International Journal of Science and Research (IJSR)
ISSN (Online): 2319-7064
Index Copernicus Value (2013): 6.14 | Impact Factor (2015): 6.391

Role of Laparoscopic Drainage of Liver Abscess – A Recent Trend

Dr. Swapna Saha[1], Dr. Kundan Gedam[2]

[1]Final Year Resident, Dept. of General Surgery, MGM Institute of Health Science, Navi Mumbai, India

[2]Professor, Dept. of General surgery, MGM Institute of Health Science, Navi Mumbai, India

Abstract: ***Liver abscess are mainly treated under image guided needle aspiration or pig tail catherisation under antibiotic cover. However it has been noticed that if these methods fail, open surgical drainage becomes necessary. But lately laparoscopic drainage of liver abscess has become useful in many patients. Nowadays surgeons have started focusing in minimal access surgery which can benefit in management of liver abscess and recovery of patients in whom other treatment modalities fail.*** **Aims and Objectives:** ***To describe the outcomes of patients who underwent laparoscopic liver abscess drainage at MGM College, Navi Mumbai.*** ***Methods: A prospective analysis of laparoscopic liver abcess drainage procedure done in 12 patients between periods September 2014 to May 2016.*** ***Results: A total of 12 patients in the study were worked up for laparoscopic abscess drainage based on ultrasound and computed tomography which revealed localized collection in the liver. There was no conversion to open surgery. Postoperative recovery of the patient was uneventful and patients remained asymptomatic after 2 months of follow up.*** ***Conclusion: Not all abcesses can be treated with antibiotic cover. Treatment of liver abscess is mainly needle aspiration or percutaneous drainage. Laparoscopic drainage should be considered in management of liver abscess with systemic antibiotic therapy and is considered to be safe and effective.***

Keywords: Liver abscess, laparoscopy, drainage, antibiotic

1. Introduction

Amoebic liver abscess (ALA) and pyogenic liver abscess (PLA) are common clinical problems in seen India and other tropical countries (1, 2). It has the potential for high fatality when left untreated. Since late 80's progress has been made by more advanced imaging like ultrasonography and multi slice computed tomography which reports even small lesions in their initial stages. Open surgical drainage was the initial treatment method until 1980s when usg guided percutaneous aspiration in combination with antibiotic therapy became the standard of care. (3, 4,5). But nowadays use of this method has been limited because of high failure rates and complications (3,6).This accounts for more use of surgical drainage of liver abscess in developing countries (7,8). Laparoscopic drainage can be considered as an alternative to surgical drainage as it reduces the morbidity and mortality which is seen in open surgery. In this study we will describe the procedure and outcome of laparoscopic guided drainage of liver abscess in a tertiary care hospital.

2. Materials and Methods

A prospective analysis of laparoscopic liver abcess drainage procedure done in 12 patients between period September 2014 to May 2016. All these patients were worked up for laparoscopic abscess drainage. Following data of these patients were noted: Patient demographic, volume of fluid drained from the liver, duration of operation, duration of hospital stay and complications of the procedure if present. Complete blood count, liver function tests and coagulation profile was done in all patients. Abdominal ultrasonography was done in all patients and computed tomography was done in 6 patients in addition. All the reports were suggestive of liver abscess which was limited to right lobe of liver in all the patients and cavity measured between 7 and 25 cm in diameter. 8 patients had right sided pleural effusion on their chest xray ranging from mild to moderate grade.

3. Surgical Procedure

Under general anaesthesia, initially pneumoperitoneum was created by help of Veress needle through infra unbilical area. Then a 10mm optical trochar is introduced and laparoscope is inserted under direct visualization. Diagnostic laparoscopy was performed and then two 5mm ports were introduced in the right and left subcostal planes. The adhesion between the liver and diaphragm as well as the anterior abdominal wall was freed and the area where abscess was present was exposed. Aspiration of the cavity was done by the suction nozzle catheter and in the process samples for pus culture was taken. Irrigation by injection metronidazole and normal saline was then carries out. Then the cavity was cauterized and finally an abdominal drain was placed in the cavity which was covered further by omental patch.

The ranges of age groups with liver abscess were between 31 – 50 years of age group. Male to female ratio was 5:1. The volume of aspiration ranged from 500 - 1500 ml. Mean operating time was 82.5 mins. There was no conversion to open surgery and no postoperative morbidity or mortality was recorded. In one patient intraoperatively intercostal drainage was inserted in 8th intercostal space to drain the pleural effusion. The average postoperative hospital stay was 8.5 days. Follow up was carried out in all patients for 2 months weekly where no recurrence rates were found.

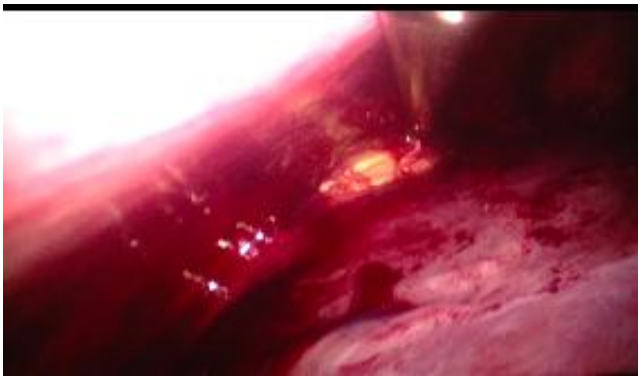

Figure 1: Laparoscopic Drainage of Liver Abscess

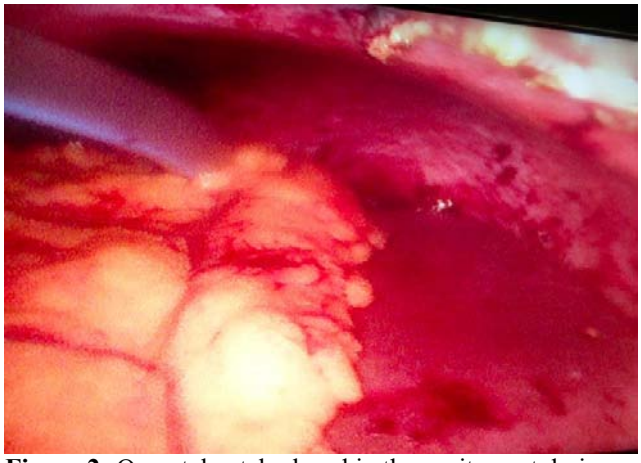

Figure 2: Omental patch placed in the cavity post drainage of the abscess

Table 1: Clinical profile of patient who underwent laparoscopic liver abscess drainage:

Age	Sex	Vol.drained (ml)	Operation duration (mins)	Duration of hospital stay	Co–morbidity if any
36	Male	600	60	3	diabetes
35	Male	500	50	5	
30	Male	700	80	3	
41	Male	500	90	4	diabetes
40	Male	800	60	5	
45	Female	1200	120	7	
35	Male	1300	100	9	
36	Male	1500	120	12	
40	Male	700	110	7	hypertension
50	Male	500	60	4	
49	Female	600	50	3	
38	Male	800	90	5	

4. Discussion

Liver abscesses were recognized as far as back as Hippocrates, in 400 BC, who thought that prognosis was related to the type of fluid in the lesion. In addition to pyogenic and amoebic liver abscess, other micro organisms, such as fungi and cytomegalovirus can also cause liver abscesses, though rarely, especially in immunocompromised patients. The most common cause of pyogenic liver abscesses are *Escherichia coli, Klebsiella* and *Enterococcus.*

Most pathogens reach the liver via portal system where normally in healthy individuals the immune system prevents bacterial colonization. Despite progress made in technology, etiology of abscesses is never discovered. The incidence is three times higher in the right lobe than the left due to predominant flow from the superior mesenteric vein to the right lobe as well as because of the larger surface area of right lobe(15).

A shift has occurred in treatment of liver abscess about four decades ago and with it the mortality associated with this disease condition has decreased drastically by help of minimal access surgery with systemic antibiotic therapy. Laparoscopic surgery has the advantages of both open and the minimal invasiveness of drainage. It provides faster recovery, shorter hospital stay, less surgical site infection and better cosmesis than open surgical drainage does (9,10). Wang and associates reported similar site of port placement as in laparoscopic cholecystectomy(10). Some may argue that laparoscopic drainage of liver abscess may be an expensive modality of treatment but the benefit of minimal access surgery has a compelling response. Although no randomized study compares surgical or laparoscopic drainage with percutaneous drainage, the failure rate can be expected to be higher in the percutaneous group because of small caliber drainage catheters. Large bore tube drains prevent failure and provide quick resolution of cavity wall (14)

A small number of cases and no comparative study between various modalities of abscess drainage prove to be a limitation this present study. However we show that laparoscopic surgery is making a pathway in initial line of treatment of liver abcess drainage.

5. Conclusion

Laparoscopic drainage of liver abscess should be considered as an alternative method before open surgical drainage. It is effective assuring better results.

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