RESEARCH PAPER

Psoas Abscess in a Tuberculosis-Endemic Setting: Clinical Presentation, Etiology, Microbiology, and Outcomes at a Tertiary Care Centre, Mumbai

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ABSTRACT

Objective: To evaluate the clinical presentation, etiology, microbiology, imaging characteristics, management strategies, and outcomes of psoas abscess at a tertiary care centre in Mumbai, a tuberculosis-endemic region.

Background: Psoas abscess is an uncommon but clinically significant condition characterized by suppuration within the iliopsoas compartment. In tuberculosis-endemic regions, its etiological profile, clinical features, and optimal management differ substantially from those reported in Western literature. Large institutional series addressing this distinction remain limited.

Methods: This retrospective observational study enrolled 71 consecutive patients diagnosed with psoas abscess between January 2022 and December 2025. Diagnosis was confirmed by contrast-enhanced computed tomography (CECT) and/or magnetic resonance imaging (MRI). Demographic data, presenting symptoms, etiological classification, microbiological findings, treatment modalities, and outcomes were systematically analyzed. Tubercular diagnosis was confirmed by acid-fast bacilli (AFB) smear, cartridge-based nucleic acid amplification test (CBNAAT), and mycobacterial growth indicator tube (MGIT) culture.

Results: Among 71 patients (69% male; mean age 47.6 years), secondary psoas abscess predominated (91.5%), with tuberculosis identified as the causative pathogen in 69% of cases. Spinal involvement was identified in 87.8% of tubercular cases. Fever was the most frequent symptom (83.1%), followed by abdominal/flank pain (60.6%) and low back pain (45.1%). Mean ESR was 98.7 mm/hour and CRP was 28.9 mg/dL. USG-guided percutaneous drainage was performed in 78.9%; conservative management in 15.5%; open surgical drainage in 5.6%. Recurrence occurred in 11.3%. Mean hospital stay was 12.4 days.

Conclusions: Psoas abscess in tuberculosis-endemic settings is predominantly secondary and tubercular in origin. Clinical presentation is heterogeneous and nonspecific, mandating a high index of suspicion. Minimally invasive drainage combined with targeted antimicrobial therapy yields favorable outcomes, with surgery reserved for complex or refractory cases.

Keywords: psoas abscess; iliopsoas abscess; tuberculosis; Pott's disease; percutaneous drainage; minimally invasive surgery; India

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INTRODUCTION

Psoas abscess is a relatively uncommon but clinically important infectious condition defined by a suppurative collection arising within the psoas muscle compartment. First described in the 19th century in the context of spinal tuberculosis (Pott's disease), it has since evolved into a broader clinical entity with multiple etiologies and varied presentations. With advances in cross-sectional imaging and increased clinical awareness, diagnosis has become more feasible; however, the condition's nonspecific clinical spectrum continues to challenge even experienced clinicians, particularly in resource-limited and high-burden tuberculosis settings.[1]

Anatomically, the psoas muscle originates from the transverse processes of the T12–L5 vertebrae and inserts on the lesser trochanter of the femur. Its rich vascular supply and extensive lymphatic connections render it vulnerable to hematogenous seeding from remote infective foci—the mechanism underlying primary psoas abscess. Secondary psoas abscess arises from direct contiguous spread of infection from adjacent structures, including the vertebral column,

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genitourinary tract, gastrointestinal organs, and retroperitoneal space.[2]

Clinically, psoas abscess exhibits a wide and deceptive symptom complex that frequently overlaps with intra-abdominal and musculoskeletal disorders. Fever, flank or low back pain, and hip pain are among the most commonly reported complaints; however, the classical triad of fever, back pain, and limp is observed in fewer than one-third of patients, contributing to diagnostic delay and misclassification.[3]

Epidemiological data on psoas abscess remain sparse, largely owing to its rarity and the predominance of small single-center case series in the literature. In regions with high tuberculosis prevalence—including South Asia and sub-Saharan Africa—Mycobacterium tuberculosis continues to be the leading etiological agent, reflecting the endemic burden of spinal and extrapulmonary disease.[4]

Despite improvements in diagnostic modalities and therapeutic techniques, psoas abscess remains a condition with significant morbidity and mortality if not recognized and treated promptly. The relative paucity of large prospective studies underscores the need for continued research to better characterize clinical features and optimize management protocols.[5]

Studies from developed countries report variable incidence and etiological patterns, often with Staphylococcus aureus as the most common pathogen in primary abscess, whereas secondary abscesses may be associated with vertebral osteomyelitis, Crohn's disease, diverticulitis, or genitourinary infections.[6]

Diagnostic imaging plays a central role. Computed tomography (CT) remains the gold standard owing to its superior anatomical resolution and ability to delineate abscess morphology, guide percutaneous intervention, and identify underlying etiology. Magnetic resonance imaging (MRI) provides superior soft-tissue contrast and is particularly valuable in characterizing concurrent vertebral or epidural involvement.[7]

The insidious onset and nonspecific nature of symptoms necessitate a high index of clinical suspicion, particularly in tuberculosis-endemic regions or in individuals with predisposing conditions such as diabetes mellitus, immunosuppression, or intravenous drug use.[8]

Management strategies for psoas abscess typically involve a combination of targeted antimicrobial therapy and drainage of the abscess collection. Percutaneous image-guided drainage has increasingly become the preferred initial approach due to its minimally invasive nature and favorable outcomes; however, open surgical drainage may be necessary in complex cases, multiloculated collections, or when associated pathology demands operative intervention.[1,9]

Despite its clinical importance, large institutional series characterizing psoas abscess in tuberculosis-endemic tertiary care settings remain limited. The present study reports the clinical presentation, etiological profile, microbiological findings, imaging characteristics, management strategies, and outcomes of 71 consecutive patients treated at a tertiary care centre in Mumbai—one of the largest such series from this epidemiological context.

MATERIALS AND METHODS

Study Design and Setting

This retrospective observational study was conducted at a tertiary care centre in Mumbai, India. Institutional review board approval was obtained prior to data extraction. The study adhered to the ethical principles of the Declaration of Helsinki. As a retrospective records-based analysis with anonymized data, individual informed consent was waived per institutional policy.

Patient Selection

All consecutive patients diagnosed with psoas abscess between January 2022 and December 2025 were eligible for inclusion. Diagnosis was established based on clinical features and confirmed by CECT of the abdomen and pelvis or MRI. Patients with incomplete records or lost to early follow-up prior to initiation of definitive management were excluded. A total of 71 patients met eligibility criteria and were included in the final analysis.

Data Collection

Demographic characteristics, presenting symptoms, comorbidities, laboratory parameters, etiological factors, microbiological findings, imaging characteristics, treatment modalities, and outcomes were retrieved from prospectively maintained hospital records. Each patient's abscess was classified as primary (no identifiable contiguous source) or secondary (arising from an adjacent anatomical structure), based on clinical assessment integrated with imaging and microbiological findings.

Microbiological Workup

Abscess aspirate was sent for Gram staining, aerobic and anaerobic cultures, and sensitivity testing in all patients undergoing drainage. For suspected tuberculosis, AFB smear microscopy, CBNAAT (Xpert MTB/RIF), and MGIT liquid culture were performed. Tubercular psoas abscess was confirmed by one or more positive microbiological or molecular tests in the appropriate clinical and radiological context. Rifampicin sensitivity was assessed by CBNAAT in all CBNAAT-positive samples.

Imaging

Ultrasonography (USG) of the abdomen and pelvis was performed as the initial imaging modality in all patients. CECT was subsequently obtained in the majority of patients to confirm diagnosis and delineate disease extent. MRI of the dorsolumbar spine was performed selectively in patients with suspected spinal involvement.

Treatment
Treatment was individualized based on etiology, abscess size, clinical status, and associated pathology. Patients with tubercular psoas abscess were initiated on standard four-drug anti-tubercular therapy (ATT) per National Tuberculosis Elimination Programme (NTEP) guidelines. Patients with pyogenic infections received empirical broad-spectrum intravenous antibiotics modified according to culture and sensitivity results. USG-guided pigtail catheter insertion was the preferred drainage approach; catheters were removed when drainage output fell below 10 mL/day for three consecutive days with associated clinical and radiological improvement.

Outcome Measures
Primary outcomes were clinical resolution, in-hospital mortality, and recurrence. Recurrence was defined as reaccumulation of abscess on follow-up imaging in a patient who had previously demonstrated clinical and radiological improvement. Secondary outcomes included duration of hospital stay and complications necessitating escalation of intervention.

Statistical Analysis
Descriptive statistics were used for all analyses. Continuous variables are expressed as mean ± standard deviation (SD). Categorical variables are expressed as frequencies and percentages. Statistical analysis was performed using SPSS version 26.0 (IBM Corp., Armonk, NY).

RESULTS
A total of 71 patients diagnosed with psoas abscess were included. The demographic, clinical, etiological, radiological, and management-related characteristics of the cohort were analyzed comprehensively.

Demographic Profile
Of the 71 patients, 49 (69%) were male and 22 (31%) were female, demonstrating a clear male predominance. Patient age ranged from 18 to 76 years, with a mean of 47.6 years; the majority presented in the fourth to sixth decades of life. No significant difference in age distribution was observed between sexes.
Diabetes mellitus was the most common comorbidity, present in 37 patients (52.1%), underscoring its role in immune dysfunction and susceptibility to deep-seated infections. Hypertension was documented in 14.1%, chronic kidney disease in 9.9%, and HIV-positive status in 11.3%. Chronic alcoholism was recorded in 26.8% and chronic smoking or tobacco chewing in 23.9%. Intravenous drug abuse was identified in 5.6% of patients.
Bilateral psoas abscess was identified in 31% of patients; the remaining 69% had unilateral involvement. Bilateral disease was more frequently observed in patients with tubercular etiology and those with immunocompromised states, consistent with the hematogenous and lymphatic dissemination patterns characteristic of tuberculosis.

Table 1. Demographic Profile and Comorbidities (N = 71)

Variable	n	%
Gender		
Male	49	69.0
Female	22	31.0
Laterality		
Bilateral psoas abscess	22	31.0
Unilateral psoas abscess	49	69.0
Comorbidities		
Diabetes mellitus	37	52.1
Hypertension	10	14.1
HIV-positive status	8	11.3
Chronic kidney disease	7	9.9
Addictions / Risk Factors		
Chronic alcoholism	19	26.8
Chronic smoking / tobacco chewing	17	23.9
Intravenous drug abuse	4	5.6

Clinical Presentation
Fever was the most common symptom, observed in 59 patients (83.1%). Among patients with tubercular etiology, fever was characteristically low-to-moderate grade with an insidious onset; those with pyogenic infections more often exhibited high-grade fever with systemic manifestations.
Abdominal or flank pain was reported by 43 patients (60.6%). Six patients presented with epigastric pain radiating to the back, subsequently found to have underlying pancreatic collections contributing to secondary psoas abscess formation. Radiation of pain to the groin or anterior thigh, aggravated by hip extension, reflecting direct iliopsoas muscle irritation, was observed in several patients.
Low back pain was reported by 32 patients (45.1%), generally chronic and progressive in those with associated vertebral discitis or osteomyelitis. Restricted hip movements or limp were observed in 20 patients (28.2%), with an antalgic hip posture and positive psoas sign elicited in several cases. Inguinal swelling mimicking hernia or lymphadenopathy was documented in 13 patients (18.3%). Paravertebral swelling was noted in four patients (5.6%), all with underlying spinal tuberculosis. The classical triad of fever, back pain, and limp was present in only a minority of patients.

Table 2. Clinical Presentation (N = 71)

Symptom / Sign	n	%
Fever	59	83.1
Abdominal / flank pain or discomfort	43	60.6
Low back pain	32	45.1
Restricted hip movements / limp	20	28.2
Inguinal swelling	13	18.3

Paravertebral swelling	4	5.6

Figure 1. A 25-year-old male presented with a progressively enlarging, painful left inguinal swelling. Clinical examination revealed a tender, fluctuant, irreducible inguinal mass without cough impulse. The swelling was ill-defined, non-transilluminable, and did not exhibit an expansile cough impulse, raising suspicion for a deep-seated collection tracking into the inguinal region from the iliopsoas compartment rather than a true inguinal hernia. This figure illustrates the anterior clinical appearance of the inguinal swelling.

Figure 2. A 25-year-old male with the same progressive left inguinal swelling described in Figure 1. The lateral view demonstrates the extent and profile of the tender, fluctuant, irreducible inguinal mass. The absence of a cough impulse and the non-reducible nature of the swelling were instrumental in distinguishing the presentation from conventional inguinal hernia. Subsequent imaging confirmed psoas abscess with inguinal extension.

Figure 3. A 19-year-old male presenting with painless left paravertebral swelling. Clinical examination revealed a non-tender, fluctuant swelling in the left paravertebral region. Imaging revealed multiple cold abscesses involving subcutaneous and intramuscular planes. MRI of the dorsolumbar spine demonstrated extensive peri-articular involvement with adjacent bony erosion, confirming spinal tuberculosis as the underlying etiology. This case illustrates the classic cold abscess presentation of tubercular psoas abscess with paravertebral extension.

Laboratory Findings

Laboratory parameters reflected a predominantly chronic inflammatory process. Hemoglobin was mildly reduced (mean 11.6 ± 1.3 g/dL), indicative of anemia of chronic disease. Total leukocyte count was only modestly elevated (8.9 ± 3.6 × 10^3/mm^3). The neutrophil-to-lymphocyte ratio was moderately increased (4.1 ± 2.8). The mean ESR was 98.7 ± 42.6 mm/hour and mean CRP was 28.9 ± 14.5 mg/dL, both markedly elevated—findings characteristic of chronic granulomatous infection and active tissue inflammation.

Table 3. Laboratory Parameters (N = 71)

Laboratory Parameter	Mean ± SD
Hemoglobin (g/dL)	11.6 ± 1.3
Total leucocyte count (×10^3/mm^3)	8.9 ± 3.6
Neutrophil-to-lymphocyte ratio	4.1 ± 2.8
Erythrocyte sedimentation rate (mm/hour)	98.7 ± 42.6
C-reactive protein (mg/dL)	28.9 ± 14.5

Radiological Findings

USG was performed as the initial imaging modality in all patients, typically demonstrating a hypoechoic or heterogeneously echogenic collection within the psoas muscle with ill-defined margins and loss of normal

architecture. Serial USG was used to monitor treatment response and guide drainage decisions.

CECT of the abdomen and pelvis confirmed diagnosis and delineated disease extent in the majority of patients, providing superior anatomical detail for assessment of abscess size, laterality, multiloculation, and extension into adjacent compartments. Tubercular features such as vertebral destruction, paravertebral collections, cold abscesses, lymphadenopathy, and calcifications were frequently identified. CT Severity Index was calculated in patients with epigastric presentations to assess pancreatitis severity.

MRI of the dorsolumbar spine was performed selectively in patients with suspected spinal involvement, demonstrating superior sensitivity for detecting early vertebral marrow changes, discitis, osteomyelitis, and epidural extension—findings that directly influenced surgical planning and neurological assessment.

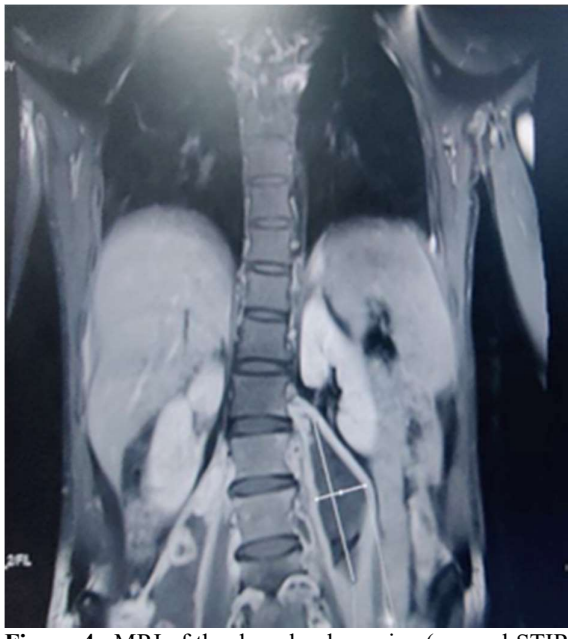

Figure 4. MRI of the dorsolumbar spine (coronal STIR sequence) demonstrating a prevertebral collection extending from L1 to L5. Spondylodiscitis is evident at the L5–S1 level with signal changes consistent with vertebral end-plate destruction and intervertebral disc involvement. Bilateral psoas abscesses are seen as hyperintense collections within both psoas muscle compartments. This imaging illustrates the extensive spinal involvement characteristic of tubercular psoas abscess in this cohort, where 87.8% of tubercular cases demonstrated spinal disease.

Figure 5. Contrast-enhanced computed tomography (CECT) of the abdomen and pelvis (axial section) demonstrating features consistent with acute-on-chronic pancreatitis. Peripancreatic fluid collections are identified with a Modified CT Severity Index (CTSI) of 6/10, indicating moderately severe pancreatitis. Extension of the peripancreatic collection into the left psoas compartment is demonstrated, resulting in secondary left-sided psoas abscess formation. This case illustrates pancreatitis as one of the non-tubercular etiologies of secondary psoas abscess, accounting for 9.2% of cases in this series.

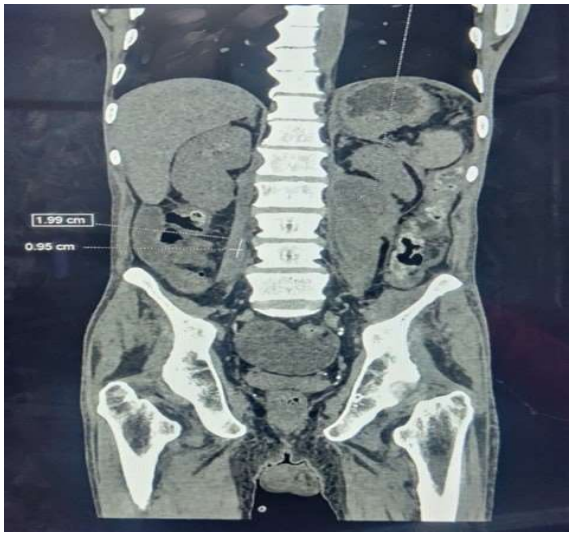

Figure 6. CECT of the abdomen and pelvis (coronal section) demonstrating a bulky and edematous left psoas muscle with an ill-defined, heterogeneously hypodense, peripherally enhancing collection. Surrounding fat stranding is noted, consistent with active inflammation and secondary infection of the psoas compartment. This imaging was obtained in a patient with acute-on-chronic pancreatitis, confirming left psoas abscess arising from direct extension of peripancreatic inflammation. Measurements of the collection are indicated (1.99 cm × 0.95 cm at the demonstrated level).

Figure 7. CECT of the abdomen and pelvis (coronal section) demonstrating left psoas abscess with multiple necrotic lymph nodes forming a conglomerated nodal abscess measuring 5 × 3 cm, located along the left external iliac vessels. This patient presented with left inguinal swelling, which was clinically suspicious for inguinal hernia or lymphadenopathy. Imaging revealed the true etiology as a tubercular conglomerate lymph node abscess with psoas involvement, highlighting the diagnostic importance of cross-sectional imaging in atypical presentations.

Figure 8. CECT of the abdomen and pelvis (axial section) demonstrating bilateral acute pyelonephritis with left-sided predominance. Perinephric fat stranding is evident bilaterally, with thickening of Gerota's fascia. Extension of the perirenal inflammatory process into bilateral psoas compartments is demonstrated, resulting in bilateral psoas abscess formation. This case illustrates pyelonephritis as a source of secondary psoas abscess, representing 6.2% of cases in the non-tubercular secondary group in this series.

Figure 9. CECT of the abdomen and pelvis (coronal section) demonstrating a large left subcutaneous collection with air foci within it, continuous with the left psoas abscess. This patient presented with left inguinal swelling with crepitus on clinical examination, indicating gas-forming infection. The presence of air within the collection, identified on CT, was suggestive of secondary polymicrobial or gas-forming bacterial infection superimposed on the psoas abscess, necessitating urgent surgical drainage. This case underscores the importance of CT in detecting complications such as gas formation that significantly alter management decisions.

Etiology and Classification

Secondary psoas abscess accounted for 65 patients (91.5%), while primary psoas abscess was identified in only six (8.5%). Tuberculosis was the leading etiological factor, responsible for 49 cases (69%).

Among patients with tubercular psoas abscess, spinal involvement—Pott's spine, vertebral discitis, or

sacroiliitis—was demonstrated in 43 patients (87.8% of tubercular cases). Genitourinary tuberculosis was identified in four patients and gastrointestinal tuberculosis in two patients. Non-tubercular secondary psoas abscesses were associated with pancreatitis (6 cases), gastrointestinal pathologies including diverticulitis and appendicitis (6 cases), and pyelonephritis (4 cases).

Table 4. Etiology and Classification of Psoas Abscess

Classification	n	%
Primary psoas abscess	6	8.5
Secondary psoas abscess	65	91.5
Tubercular etiology	49	69.0
Non-tubercular etiology	22	31.0

Table 5. Sources of Secondary Psoas Abscess (N = 65)

Source of Secondary Psoas Abscess	n	%
Tubercular (spinal / GU / GI)	49	75.4
Pancreatitis with pancreatic collections	6	9.2
Gastrointestinal pathologies (diverticulitis, appendicitis)	6	9.2
Pyelonephritis	4	6.2

Table 6. Sources of Tubercular Psoas Abscess (N = 49)

Tubercular Source	n	%
Pott's spine / vertebral discitis / sacroiliitis	43	87.8
Genitourinary tuberculosis	4	8.2
Gastrointestinal tuberculosis	2	4.0

Microbiological Findings

Mycobacterium tuberculosis was the most frequently isolated pathogen, confirmed in 49 patients (69%) by AFB smear, CBNAAT, and/or MGIT culture. CBNAAT provided rapid molecular confirmation and simultaneous rifampicin sensitivity assessment.

Among non-tubercular cases, Staphylococcus aureus was the most commonly isolated pyogenic organism (8 patients, 11.3%), predominantly in primary psoas abscesses and in patients with predisposing factors such as diabetes mellitus and intravenous drug abuse. Escherichia coli was identified in 6 patients (8.5%) and Klebsiella species in 4 patients (5.6%), most often in secondary abscesses of gastrointestinal or genitourinary origin. Polymicrobial growth was observed in 2 patients (2.8%). Sterile cultures were noted in 2 patients.

Table 7. Microbiological Isolates from Abscess Aspirate (N = 71)

Microbiological Isolate	N	%
Mycobacterium tuberculosis	49	69.0
Staphylococcus aureus	8	11.3
Escherichia coli	6	8.5
Klebsiella species	4	5.6
Polymicrobial growth	2	2.8
No growth / sterile cultures	2	2.8

Management Strategies

Conservative management with antimicrobial therapy alone was employed in 11 patients (15.5%), primarily in those with small collections, minimal symptoms, and stable clinical parameters. USG-guided percutaneous drainage was the most commonly employed modality, performed in 56 patients (78.9%). Pigtail catheters were inserted under ultrasonographic guidance with daily monitoring; removal was performed when drainage output fell below 10 mL per day for three consecutive days with concurrent clinical and radiological improvement.

Open surgical drainage was required in four patients (5.6%). Indications included multiloculated abscesses not amenable to percutaneous drainage, failure of image-guided drainage with persistent sepsis, presence of associated intra-abdominal pathology requiring operative intervention, and complex collections with thick debris or necrotic tissue.

Recurrence of psoas abscess was observed in 8 patients (11.3%) during follow-up, more commonly in those with extensive bilateral tubercular disease, bilateral involvement, inadequate initial drainage, or poor antimicrobial compliance.

Clinical Outcomes

Clinical resolution was achieved in the majority of patients. The mean duration of hospital stay was 12.4 days; longer stays were observed in patients with extensive disease, spinal involvement, or complications. Favorable outcomes were obtained across all management modalities when therapy was initiated promptly and directed appropriately at the underlying etiology.

DISCUSSION

Psoas abscess is an uncommon but clinically significant condition that continues to pose diagnostic and therapeutic challenges owing to its varied clinical manifestations and diverse etiologies.[1] The present study—comprising 71 consecutive patients managed at a tertiary care centre in Mumbai—provides important institutional insights into the epidemiology, clinical presentation, microbiology, imaging characteristics, and management outcomes of psoas abscess in a tuberculosis-endemic setting.

The most striking finding of this series is the overwhelming predominance of secondary psoas abscess, accounting for more than 90% of cases, with tuberculosis identified as the causative pathogen in 69%. These observations are consistent with reports from South Asian cohorts[4,8,10] and stand in contrast to Western series, in which primary pyogenic abscesses are more prevalent and Staphylococcus aureus is the most commonly isolated organism.[6] The etiological divergence reflects geographic differences in the burden of tuberculosis and the prevalence of spinal

extrapulmonary disease as the dominant source of contiguous spread. Among tubercular cases in the present cohort, spinal involvement—including Pott's spine, vertebral discitis, and sacroiliitis—was identified in 87.8%, reaffirming that iliopsoas extension from vertebral tuberculosis is the principal mechanism of secondary psoas abscess formation in this population.[4,8,13]

The clinical presentation in this series was heterogeneous and frequently nonspecific. Fever was the predominant symptom, followed by abdominal or flank pain and low back pain. The classical triad of fever, back pain, and limp was present in only a minority of patients—consistent with observations reported by Mallick et al.,[3] who noted the complete triad in fewer than one-third of cases. This diagnostic ambiguity is compounded by the insidious onset characteristic of tuberculosis and the frequent overlap with musculoskeletal and intra-abdominal conditions, contributing to diagnostic delay. A high index of clinical suspicion is therefore essential, particularly in patients with immunosuppression, diabetes mellitus, or known tuberculosis exposure.[8,14]

Laboratory findings in this series were consistent with a chronic inflammatory process rather than acute bacterial sepsis. The markedly elevated ESR and CRP—in the context of only modest leukocytosis—are characteristic of chronic granulomatous infections such as tuberculosis.[11,12] These markers, while nonspecific, serve as valuable adjuncts in the diagnostic evaluation and in monitoring treatment response.

Imaging played a central and indispensable role in this cohort. USG served as the initial diagnostic and therapeutic tool, facilitating bedside diagnosis and guiding percutaneous drainage. CECT confirmed diagnosis, defined extent of disease, and identified the underlying source in the vast majority of patients—consistent with its established status as the gold standard imaging modality.[1,7] MRI of the dorsolumbar spine provided critical information regarding spinal canal compromise, epidural extension, and early vertebral marrow changes that directly influenced neurosurgical decision-making[17]—findings consistent with the high sensitivity reported for MRI in the detection of spinal tuberculosis.

Microbiologically, Mycobacterium tuberculosis was the dominant isolate, with confirmation achieved through complementary use of AFB smear, CBNAAT, and MGIT culture. Among non-tubercular cases, Staphylococcus aureus predominated in primary abscesses, while gram-negative organisms (E. coli, Klebsiella) were more frequently isolated from secondary abscesses of gastrointestinal or genitourinary origin—findings consistent with trends reported in international literature.[11,12]

The management approach in this series was predominantly minimally invasive, with USG-guided percutaneous drainage performed in 78.9% of patients. This is consistent with contemporary evidence supporting percutaneous drainage as the preferred first-line intervention. Yacoub et al.[9] demonstrated a 90% nonsurgical success rate, while Tabrizian et al.[15] and Cantasdemir et al.[16] similarly highlighted the effectiveness and safety of percutaneous drainage as the preferred treatment modality. Open surgical drainage was required in a small minority (5.6%) for multiloculated collections, drainage failure, or associated intra-abdominal pathology.

Recurrence, observed in 11.3% of cases, was more prevalent among patients with extensive bilateral tubercular disease, bilateral involvement, inadequate initial drainage, and suboptimal antimicrobial adherence. This underscores the critical importance of complete drainage, optimization of anti-tubercular therapy, and structured long-term follow-up in reducing recurrence risk, consistent with findings from comparable cohorts.[5,10,13]

Overall, the findings of this study reinforce the importance of maintaining a high index of suspicion for psoas abscess, particularly in tuberculosis-endemic regions. Early diagnosis through appropriate imaging, accurate etiological identification, and timely institution of minimally invasive management strategies are essential for achieving favorable outcomes and minimizing complications.[1,4,8]

This study has several limitations inherent to its retrospective, single-centre design. Selection bias is possible given the referral population of a tertiary care centre. The absence of a control group and long-term structured follow-up data beyond the observation window limits assessment of sustained outcomes. Prospective multicenter studies with standardized protocols are needed to develop evidence-based management guidelines for psoas abscess in tuberculosis-endemic settings.

CONCLUSIONS

Psoas abscess in tuberculosis-endemic settings is predominantly secondary and tubercular in etiology, most commonly arising from contiguous spread from spinal pathology. Its clinical presentation is heterogeneous and nonspecific, with the classical triad present in a minority of patients—underscoring the need for a high index of clinical suspicion, particularly in immunocompromised individuals and those with known tuberculosis risk factors.

Ultrasonography provides a valuable initial and follow-up imaging platform, while contrast-enhanced computed tomography remains indispensable for confirming diagnosis, delineating disease extent, and identifying the underlying source. MRI plays a critical adjunctive role in characterizing spinal involvement and guiding neurosurgical decision-making.

A minimally invasive management strategy—combining USG-guided percutaneous drainage with targeted antimicrobial therapy including anti-tubercular treatment where indicated—constitutes the cornerstone of management and is associated with favorable clinical resolution and acceptable morbidity. Open surgical drainage should be reserved for complex,

multiloculated collections or cases refractory to minimally invasive techniques. Vigilant follow-up with optimization of antimicrobial adherence is essential to minimize recurrence. Further prospective studies are warranted to standardize management protocols and improve long-term outcomes in this patient population.

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