

PERCUTANEOUS LAPAROSCOPIC TROCAR DRAINAGE OF HEPATIC ABSCESS IN A SICKLE CELL DISEASE PATIENT – A CASE REPORT

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ABSTRACT

Hepatic abscess as a manifestation of sickle cell disease is rare. A 25 year old Nigerian male with sickle cell disease presented with right sided upper abdominal pain, fever, massive hepatomegaly, neutrophilic leucocytosis and mildly deranged liver enzymes. Sonographic findings were a large thin walled right hepatic lobe abscess; with an estimated volume of 2000ml. He had percutaneous laparoscopic trocar drainage of 2250mls of pus with insertion of a drain. The drain was removed after ten days and the patient was discharged home.

Keywords: Hepatic abscess, Trocar drainage, Sickle cell disease

INTRODUCTION

Hepatic abscesses could be pyogenic, amoebic or less frequently, fungal.¹ Hepatic abscesses are uncommon in the general population (0.029 to 1.47%),² and are even less common in sickle cell disease.³ The use of less invasive surgical modalities in sickle cell patients improves outcome. We report a case of laparoscopic trocar drainage of a large hepatic abscess in a sickle cell disease patient.

CASE PROFILE

A 25-year old Nigerian Yoruba male with sickle cell disease presented with six weeks history of intermittent fever and right upper quadrant abdominal pain and swelling. The pain was referred to the right shoulder. There was a tinge of jaundice. He had no pruritus. There was no preceding abdominal trauma, dysentery, respiratory tract infection or recent blood transfusion. He had taken multiple courses of oral antibiotics.

On examination, he was acutely ill-looking, pale, febrile (38.6°C) and had a tinge of jaundice. He was tachycardic, with a pulse of 112 per minute. There was reduced air entry in the right lower lung zone of the chest. The abdomen was asymmetrically distended. He had tender hepatomegaly of 16 cm below the right costal margin in the mid-clavicular line and a liver span of 24 cm. The chest X-ray showed elevation of the right hemi-diaphragm with no consolidation or effusion detected. The abdominopelvic ultrasound scan showed hepatomegaly with a liver span of 22 cm and a huge thin walled hypo-echoic collection in the right lobe of the liver, with an approximate volume of 1419 ml (Fig 1).

His haematocrit was 18%. The white blood cell count was 12,550/ul with predominant neutrophilia (70.2%). The clotting profile was deranged with an international normalised ratio (INR) of 1.56. The liver function test revealed elevated total serum bilirubin of 2.8 mg/dl, conjugated bilirubin of 2.3mg/dl, elevated liver enzymes:alkaline phosphatase of 226 iu/l; aspartate amino transferase of 112iu/l; alanine transaminase of 44iu/l; γ - glutamyltransferase of 44 iu/l; hypoalbuminaemia of 2.4g/dl with total protein of 9.4 g/dl. His



Figure 1: Ultrasonographic representation of the right lobar hepatic abscess

serum was non-reactive for Hepatitis C virus, Hepatitis B surface antigen and Human Immunodeficiency Virus. He was transfused with four units of fresh frozen plasma. The INR normalised to 1.04. Parenteral broad spectrum antibiotics were administered empirically.



Figure 2: Drainage of the hepatic abscess via a laparoscopic trocar

He had laparoscopic trocar drainage of the abscess under light general anaesthesia. The abscess was localised pre-operatively with ultrasound and confirmed by aspiration using a 21G needle. A 0.5cm incision was made at that point of aspiration and a

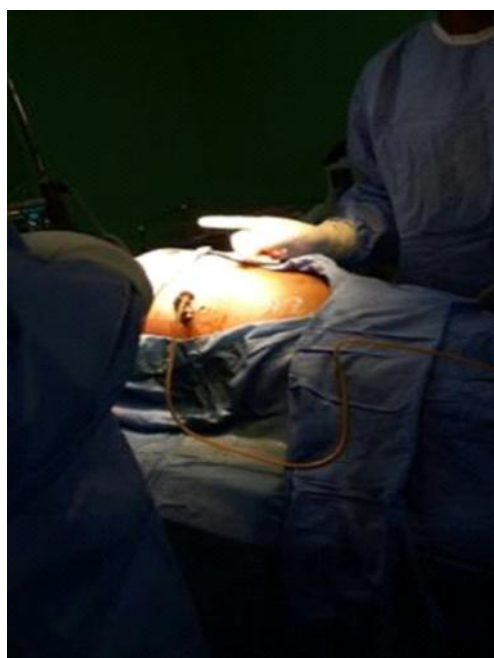


Figure 3: Insertion of a 14Fr nasogastric tube as a drain

5mm laparoscopic trocar advanced into the abscess cavity. 2250mls of pus was drained (Fig 2). A 14Fr nasogastric tube was inserted via the trocar into the abscess cavity to allow for continuous drainage after the trocar was removed (Fig 3). This was anchored in place. The procedure lasted thirty minutes.

The post-operative ultrasound scan done revealed an 8.1 x 11.8 x 9.2 cm residual collection in the abscess cavity, with a volume of 460ml. The drain was adjusted with subsequent drainage of a further 1971 ml over the next seven days. Repeat ultrasound scan revealed no residual abscess. The patient was discharged on the 12th post-operative day without further event. Six months later, his condition was satisfactory.

DISCUSSION

Pyogenic liver abscesses constitute an uncommon, but life-threatening pathology, with a mortality of 11 – 50%^{1,2,4} and 95 – 100% if untreated.⁵ It is more common in the developing world due to poor hygiene, ingestion of contaminated food and water, chronic malnutrition and co-morbidities like sickle cell disease, acquired immunodeficiency disease, and tuberculosis. The mortality increases with attendant co-morbidities, among other independent prognostic factors⁶.

Hepatic abscess is a rare gastrointestinal manifestation of sickle cell disease.² The incidence of hepatic abscesses among sickle cell disease patients is 0.02%⁷. The first report was in 1966.⁸ The pathophysiology may be attributed to secondary infection of a liver infarct, ascending cholangitis and rarely as a complication of iron overload. Desferrioxamine therapy in these patients increases risk of pyogenic abscess due to *Yersinia enterocolitica*⁹.

Treatment options include antibiotics alone, percutaneous catheter aspiration^{4, 6, 10} or surgical drainage which can be laparoscopic or open drainage. Indications for surgical drainage include multiloculated abscesses, multiple abscesses, and abscesses greater than 5cm, viscid pus, failed percutaneous drainage, ruptured abscess, peritonitis and prior diagnosis of intra-abdominal pathology.¹¹ Minimal access surgery in sickle cell disease patients reduces post-operative pain and incidence of vaso-occlusive crisis, hospital stay and improves mortality.⁵ A review of the literature yielded only one report of this technique of using a percutaneous laparoscopic trocar approach for drainage of a hepatic abscess¹¹ which was of a much smaller volume (1000mls). Veress needle - assisted laparoscopic drainage under general anaesthesia has been reported in our environment¹² however, three ports were created consequently increasing the postoperative analgesic requirements. In our patient

the large liver size extending across to the Palmer's point and inferiorly below the level of the umbilicus made routine Pneumoperitoneum creation difficult but at the same time provided the right anatomic configuration for this method of drainage because the liver surface was closely apposed to the anterior abdominal wall without any intervening bowel. Secondly, the poor clinical state negated extensive surgical procedures.

Our choice of general anaesthesia was informed by a need to limit pain and to permit rapid conversion to open drainage. The patient did not require a repeat surgical procedure.

CONCLUSION

Percutaneous laparoscopic trocar drainage is effective in drainage of liver abscesses. The additional benefits of this minimally invasive treatment in a sickle cell disease patient are reduced trauma, pain and morbidity. We recommend percutaneous laparoscopic trocar drainage for large hepatic abscesses, even more so, in those with sickle cell disease. To our knowledge, this is the only report of percutaneous laparoscopic trocar drainage of a hepatic abscess under general anaesthesia, and in a sickle cell disease patient in this region.

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