

# Outcome of Ultrasound Guided Percutaneous Needle Aspiration in Treatment of Psoas Abscess

IMAMUDDIN BALOCH<sup>1</sup>, BUSHRA SHAIKH<sup>2</sup>, MUHAMMAD ASIF<sup>3</sup>, SHAKEEL AHMED ABBASI<sup>4</sup>, ABDUL SAMI MIRAN<sup>5</sup>, PARKASH LAL LUND<sup>6</sup>, AZHAR ALI SHAH<sup>7</sup>, MUHAMMAD RAFIQ MEMON<sup>8</sup>

<sup>1,4,7</sup>Associate Professor Department of Surgery, Ghulam Muhammad Mahar Medical College Teaching Hospital Sukkur

<sup>2,5,6</sup>Assistant Professor Department of Surgery, Ghulam Muhammad Mahar Medical College Teaching Hospital Sukkur

<sup>3</sup>Assistant Professor of Urology, Azra Naheed Medical College, Lahore

<sup>8</sup>Professor of Surgery, Ghulam Muhammad Mahar Medical College Teaching Hospital Sukkur

Correspondence to Dr. Imamuddin Baloch, Email: surgeon.imam@gmail.com

## ABSTRACT

**Aim:** To assess the outcome of ultrasound guided needle aspiration in treatment of Psoas abscess.

**Methodology:** This study was conducted in the department of Surgery Unit-II Ghulam Muhammad Mahar Medical College Teaching Hospital Sukkur from January 2015 to January 2019. Patients diagnosed of having Psoas abscess more than 5cm were included in the study. Aspiration was performed with 16/18 gauge spinal needle under local anesthesia under ultrasound guidance. Patients were called back after one week and reassessed for recurrent abscess. Repeat needle aspiration performed under ultrasound guidance where ever required.

**Results:** Mean age of subjects was 39.25±9.8. Males were 69.3% and females 30.7%. The size of the abscess range between 5cm to 23cm with average size of 14.9cm. Predominantly right side was affected 31(77.5%). Needle aspiration was successful in 28(70%) patients on 1<sup>st</sup> attempt, while 12(30%) patients required 2<sup>nd</sup> attempt after one week. On follow up after two weeks incomplete resolution/ recurrence was found in 3(7.5%) patients who were subjected to incision and drainage. Mycobacterium T.B was found most frequent pathogen (65%) and staphylococcus aureus (22.5%), E-coli (7.5%) and pseudomonas (5%).

**Conclusion:** It is concluded that percutaneous needle aspiration is a better option to treat psoas abscess. It is less painful, cost effective & does not need hospitalization. No wound care is required in comparison to open incision drainage.

**Keywords:** Psoas Abscess, percutaneous needle aspiration, Ultrasound guided.

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## INTRODUCTION

Psoas abscess is a rare but dangerous condition. It can be classified as primary (developing through a hematogenous or lymphatic route) and secondary (spreading from adjacent structures)<sup>1</sup>. Primary psoas abscess is not common and most cases are secondary<sup>2,3</sup>. Secondary psoas abscess mostly develops from lumbar spine, GIT and urinary tract infections<sup>4</sup>. Crohn's disease is deemed to be the most common etiology of secondary psoas abscess in western countries<sup>3,4</sup> whereas the most common cause of secondary Psoas abscess in Asian countries is bone infection<sup>2,3</sup>. Staphylococcus aureus is the most common organism but Escheria coli is also seen where the infection has spread from GIT. The other organism involved is tuberculous bacillus in developing countries, especially due to tuberculosis of spine<sup>5,6</sup>. The clinical picture of Psoas abscess is often variable. The classical triad (fever, back pain, and lump) is present in only 30 to 40% of the patients. Other patients may present with vague abdominal pain, malaise, nausea, and loss of weight. The clinical picture of psoas abscess is not specific, resulting in diagnostic dilemma and treatment delays<sup>4</sup>. Delay in drainage of psoas abscess or retroperitoneal abscess could cause avascular necrosis of femoral head, osteomyelitis, cellulitis of the thigh, and septic arthritis of the hip<sup>7,8</sup>. Treatment of Psoas abscess depends on early diagnosis. The open or percutaneous drainage with appropriate antibiotic cover is the treatment of choice. Studies conducted at different areas suggest different treatment options like ultrasound guided needle aspiration, antibiotics and open incision and drainage. Our aim was to

assess the outcome of ultrasound guided needle aspiration in treatment of Psoas abscess.

## MATERIALS AND METHODS

A Prospective Observational study was conducted at the department of Surgery Unit-II Ghulam Muhammad Mahar Medical College Teaching Hospital Sukkur. The duration was four years i.e, from 15<sup>th</sup> January 2015 to 15<sup>th</sup> January 2019. A total of 40 patients were included in the study

### Inclusion criteria:

- Patients of both gender with diagnosis of Psoas abscess.
- Age between 16 to 70 years.
- Size of the Psoas abscess more than 5cm on ultrasound.

### Exclusion criteria:

- Patients below 16 years and above 70 years of age.
- Size of the Psoas abscess less than 5cm on ultrasound.
- Patients with already burst abscess with sinus formation.

This study was performed after the approval of ethical committee of SMBBMU. Subjects were selected through OPD and emergency of GMMMC Hospital Sukkur. All the patients fulfilling the inclusion criteria were selected for the study. Brief history of illness, examination and investigations including ultrasound and x-rays were carried out. Informed & written consent was obtained for the procedure (needle aspiration under ultrasound guidance).

After all aseptic measures, aspiration was performed with 16/18 gauge spinal needle under local anesthesia under ultrasound guidance. Pus was sent for the culture and sensitivity and AFB. Patients were called back after

one week and reassessed by history clinical examination and investigations for recurrent abscess. Repeat needle aspiration performed under ultrasound guidance where ever required. All the data regarding age, sex, clinical presentation, investigations and outcome (Recovery or Post aspiration complications if any) was recorded on a predesigned proforma. Data was analyzed through SPSS

**RESULTS**

During four year period of study; 40 patients were selected and evaluated. The mean age of subjects was 39.25 ± 9.8 (Age range from 16 to 70 years)[Table No.1] Males were 69.3% and females 30.7%with M:F=2.2:1[Figure No.01]. The most common presentation of all the patients (57.5%) was pain and 45% of the patients were febrile. Signs like palpable mass at flank 30%, groin 17.5% and flexed hip and knee was found in 22.5%[table.No:02]. WBC and ESR levels were raised in 92.5%, 87.5% respectively of the patients. The size of the abscess ranged between 5cm to 23cm on the CT and ultrasound, the average size was 14.9cm (Table 3) Predominantly right side was affected 77.5% (n=31)[Fig. 2]. All 40(100%) patients were subjected to percutaneous needle (spinal needle 16/18 size) aspiration under ultrasound guidance. Needle aspiration was successful in 28(70%) patients on 1<sup>st</sup> attempt, while 12 (30%) patients required 2<sup>nd</sup> attempt after one week. On follow up after two weeks incomplete resolution/ recurrence was found in 3(7.5%) patients who were subjected to incision and drainage [Figure.No:03]. Pathogens which were isolated from the pus were Myco bacterium T.B (65%) and staphylococcus aureus (22.5%), E-coli (7.5%) and pseudomonas (5%) (Fig. 4).

Table 1: Age distribution (n=40)

Age Distribution	Years
Mean	39.25
Std. Deviation	9.855
Minimum	16
Maximum	70

Table: 2 Clinical presentation

Sign & Symptoms	n	%
Pain	23	57.5
Fever	18	45
Palpable mass at flank	12	30
Groin	7	17.5
Flexed hip and knee	9	22.5

Fig. 1 Gender Distribution

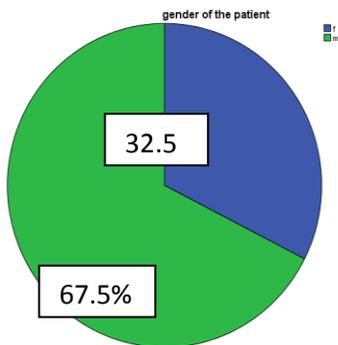


Fig. 2: Site of Psoas Abscess

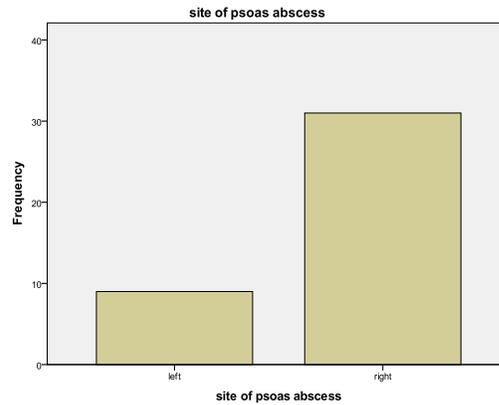


Fig. 3: Outcome of treatment

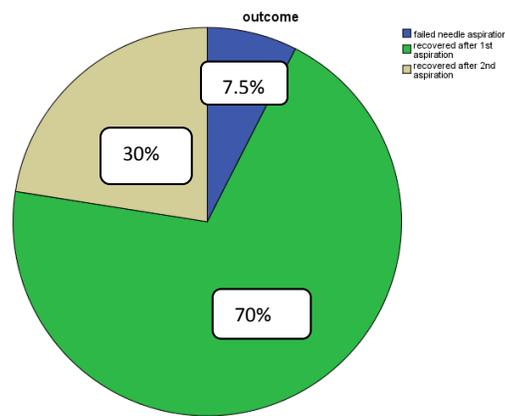
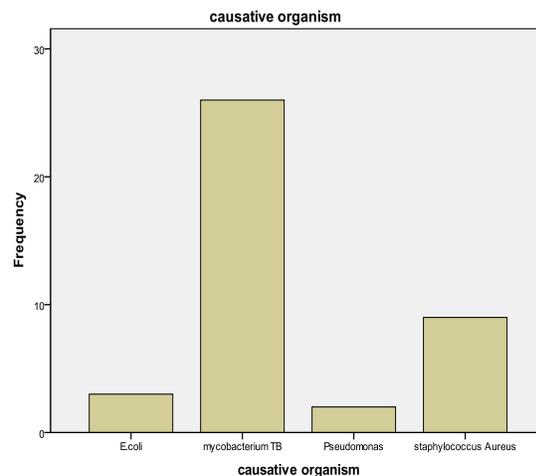


Fig. 4 Causative organism



**DISCUSSION**

Psoas abscess is a rare condition with vague nonspecific clinical features resulting in conspicuous delays in diagnosis and treatment<sup>4</sup>. Complications like septic arthritis of hip, osteomyelitis, avascular necrosis of femoral head and cellulitis of thigh or sinus formation may occur due to delay in drainage<sup>7,8</sup>. Mostly psoas abscess is secondary; rarely primary psoas abscess is encountered<sup>2,3</sup>. In this study, the age ranged from 16 to 70 years (mean age 39.25±9.8). Study by Dave BR et al, yeF-et al & F Pombo

et al show the mean age  $36.5 \pm 12.7$ ,  $38.5 \pm 8.7$  years & 35 years respectively<sup>7,9,3</sup>. Regarding gender distribution in our study 27(67.5%) were male & 32.5%<sup>13</sup> were female. Studies conducted by Wong et al, Tarhan, H & Alvi AR report 64.2% males & 35.7 females, 60% males & 4% females & 66.6% male 33.3% females respectively<sup>1,11,10</sup>. Our study shows that 23(57.5%) of the patients presented with pain followed by fever 18(45%). Tabrizian P reports most common initial symptom as pain; fever was seen only in 26% of patients<sup>12</sup>. Aboobakar R, et al reports pain in 50% & flank tenderness in 70% of patients<sup>2</sup>. In current study WBC & ESR levels were raised significantly in 92.5% and 87.5% cases respectively. Tarhan H reports 100% rise in WBC count & ESR levels in his study<sup>11</sup>. In our study all the 40 patients were opted for ultrasound guided percutaneous needle aspiration of the abscess. It was successful in complete resolution of abscess in 28(70%) on 1<sup>st</sup> attempt. While 12(30%) patients required 2<sup>nd</sup> attempt for aspiration & out of these 12, we were successful in complete aspiration of abscess in 9(22.5%) & 3(7.5%) patients required incision & Drainage. Study conducted by Aboobakar R, et al reports ultrasound guided percutaneous drainage success rate as 87.5% in 1<sup>st</sup> attempt & 12.5% patient's required 2<sup>nd</sup> percutaneous drainage<sup>2</sup>. Tabrizian P reports successful percutaneous drainage in 79% of patients<sup>12</sup>.

Regarding frequency of pathogens isolated in our study, Myco bacterium T.B was found most frequent pathogen (65%) and staphylococcus aureus (22.5%), E-coli (7.5%) and pseudomonas (5%). Dave BR et al reports in his study that most common organisms isolated causing secondary psoas abscess are Myco bacterium T.B, followed by streptococcus, E-coli & klebsiella<sup>7</sup>.

## CONCLUSION

It is concluded that percutaneous needle aspiration is a better option to treat psoas abscess. It is less painful, cost

effective & does not need hospitalization .No wound care is required in comparison to open incision drainage.

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