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Minimal Access Intervention in a rare case of Giant Primary Psoas Abscess

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Abstract: *Iliopsoas abscess is a rare condition that carries a risk of mortality when not treated appropriately. There is a paucity of high-level evidence concerning the management of this abscess and very sparse data is available in the literature regarding treatment options. We present here a 67 years old obese, malnourished woman with a giant primary psoas abscess. A retroperitoneoscopic drainage of the abscess was found beneficial reducing morbidity.*

Key Word*: Psoas abscess, Retroperitoneoscopic drainage, primary psoas abscess, extraperitoneal.*

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I. Introduction

The psoas muscle originates from the lateral borders of the 12th thoracic to the 5th lumbar vertebrae in the retroperitoneum and inserts at the lesser trochanter of the femur[1]. The fibers of the psoas muscle blend with those of the iliacus to form the iliopsoas, which functions as the chief flexor of the hip. The psoas is surrounded by a rich venous plexus, which probably explains its predisposition to infection from hematogenous spread[2]. Psoas (or iliopsoas) abscess is a collection of pus in the iliopsoas muscle compartment[3]. Psoas abscess can be classified as either primary or secondary. The etiology of primary psoas abscess remains uncertain. Current literature suggests that it results from either hematogenous spread from occult infection or local trauma with resultant intramuscular hematoma formation, which predisposes to abscess formation[3,4]. Primary psoas abscess occurs most commonly in patients with a history of diabetes, injection drug use, alcoholism, AIDS, renal failure, hematologic malignancy, immunosuppression, or malnutrition. Additional risk factors include age under 20 years, males (3:1 predominance), and low socioeconomic status[3,4,5,6]. We report a rare case of a giant primary psoas abscess in a 67 years old obese, malnourished female.

II. Case Presentation

A 67 years old woman, hypertensive, hypothyroid but non diabetic, presented with a dull aching pain in the back and right lower abdomen for one week duration associated with loss of appetite. The pain radiated to the right thigh and she was unable to stand for 3 days.

She had a BMI of 31.6. Clinical examination revealed a firm, tender mass involving the right hypochondrium, lumber and iliac region (**Fig 1**), with smooth surface and rounded margins and size 30 x 16 cm in greatest dimensions. The lump did not become prominent in head rising or leg rising test, dull on percussion and no bowel sounds over it.

Routine investigations revealed a Total WBC count of 14600, Haemoglobin 7.4, CRP 121, Albumin 2.5. CECT Whole abdomen revealed a multiseptate collection involving the necrotizing right psoas muscle with gas bubbles (air pockets) within signifying psoas abscess. Abscess has extended above upto the right dome of the diaphragm and below upto the pelvis (**Fig 2**). There were no features suggestive of tuberculosis in HRCT thorax or vertebral tuberculosis in MRI spine. A diagnosis of a giant right sided primary psoas abscess was made and she was planned for and emergency retroperitoneoscopic drainage of the abscess.

Fig 1: Delineation of the firm, tender, palpable lump of 30 x 16 cm size that the patient presented with.

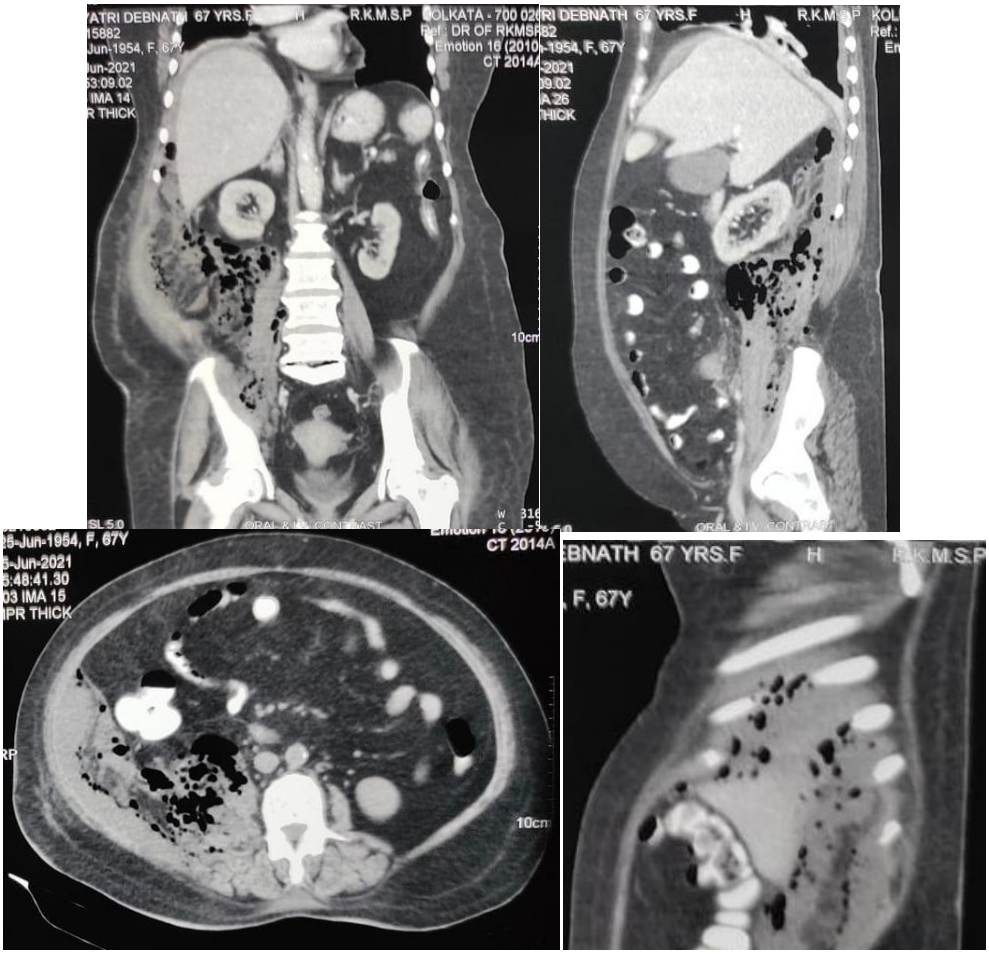

Fig 2: CECT W/A image of the giant right iliopsoas abscess extending above upto the right dome of diaphram.

III. Procedure and Operative Findings

Under General anaesthesia, patient was put to 45^0 left lateral position. Antiseptic painting and draping was done. Open 10 mm port created under vison in posterior axillary line labelled as (1) (**Fig 3**) and inserted up to the retroperitoneal space when pus started gushing out. Pus was collected and sent for culture sensitivity and

GeneXpert. Pus was sucked continuously from the retroperitoneal space. Under vision, three more 10 mm ports created labelled as (2), (3) and (4) (**Fig 3**). Port (2) and (3) was done in the posterior axillary line above the 1st port. Port (4) was made in the anterior axillary line. Another 5mm port was created below the 4th port in the anterior axillary line, labelled as (5) (**Fig 3**). Pus was thick, inspissated and had a bad smell, adhered to the walls of the cavity. A large collection of pus noted filling up the retroperitoneal space, and extending to the extraperitoneal space anteriorly upto the linea semilunaris. Above, the pus extended upto the subdiaphragmatic and perihepatic spaces. Below, it extended upto the pevis. All loculi were broken and pus drained. Three main pockets of pus collection noted – anterior pocket, lateral perihepatic pocket extending posteriorly, and a pelvic pocket (**Fig 4,5,6,7**). Tissue bits collected from the abscess wall was sent for histopathological examination. Thorough irrigation of all the pockets were done keeping the peritonial compartment absolutely virgin (**Fig 8**). Three 32 Fr ADK drains placed in the pockets – anterior pocket (X), lateral perihepatic pocket (Y) and pelvic pocket (Z) (**Fig 9,10**). Port skin apposed with No. 1 silk and drain fixed with the same.

The patient developed a parietal collection on 5th post-operative day that was drained by extending the 5mm port incision.

Pus culture yielded Klebsiella pneumoniae colonies. IV Meropenem and Metronidazole was started post operatively and continued till 14 days then converted to oral ciprofloxacin. MTB came negative from GeneXpert.

Drains were removed when the output became minimal (**Table 1**). Skin of the drain sites were kept separated so as to drain any further collection. Gradually, port sites got filled up with granulation tissue with regular dressing. She followed up 2 weeks, 4 weeks and 8 weeks after discharge. Port sites were healed and she recovered (**Fig 11**).

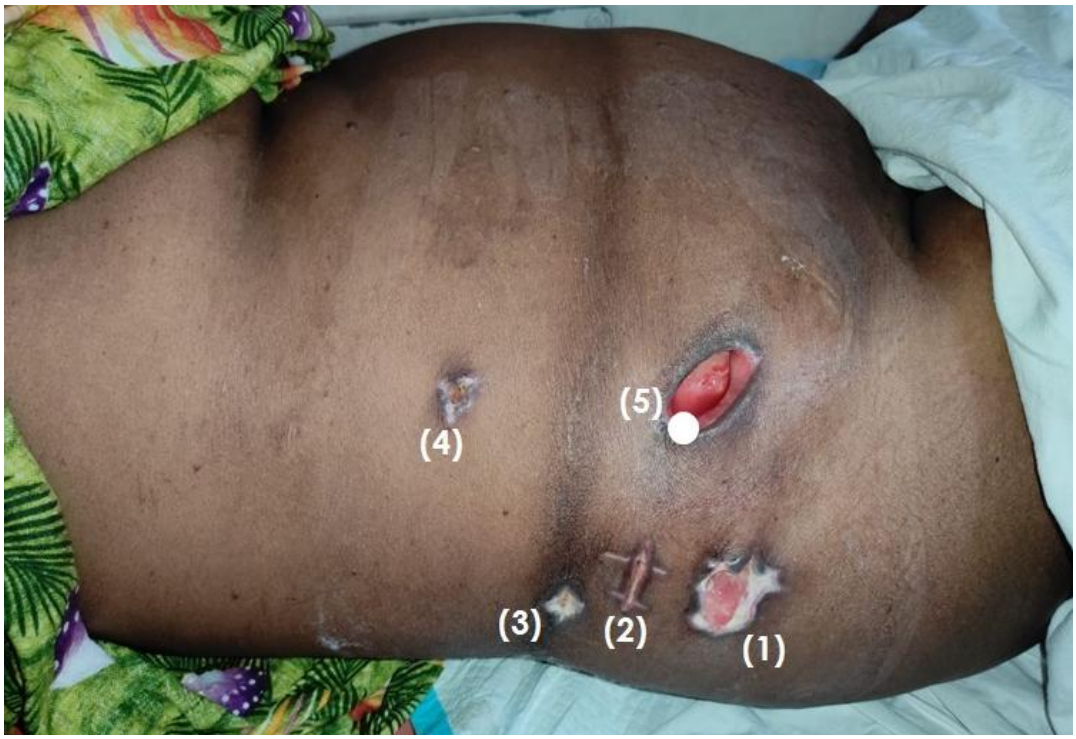

Fig 3: Position of the ports as labelled from (1) to (5).

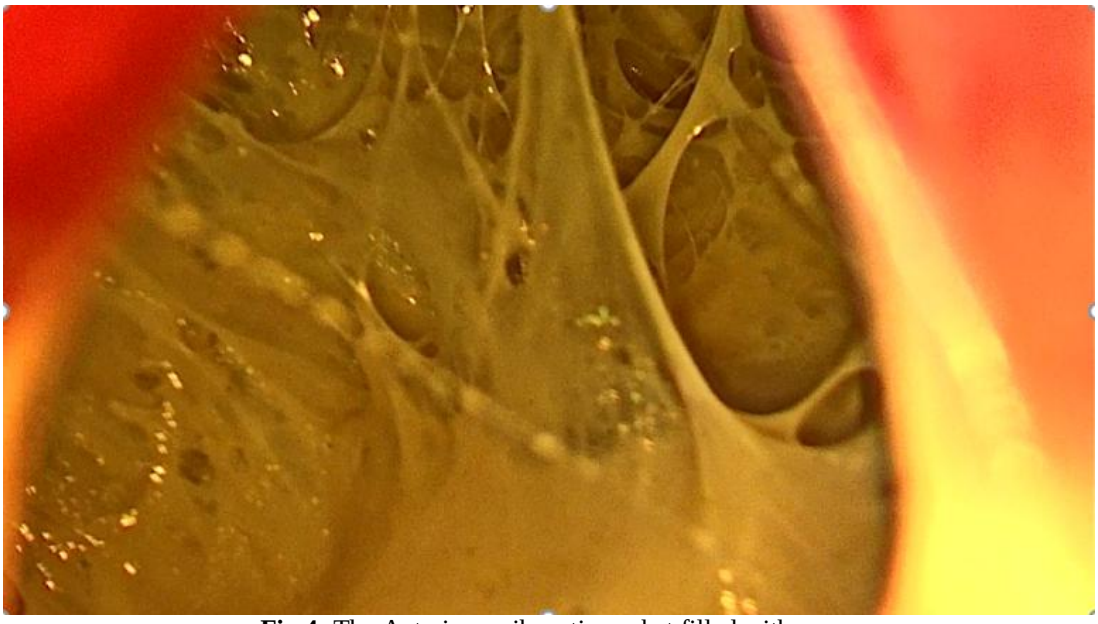

Fig 4: The Anterior perihepatic pocket filled with pus

Fig 5: The Lateral perihepatic pocket filled with pus.

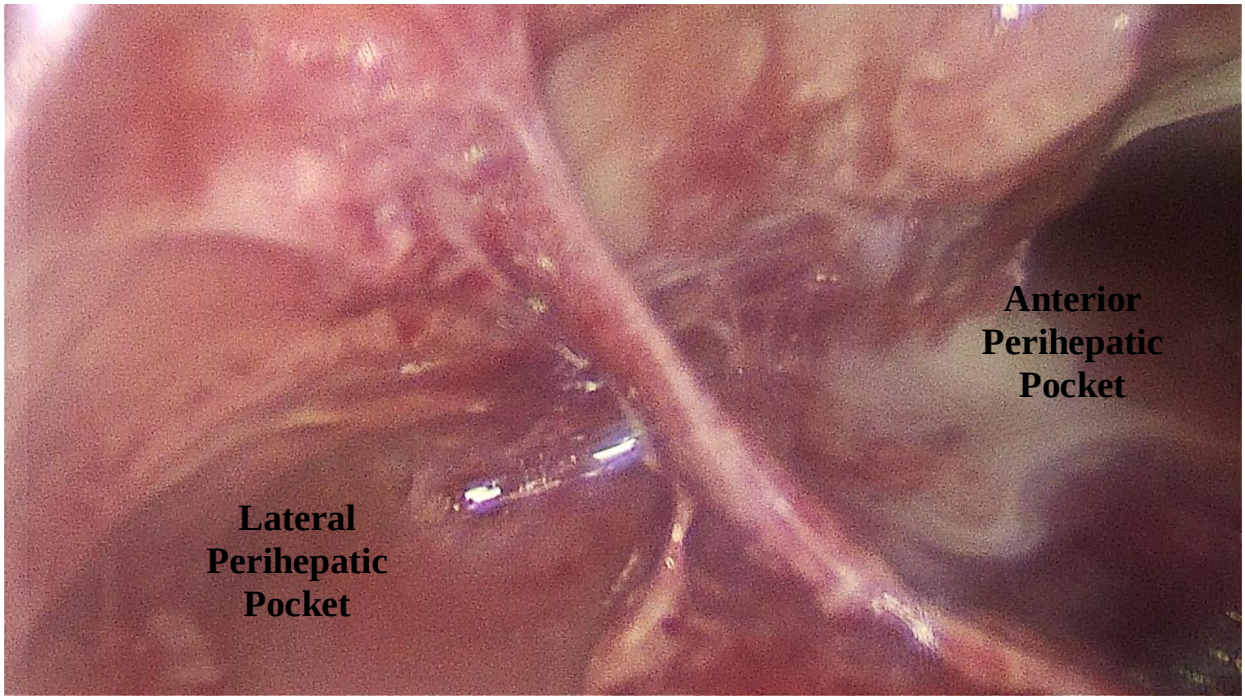

Fig 6: The Anterior and Lateral perihepatic pocket visualised together.

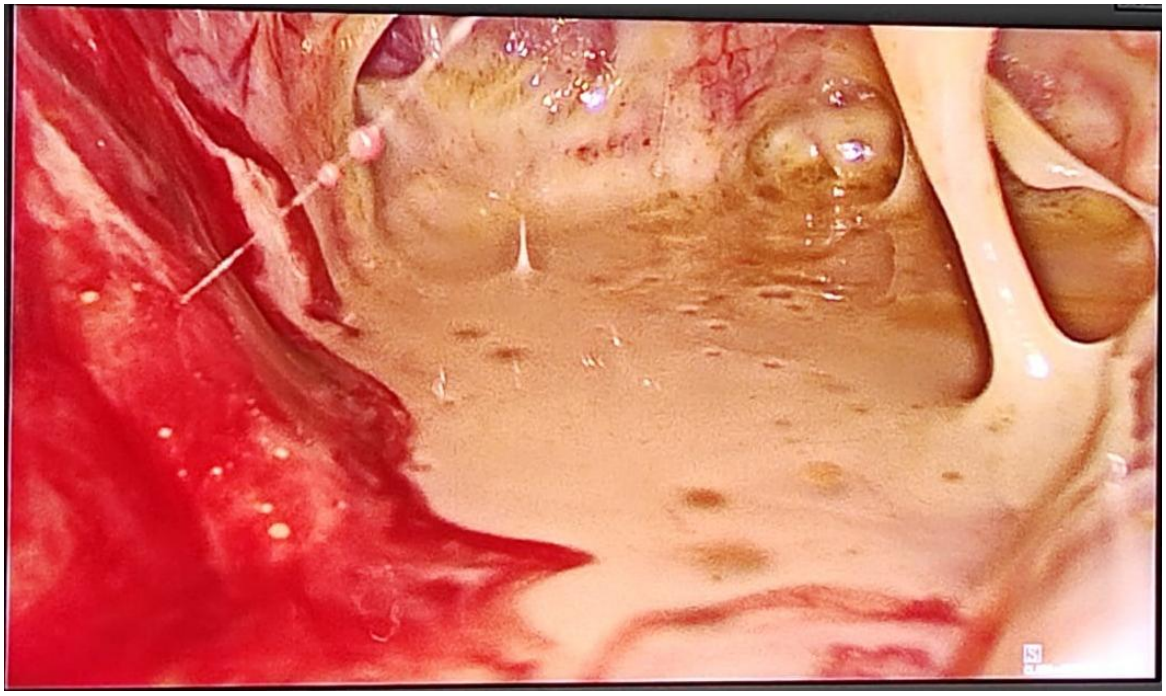

Fig 7: The Pelvic pocket filled with pus.

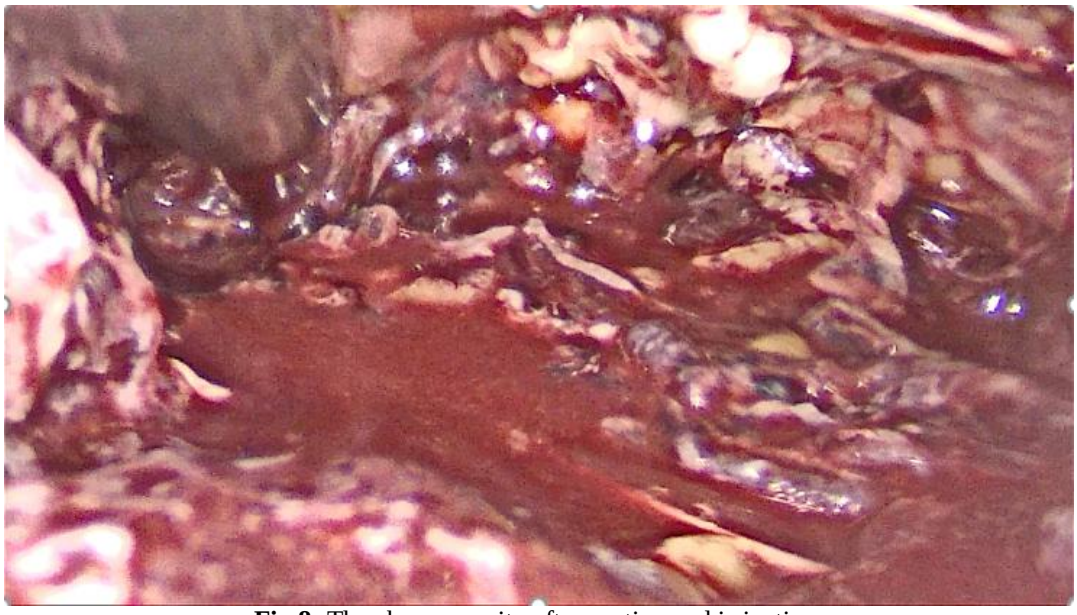

Fig 8: The abscess cavity after suction and irrigation.

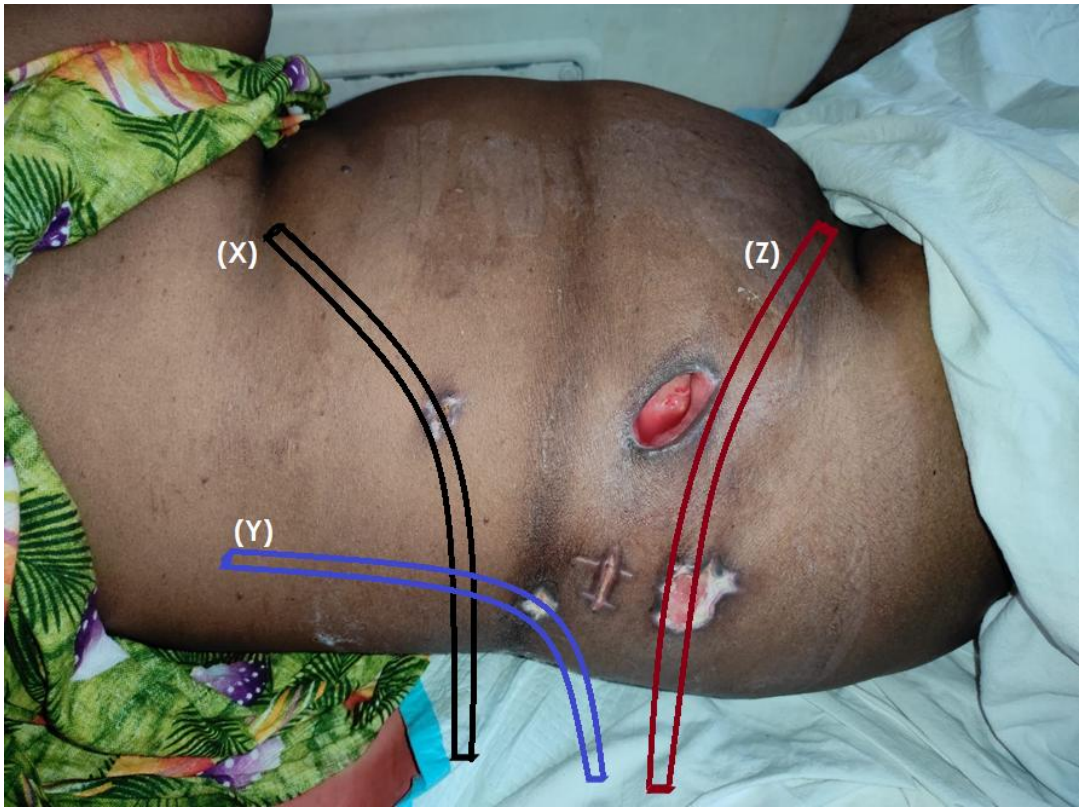

Fig 9: Placement of drains: (X) in Anterior perihepatic pocket, (Y) in Lateral perihepatic pocket, (Z) in Pelvic pocket.

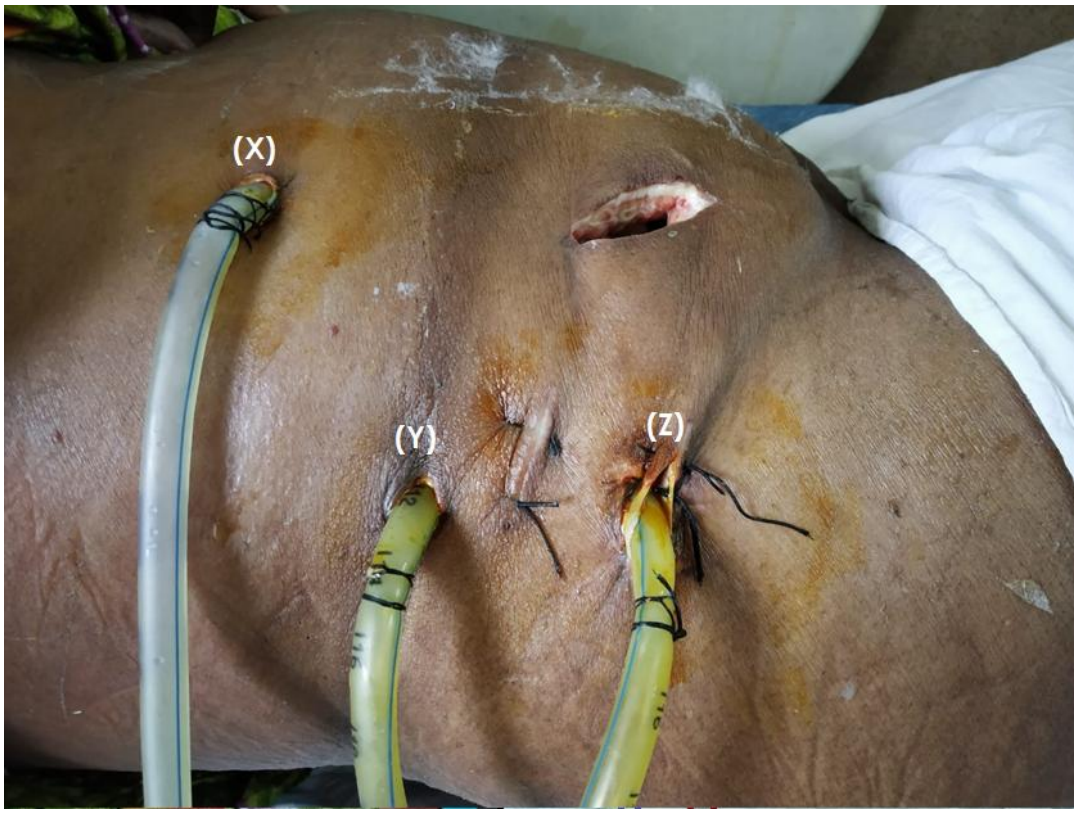

Fig 10: Position of the drains: (X) in Anterior perihepatic pocket, (Y) in Lateral perihepatic pocket, (Z) in Pelvic pocket.

	POD-1	**POD-2**	**POD-3**	**POD-4**	**POD-5**	**POD-6**	**POD-7**	**POD-8**	**POD-9**	**POD-10**	**POD-11**	**POD-12**	**POD-13**	**POD-14**	**POD-15**	**POD-16**	**POD-17**	**POD-18**
Drain output in ml	**28.6.21**	**29.06.21**	**30.06.21**	**1.7.21**	**2.7.21**	**3.7.21**	**4.7.21**	**5.7.21**	**6.7.21**	**7.7.21**	**8.7.21**	**9.7.21**	**10.7.21**	**11.7.21**	**12.7.21**	**13.7.21**	**14.7.21**	**15.7.21**
Anterior Pocket drain	22 (P)	50 (P)	67 (P)	51 (P)	38 (P)	38 (P)	37 (P)	22 (S)	28 (S)	31 (S)	28 (S)	15 (S)	17 (S)	13 (S) Removed				
Lateral Perihepatic drain	24 (B+P)	26 (B+P)	12 (B+P)	30 (B+P)	9 (B+P)	12 (B+P)	23 (B+P)	13 (B+P)	15 (B+P)	16 (S)	18 (S)	10 (S)	9 (S)	7 (S)	7 (S) Removed			
Pelvic drain	87 (B+P)	41 (B+P)	67 (B+P)	39 (B+P)	65 (B+P)	50 (B+P)	85 (B+P)	50 (B+P)	50 (B+P)	76 (B+P)	46 (P)	26 (P)	29 (S+F)	23 (S+F)	31 (S+F)	25 (S)	22 (S)	23 (S) Removed

Table 1: Post-operative drain output [S = Serous, B = Blood, P = Pus, F = Flakes].

Fig 11: Healed port sites at 8 weeks follow up.

IV. Discussion

Iliopsoas abscesses are an uncommon occurrence, and there is a wide spectrum of etiology, time of diagnosis, and therapeutic approach. The clinical signs and symptoms are often atypical. The classic triad of fever, back pain, and psoas spasm or limping is present in only 30% of patients[7]. Other common symptoms include malaise, weight loss, nausea, anorexia, and pain that radiates to the flank, groin, or anterior thigh[3,4,6]. Back pain is the most frequently encountered symptom, with a mean duration of 10.6 days before presentation[7].In our case also, the 67-year-old woman presented with history of back pain and pain in right flank radiating to the right thigh for one week duration.

Iliopsoas abscess is commonly diagnosed on CT, magnetic resonance imaging or ultrasonography. CT remains the gold standard, with a reported sensitivity of 100%, specificity of 77%, and accuracy of 88%. Scan findings include asymmetrical enlargement of the muscle belly with a focal area of low CT attenuation or gas[8]. In our case also, CT scan was diagnostic showing gas bubbles within the necrotizing right psoas muscle signifying pus.

Despite the development of new surgical techniques, the optimal management of iliopsoas abscess is not well established[9]. The traditional treatment consisted of broad-spectrum antibiotics combined with percutaneous or open drainage of the contents. Percutaneous drainage, first described in 1984[8], has a success rate of 70% to 90%[10]. The limitation of percutaneous drainage is incomplete drainage of the abscess cavity, especially in a multiloculated abscess. Therefore, percutaneous drainage guidance has been suggested as the first-line treatment, with open surgery being reserved for complex, multiloculated abscesses or after failure of the percutaneous technique[11].

The standard surgical technique involves an open approach incorporating a right iliac fossa incision and a muscle-splitting dissection, continued posteriorly in the extraperitoneal plane until the psoas muscle is exposed. There are other approaches, including groin, thigh, and lumbar incisions, but these approaches have been associated with unacceptable failure rates[11].

Retroperitonioscopic drainage has advantages over open surgery, including potentially better visualization of the area, more complete drainage of a complex multiloculated abscess with inspissated pus, reduced postoperative pain due to minimally invasive technique, reduced morbidity, and shorter hospital stay[11,12,13]. Retroperitonioscopy and drainage of the giant primary psoas abscess in the obese, malnourished 67-year-old woman in our case was beneficial.

V. Conclusion

Retroperitonioscopic exploration and drainage of psoas abscess with placement of drains in this 67yrs old obese woman had reduced her morbidity to a great extent, thus superior to giving a liberal right lateral incision for the drainage. Thus, retroperitonioscopy can thus be done as an effective and alternative procedure in drainage of iliopsoas abscess though the technique has not been fully clinically proved. We presented this case and the minimally access procedure because we found very few such interventions in medical literature.

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