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Case Report

Video assisted surgery: a unique approach for non-resolving retroperitoneal abscess

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ABSTRACT

Abdominal gunshot injuries and its management has always been challenging for surgeons. Challenges start from diagnosis and extent of injury and its immediate management and further its long term complications and their management. Injuries extending up to retroperitoneal space complicated by abscess formation are difficult to manage because the retroperitoneal space is relatively inaccessible leading to very poor outcome, and a tailor made approach is the best method of treatment for an individual patient. Current study report a rare case of video assisted approach for non-resolving retro-peritoneal abscess caused by abdominal gunshot injury with previous laparotomy and unilateral nephrectomy (left-side) with retro-peritoneal abscess along with sepsis, acute renal failure and hemopneumothorax.

Keywords: Retroperitoneal abscess, Video assisted, Sepsis

INTRODUCTION

Abscesses developing within the retroperitoneal spaces are serious surgical infections which are associated with prolonged morbidity and high mortality unless diagnosed early and treated adequately. These lesions are usually secondary, being complications of infections, injuries, or malignancy of adjacent retroperitoneal or intraperitoneal organs.[1] These abscesses have insidious developments, with symptoms occurring towards the latter phases of the illness. Interestingly they may present with a lack of abdominal signs, and in many cases become apparent once there is an extra-abdominal manifestation. Patients may report referred pain to the lower limb, painful swellings in the groin, or there may be evidence of subcutaneous emphysema on clinical examination.[2] Physical examination usually reveals a chronically ill patient with fever, intermittent and spiking, and associated tachycardia.[3] A mass, when palpable, is tender and is present in the abdomen, flank, and, rarely, in the thigh, groin, or scrotum. Diagnosis is usually made on clinical impression followed by further evaluation by computed tomography.[4] Expeditious diagnosis with the use of abdominal CT scans for anatomic definition of the abscess, combined with adequate surgical drainage and antibiotic support improve survival chances. CT guided percutaneous drainage, at least as a temporizing measure, is suitable for those patients with a high surgical risk.[5]

Videoscopic assisted retroperitoneal debridement (VARD) can be considered a hybrid between pure endoscopic retroperitoneal necrosectomy and the open (20 cm incision) translumbar approach as described by Fagniez et al VARD is a relatively easy technique that is applicable in the majority of patients with infected necrotic pancreatitis and provides an excellent alternative to necrosectomy by laparotomy.[6] In review of literature very few studies has been found to be using the video assisted approach for retroperitoneal diseases besides necrotizing pancreatitis. Current case report presents a possible approach to management of patient with retroperitoneal abscess.

CASE REPORT

A 33 year old male resident of Afghanistan presented in emergency department with history of gunshot injury one month ago where exploratory laparotomy, colostomy and left nephrectomy was done. On clinical examination, patient had tachycardia, hypotension and fever >103˚F. He was oliguric. On abdominal examination, infected midline laparotomy wound extending to left subcostal region along with purulent discharge and sutures, seen in depth of wound.

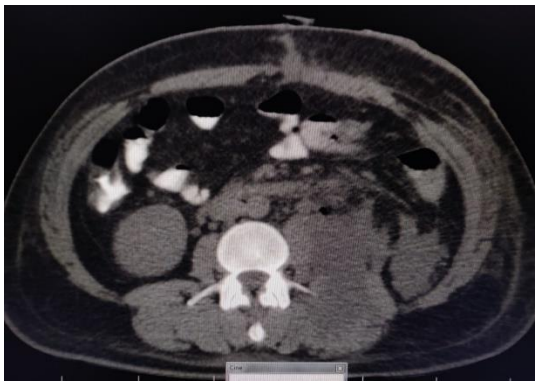

Figure 1: Empty left renal fossa with collection and inflammation.

A functioning end colostomy present in left para-umbilical region and another small wound in left lower lumbar para-spinal region with small purulent discharge. There was tenderness in whole abdomen with guarding and bowel sounds were decreased. Left side intercostal drainage tube was present with turbid fluid in the tube. There was no column movement. Hematological investigations revealed raised total leucocyte count and high procalcitonin level along with deranged renal function test.

Management

Patient was resuscitated. Other cause of fever like typhoid, malaria, tuberculosis and UTI were ruled out. Initially, patient was managed conservatively with IV fluids, IV antibiotics and total parental nutrition and gradually shifted to enteral nutrition. For retro-peritoneal abscess, USG guided drainage was done (approximately 800 ml) and 14F pigtail catheter was placed in abscess cavity (Figure 2). Patient clinically improved, frequency and intensity of fever decreased and on tenth day he was afebrile, abdominal wound was better and stitches were removed along with improved renal function. Initially, drain output was 200-300 ml/day (sero-purulent) which decreased to 40-50 ml purulent fluid/day. On twelfth day, he was discharged with retroperitoneal drain in situ. After 2 days, he again presented to us with high grade fever and no drain output. CT/USG suggested partial resolution as compared to previous scan.

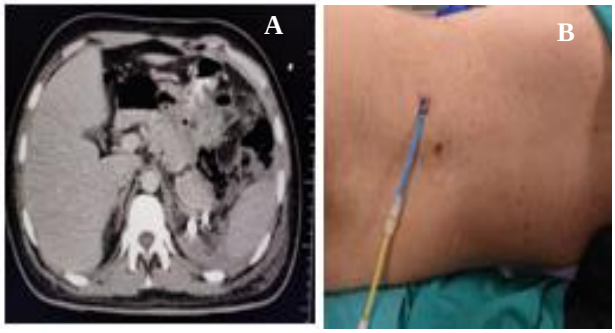

Figure 2: Pigtail catheter, A) in situ and B) exit wound.

Surgical management

Cavity was accessed through tract of pigtail catheter which was dilated and 10 mm port was introduced through which 10 mm camera was introduced. There was necrotic slough superiorly up to sub-diaphragmatic region, inferiorly up to lumbar region with empty renal fossa which was filled with pus and slough along with visible tail of pancreas and sutures of previous surgery (Figure 3). Another 10 mm port was created under vision approx. 3 cm lateral to first port .Tract size was widened up to 4-5 cm and suction-irrigation instruments were introduced. Whole cavity was irrigated and cleaned. Two tube drains were placed in cavity, one from first port site and another from second port. Wound was closed with nylon sutures (Figure 4).

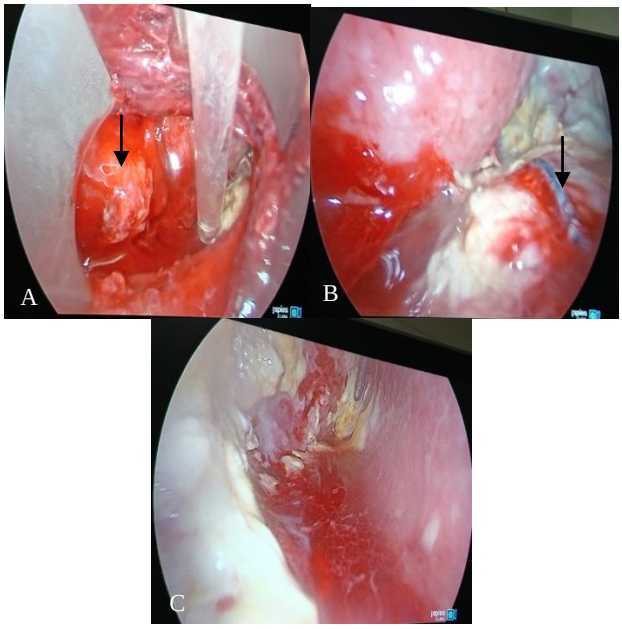

Figure 3 (A-C): Intra-operative abscess cavity containing slough and suture material.

Figure 4: Immediate post operative image showing drain tubes and suture line.

Intermittent irrigation was started after 24 hours, 6 hourly for next 3 days after which irrigation was stopped because output was clear following which drain irrigation was done intermittently according to output and to avoid the blockage of drains. Patient became afebrile on post-operative day three along with normal vitals. On seventh post-operative day, he was discharged from hospital with both drains in situ. He was followed up regularly in OPD, drains were flushed and drain cultures were sent (Figure 5).

Drain output started decreasing progressively after 2 weeks and drains were removed fourth and sixth week respectively. Re-laparotomy was done after 3 months and colostomy reversal was done. Post-operative period was uneventful. Patient was asymptomatic after one year of follow-up.

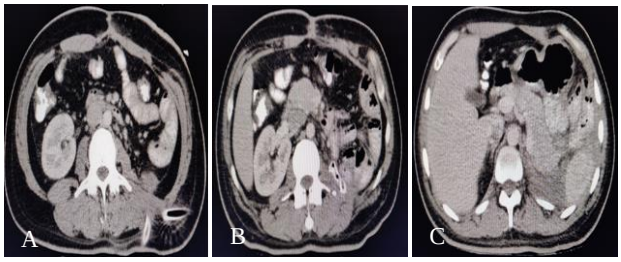

Figure 5 (A-C): Post operative twelfth day CT images showing drain tubes in abscess cavity and significantly resolved abscess and surrounding edema.

DISCUSSION

Post trauma retro-peritoneal abscess are uncommon though diagnosis is easy because of latest radiological modality. Treatment is mainly surgical with appropriate antibiotic therapy playing a secondary role. There are limited surgical options except for radiological guided drainage which may not give complete resolution or open surgery, which is associated with potential risk of surgical complication because of previous surgeries and altered anatomy.

Percutaneous drainage has been accepted as the preferred method of treatment for retroperitoneal abscesses, as it is better tolerated by patients, eliminates the need for general anesthesia, and is associated with shorter hospital stay periods.[7-10] Mortality rate after surgical drainage of retroperitoneal abscesses is reported to be 39%-50%, while it is around 1.5%-10% for percutaneous drainage.[7,9,10]

In current case study an alternative treatment modality in patients with unsuccessful attempt at percutaneous drainage and at high risk to undergo open surgery was investigated. There is paucity of information available regarding various surgical management options in literature.

The technique of video assisted surgery for treatment of the retroperitoneal diseases besides pancreatitis is not yet being utilized. Presented approach in the patient has shown a drastic recovery from his morbid condition as well as significant improvement in his clinical condition. The integration of video assisted surgery in retroperitoneal pathologies is still a field undergoing evaluation although our experience does show a viable area of further research. A strong case can be made out for extending video assisted techniques in draining inaccessible areas.

CONCLUSION

Video assisted minimally invasive technique gives an opportunity of debridement under vision which minimizes risk of vascular injury or to other surrounding vital structures. This technique can be helpful in treating selected patients to ensure less post-operative morbidity and faster recovery. The current literature shows no mention of using this technique in treatment of retroperitoneal diseases besides its emerging role in necrotizing pancreatitis where VARD (video assisted retroperitoneal debridement) was been evaluated as potential modality.

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