sensitivity of the abscess was positive in 49 cases and among them *Klebsella*^{21 22 23} was the commonest organism seen in 22 cases (45%) followed by *Enterococcus* spp. Seen in 11 cases (23%) and *E-coli* in 9 cases (18 %) it is quite comparable with other studies in Taiwan^{24 25 26}. Untreated, pyogenic hepatic abscess is uniformly fatal due to ensuing complications such as sepsis, or peritonitis secondary to rupture of the abscess cavity into the pleural or peritoneal cavities. In the last quarter of a century there was a²⁷ concomitant decrease in mortality to 5-30%. No mortality was recorded during the study.

CONCLUSION

In all those patients with fever and upper abdominal pain which is not responding to the conventional treatment ultrasound assistance give an early diagnosis of pyogenic liver abscess. This may reduce the surgical intervention and mortality in general.

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