

Comparative study between surgical drainage and laparotomy for ruptured liver abscess

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Abstract

Background : - The purpose of the study is to compare surgical drainage and laparotomy for ruptured liver abscess. **Method :** - A total number of 200 patients were selected from general ward of general surgery admitted through surgical emergency PMCH,Patna from July 2021 to July 2022 fulfilling the inclusion and exclusion criteria. Among all patients 150 patients undergone surgical drainage under local anaesthesia and 50 patients undergone laparotomy under general anaesthesia. **Results :** - The surgical drainage technique had lesser anaesthesia related complications, shorter duration of surgery, lesser intraoperative bleeding, less post operative complications, lesser mortality and shorter duration of hospital stay. The laparotomy had lesser incidence of recurrence. **Conclusion :** - Keeping in mind the anaesthesia related complications, duration of surgery, blood loss, post operative complications, hospital stay and cost effectiveness, it can be concluded that surgical drainage is a better technique in common situation while keeping the laparotomy for more complex scenario.

Introduction

Liver abscess is very common in India particularly in a state like Bihar where consumption of toddy is very high, particularly in lower socio economic class. When ignored for a long time or in people with decreased immunity or in infection with highly virulent organism, sometime these abscess ruptured which has a very very high morbidity and mortality rate. The choice of management depends on particular surgeon dealing the patient.

There are various options available for ruptured liver abscess. Laparoscopic surgery is one of the leading choice nowadays particularly in higher centres. Laparotomy with thorough washing of peritoneal cavity, breaking of pus loculi is an another method. Surgical drainage in local anaesthesia by placing two abdominal drain kit blindly in pelvic space and sub-hepatic space and washing of peritoneal cavity is an another option.

Our study is based on the comparison between laparotomy and surgical drainage of ruptured liver abscess.

Materials & Methods

A prospective study was conducted on patients admitted in general ward of general surgery,PMCH,Patna admitted through surgical emergency from July 2021 to July 2022.A total of 200 patients were selected with features suggestive of ruptured liver abscess and confirmed by ultrasonography of abdomen fulfilling the inclusion and exclusion criteria. The inclusion and exclusion criteria were for surgical drainage of ruptured liver abscess. Laparotomy have no barriers.

Inclusion criteria

1. Vitals stable

Exclusion criteria

1. Unstable patients
2. Deteriorating condition

Procedure

Surgical drainage

The patient was monitored for vitals and managed with proper antibiotics (third generation cephalosporin and double dose metronidazole) and fluid therapy. After confirming the diagnosis by ultrasonography the patient was shifted to operating room. Under local anaesthesia, two incision of 1 - 1.5 were given bilaterally in spinoumbilical line near the middle point of the line. Underlying tissue was separated, peritoneum was identified, hold with two artery forceps, incised and an abdominal drain kit of 28 number was placed in peritoneal cavity. The right side drain was placed towards sub-hepatic space upward and the left side drain was placed towards pelvic cavity downward blindly. Pus was taken for pus culture and sensitivity. After the pus stops coming, the peritoneal cavity was thoroughly washed through the drains with normal saline. The drains were left in place until the pus kept coming. Once the pus stops coming, the patient was again sent for ultrasonography and if any volume of pus was present in the liver, that get aspirated percutaneously under ultrasonographic guidance. In the mean time the patient was covered by antibiotics according to pus culture and sensitivity. After the ultrasonography reveals no pus or organised contents, the patient was discharged.

Laparotomy

Under general anaesthesia, an upper midline incision given and abdominal cavity opened in layers, pus was suctioned out from peritoneal cavity, the pus cavity in liver and other pus loculi were cleared, the peritoneal cavity was thoroughly washed with normal saline. An abdominal drain kit of 28 number was placed in sub-hepatic space and abdomen was closed. The pus sample taken was sent for culture and sensitivity. The patient was maintained on antibiotics according to pus culture and sensitivity. The patient was discharged on post operative day 10 after total stitch removal.

Results : -

The laparotomy was carried under general anaesthesia which harbours its own risk of post operative respiratory complication, paralytic ileus and others particularly in an already compromised patient due to peritonitis and liver abscess, on the other hand surgical drainage was done in local anaesthesia harbouring no such risks. The laparotomy wash took 30 minutes to 1 hour while surgical drainage took 10 - 15 minutes. The laparotomy had some associated blood loss with it while surgical drainage had no blood loss. Post operative complications were higher in laparotomy. Among 50 patients, 1 patient developed respiratory distress post operatively and could not be saved and 4 patients developed wound infection. There were no post operative complications in any patient among the all 150 patient of surgical drainage. 2 patients out of 150 among the surgical drainage came with recurrent liver abscess which was managed by ultrasound guided percutaneous drainage.

	Laparotomy	Surgical drainage
Anaesthesia	General anaesthesia, higher risk	Local anaesthesia, no risk
Duration	30 - 60 minutes	10 - 15 minutes
Blood loss	Higher	Insignificant
Post operative complication	Higher	No complications
Death	1 out of 50, 2 %	Nil
Wound infection	4 out of 50, 8 %	Nil
Recurrence	Nil	2 out of 150, 1.34 %
Hospital stay	Longer	Shorter
Cost	More costly	Cost effective

Discussion : -

In our study of 200 patients, 150 undergone surgical drainage and 50 undergone laparotomy. Among all 200 patients, 190 patients were male and 10 were females suggesting a very high male : female ratio. Among 200 patients, 160 patients were between 30 - 50 years of age, 10 patients were ≤ 30 years of age and 30 patients were ≥ 50 years of age.

The patients undergone surgical drainage had lesser anaesthesia related complications, shorter duration of surgery and lesser blood loss. The surgical drain had no post operative complications whereas the laparotomy had 4 wound infection and 1 death.

The laparoscopic group had no recurrent case while 2 among the 150 surgical drainage patients recurred which was managed by ultrasound guided percutaneous drainage.

Conclusion : -

The surgical drainage if accompanied by regular ultrasonographic follow up and appropriate antibiotic coverage had better outcomes in relation to anaesthesia related complications, duration of surgery, intraoperative blood loss, post operative complication and duration of hospital stay. The surgical drainage had higher recurrence rate in compare to laparotomy although that can be managed by ultrasound guided percutaneous drainage.

So we can conclude that surgical drainage is a better option in compare to laparotomy and laparotomy should be reserved for patients with no content coming in drain while ultrasound shows intraperitoneal collection, for patients with multiple septic foci in peritoneal cavity or for patients deteriorating with time.

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