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ТРУДНОСТИ ДИАГНОСТИКИ АБСЦЕССА ПОДВЗДОШНО-ПОЯСНИЧНОЙ МЫШЦЫ У ПАЦИЕНТКИ С ХРОНИЧЕСКИМ БОЛЕВЫМ СИНДРОМОМ

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Difficulties in the Diagnosis of Iliopsoas Muscle Abscess in a Patient with Chronic Pain Syndrome

Резюме

Абсцесс подвздошно-поясничной мышцы является редкой хирургической патологией, что в совокупности с особенностями ее расположения обусловливает трудности диагностики данной патологии. При этом своевременно поставленный диагноз будет определять благоприятный прогноз для пациента. В статье описан клинический случай пожилой пациентки с лихорадкой и интоксикационным синдромом на фоне хронического болевого синдрома. Длительное течение болевого синдрома осложняло диагностический поиск и затрудняло постановку диагноза. Подвздошно-поясничный абсцесс следует включить в дифференциальный ряд состояний у пациентов, имеющих лихорадку, боль в ногах, анталгическую походку с ограничением движений бедра, а также положительный псоас-симптом. Информирование врачей о клинических проявлениях абсцесса подвздошно-поясничной мышцы важно для своевременной диагностики данного угрожающего жизни состояния.

Ключевые слова: *абсцесс подвздошно-поясничной мышцы, хронический болевой синдром, трудный диагноз, редкий случай*

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Abstract

Iliopsoas muscle abscess is a rare surgical pathology that, in the beginning with the main location of the muscles, determines the diagnosis of this disease. A timely diagnosis will determine a favorable prognosis for the patient. The article describes the case of an elderly patient with fever and intoxication syndrome against the background of chronic pain syndrome. The long course of the pain syndrome complicated the diagnostic search and forced diagnosis. The iliopsoas abscess includes a differential range of disorders in patients, detection of fever, pain in the legs, antalgic gait with closure of the thigh muscles, and a positive psoas symptom. Informing doctors about the manifestations of iliopsoas muscle abscess, the importance of diagnosing this life-threatening condition.

Key words: *iliopsoas muscle abscess, chronic pain syndrome, difficult diagnosis, rare case*

Conflict of interests

The authors declare no conflict of interests

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BP — blood pressure, IPA — iliopsoas abscess, VAS — visual analogue scale, NSAID — nonsteroidal anti-inflammatory drugs, PCR — polymerase chain reaction, GFR — glomerular filtration rate, ESR — erythrocyte sedimentation rate, CRP — C-reactive protein, RR — respiratory rate, HR — heart rate

Iliopsoas abscess (IPA) is a rare surgical pathology which is characterised by a pyoinflammatory process in the iliopsoas muscle and high mortality (up to 19 %). In Russia, there are a few reports on this condition; it is worth mentioning the data by Davidov M. I. et al. that IPA affects 0.01 % of the total number of surgical patients [1].

IPA can be primary or secondary. Primary sources are suppurative foci in skin and adipose tissue of the lower body, from where an infectious agent spreads via lymph tubes; and isolated suppurative foci in skin and adipose tissue, primarily in the trunk and upper body, which spread to the iliopsoas muscle with blood. The factors predisposing to primary IPA are diabetes mellitus, a history of intravenous use of drugs, HIV infection, renal insufficiency, and compromised immunity [1, 2]. Also, IPA can be a complication of medical procedures on the spine or adjacent tissues (blocks, minimally invasive surgeries). The most common cause of secondary IPA is Crohn's disease; other causes are presented in Table 1 [2].

Low incidence of IPA and the fact that the muscle lies in retroperitoneum close to the nerve plexus and other organs contribute to untimely diagnosis of this pathology. According to various authors, IPA is diagnosed weeks and even months after disease onset, or perioperatively during acute abdomen surgery [3]. Initially, radiculitis, sacroilitis, coxarthrosis, lumbar ischialgia, paranephritis, appendicular lump are suspected. Challenging diagnosis is also due to an unclear clinical pattern because of non-steroidal anti-inflammatory drug administration, since radiculopathy and lumbar ischialgia are the main neurological manifestations. Therefore, the search for specific clinical markers of this condition is a burning issue. Gezer A. et al. recommend paying attention to the classic symptomatic triad of IPA: lower back pain, lameness and continuous fever with daily episodes of high temperature [4]. According to Xu B.Y. et al., the main symptoms are fever, leg pain, antalgic gait with limited hip movements [5]. Stolov S. V. et al. recommend assessing the presence of the psoas symptom: bring the patient's hip to abdomen rotating it to the outside, it will cause abruptly increased pain in the iliac and hip region during active and passive attempts to straighten the leg in the hip; deep palpation of the iliac fossa causes marked tenderness, especially during palpitation when the leg is raised (when the iliopsoas muscle strained) [3].

Table 1. *Causes of development of secondary abscess of the iliopsoas muscle*

Pathology of the gastrointestinal tract	Crohn's disease, diverticulitis, appendicitis, colorectal cancer
Urinary tract diseases	Urinary tract infection, cancer, urolithiasis (external shock wave lithotripsy)
Diseases of the musculoskeletal system	Vertebral osteomyelitis, septic arthritis, sacroilitis
Pathology of blood vessels	Infected abdominal aortic aneurysm, infected femoral vessel
Other	Endocarditis, intrauterine contraceptive device, purulent lymphadenitis, vascular catheterization

Local symptoms always correlate with clinical and laboratory systemic inflammatory response syndrome: fever, other signs of intoxication, leucocytosis with stab shift, toxic neutrophils, increased erythrocyte sedimentation rate (ESR), lower Hb, increased blood C-reactive protein (CRP) levels.

A timely diagnosed pyoinflammatory process and therapy promote better prognosis for the patient.

Case Study

Patient Ch., 65 years old, was transported by the ambulance on September 12, 2022 to the Hospital Therapy Clinic at the Federal State Budgetary Educational Institution of Higher Education Siberian State Medical University of the Ministry of Health of the Russian Federation, complaining of high temperature up to 38 degrees, marked weakness, low blood pressure of 70/40 mm Hg, nagging pain in her right hip joint at rest, which worsened when moving, irradiated along the posterior hip and limited active movements. The effect of non-steroidal anti-inflammatory drugs (NSAIDs) lasted for a short period of time.

The history taking revealed that the pain started in 2006 after the fracture of the right shin-bone ectocondyle and the trauma to the right hip as a result of a road accident. After a while, the pain worsened: in 2015, the patient consulted a traumatologist because the pain had worsened; she was diagnosed with stage II–III right-sided posttraumatic coxarthrosis, postmenopausal osteoporosis. Due to this pathology the patient repeatedly underwent analgesic, chondroprotective therapy; also, the patient was repeatedly hospitalised to the Trauma Department for a course of analgesic therapy, including paravertebral blocks. By September 2022, the chronic pain syndrome has reached its peak: the pain was bothering the patient at rest and worsened even with a tiny movement; NSAIDs were ineffective; the patient's quality of life worsened, and the patient was unable to move and care for herself on her own. Since the therapy was ineffective, the patient contacted the pain management ward at the Tomsk Regional Oncology Dispensary, where she was prescribed tramadol therapy for the first time. Also, according to the medical records, on September 3, 2022 the patient had right hip block with an unknown medicinal product. After the block, the patient noticed that the pain had become less intense. However, on September 9, 2022 the patient had a fever of 38°C, she had cough and weakness; the patient refused to eat, and the on-duty general practitioner was called for. The on-duty general practitioner had a coronavirus express test performed, and the test for SARS-COV-2 RNA dd September 9, 2022 was negative. At a repeated home visit by the general practitioner on September 11, 2022, the fever and complaints persisted: the patient was recommended to continue the antiviral, symptomatic therapy and pain management. Despite the therapy, the patient's condition deteriorated, and on September 12, 2022, following the daily blood pressure measurement, the family noted persistent hypotension: blood pressure (BP) of 70/40 mm Hg, and called for an ambulance. The patient was transported to the on-duty medical hospital.

Upon admission, the patient's condition was moderately severe. The patient's consciousness was clear. The skin was clear, of physiological colour. Hip movements are limited; the extent of active and passive movements is restricted because of pain. The patient lies on her back in a defence attitude (frog position). The right lower limb is rotated to the outside; the pain is 9 points on the visual analogue scale (VAS). No swelling is present. The chest is cylinder-shaped; vocal fremitus is symmetric on both sides; percussion sound is pneumonic and similar above symmetric lung sections. Breathing: harsh, no wheezing. Respiratory rate (RR) is 18/minute. Oxygen saturation is 97 %. Cardiac sounds are clear, rhythmic. Heart rate (HR) is 100 bpm. BP: 108/70 mm Hg. Abdomen is soft and nontender. Liver is within the costal margin; its edge is even, elastic, painless. Kidney punch is negative on both sides; kidneys cannot be palpated.

The following laboratory and instrumental examinations were conducted upon admission:

Complete blood count dd September 12, 2022: WBC: 11.9×10^9/L, RBC: 3.8×10^{12}/L, Hb: 113 g/L, Ht: 33 %, platelets: 173×10^9/L.

Blood biochemistry of September 12, 2022: creatinine: 226 μmol/L, urea: 14.0 mmol/L, glucose: 5.5 mmol/L, total bilirubin: 32 μmol/L, direct bilirubin: 22 μmol/L, ALT: 23 U/L, AST: 54 U/L, troponin quality assay: neg.

In the admission ward, the patient was examined by a surgeon, who did not find any signs of acute surgical pathology. Taking into account an episode of hypotension, long-lasting therapy with non-steroidal anti-inflammatory drugs, in order to rule out GI bleeding, the patient underwent fibrogastroduodenoscopy, and no signs of upper gastrointestinal bleeding were found.

Lung X-ray demonstrated some infiltrate in the lower lobe of the left lung.

The top priority was the intoxication syndrome, which was considered to be attributable to pneumonia; also, the following syndromes were identified: pulmonary tissue infiltration syndrome, systemic inflammatory response syndrome, chronic pain syndrome, acute kidney injury

syndrome, which manifested as a significant rise in creatinine and urea levels, probably of mixed origin: toxic (due to an infection and NSAIDs) and prerenal (due to hypotension).

The patient was admitted to the Medical Department with the following preliminary diagnosis:

Primary diagnosis: Mild community-acquired left-sided lower lobe pneumonia, unspecified. Respiratory distress: 0.

Complication: mixed acute kidney injury dd September 12, 2022, nonoliguric variant.

The staff in the admissions department treated the chronic pain syndrome as a sign of bilateral coxarthrosis; therefore, comorbidities included bilateral coxarthrosis (stage II on the left and stage III–IV on the right), functional class IV, chronic pain syndrome, VAS 9 points.

Initial antibacterial therapy included third-generation cephalosporins. Since the patient had persistent pain syndrome, she was prescribed a calculated dose of tramadol (taking into account glomerular filtration rate (GFR)). Detoxication therapy was designed to correct hypotension and acute renal injury. Additional examination included follow-up laboratory tests including CRP levels; lung X-ray for pneumonia assessment. Since multi-organ failure (hypotension + acute renal injury) was suspected, a pneumonia-associated septic process was discussed as well; therefore, sterility blood test, urine culture, procalcitonin quantification were scheduled. A urinary catheter was inserted to control diuresis.

The therapy made it possible to correct hypotention, to normalise nitrogenous waste levels; however, the fever of 38°C, weakness and marked hip pain syndrome persisted; pain management correction was required — morphine injections were initiated. Follow-up tests dd September 19, 2022 showed negative changes — high leukocytosis in complete blood count (WBC: 14.36×10^9/L, RBC: 3.44×1012/L, ESR: 43 mm/h, Hb dropped to 98 g/L, platelets: 187×10^9/L), higher CRP levels and high procalcitonin levels in blood biochemistry (blood biochemistry dd September 19, 2022: creatinine: 63.3 μmol/L, urea: 10.8 mmol/L, glucose: 4.7 mmol/L, K: 5.1 mmol/L, Na: 135 mmol/L, Cl: 100 mmol/L, CRP: 419.0 mg/L, procalcitonin: 5.38 pg/mL). Since the patient had systemic inflammatory response syndrome (fever above 38°C, leukocytosis 14.36×10^9/L), high procalcitonin levels and multi-organ failure (hypotension upon admission and acute kidney injury), a septic process was suspected. Blood culture for sterility was performed. The patient underwent another lung X-ray, which did not show any signs of infiltration. Antibacterial therapy was replaced with penicillins plus betalactamase inhibitors.

In order to further search for the primary source of infection, additional examination was scheduled. Taking into account a marked pain syndrome, the area of interest was the hip joints, which were examined using CT.

Hip CT results dd September 19, 2022: swelling and thickening of the right iliopsoas muscle with swollen adjacent subcutaneous tissue, with reduced muscle density and small subcapsular gas bubbles (Fig. 1).

There are no areas of bone destruction. The articular cavity of the right hip joint is significantly narrowed; the femoral head is compressed; there are areas of cystic reconstruction and deep usuras with marginal spurs. The acetabular roof is dilated because of spurs, with numerous areas of cystic reconstruction and deep usuras. There are bone bridges between the acetabular roof and femoral head (Fig. 2).

The left hip joint is moderately narrowed; the head is not deformed; the acetabular roof is not dilated. The bone cortex integrity is not compromised, and the bone volume is normal. Femoral bones are not deformed; collum-diaphyseal angles are normal. There are marginal spurs on both sides of the contours of greater and lesser trochanters, ischial tuberosity. Pubic articulation surfaces demonstrate signs of moderate subchondral sclerosis, with even, clear contours, with minimal marginal spurs. Opinion: Signs of IPA on the right; signs of osteoarthrosis in the right hip joint, stage III–IV; signs of osteoarthrosis in the left hip joint, stage I. Signs of enthesopathy.

In order to decide on the further management, the patient was consulted by a surgeon and transferred to the Septic Surgery Unit, where the abscess could be drained.

On September 20, 2022, in the Septic Surgery Unit the patient underwent IPA opening using Pirogov's method; 120 mL of serous turbid discharge was drained, and a 15×10 cm cavity formed; the abscess cavity was sanitised and drained; discharge was sampled for culture.

Results of blood culture for sterility (September 21, 2022): growth of Staphylococcus aureus, sensitive to gentamycine 10, clindamycin, linezolid, norfloxacin, cefoxitin, erythromycin, and resistant to penicillin.

The final diagnosis for the patient was:

Primary: Iliopsoas abscess to the right.

Complications: Sepsis (blood culture dd September 21, 2022. St. aureus). Acute mixed origin kidney injury (prerenal + toxic), nonoliguric variant. Left-side lower lobe pneumonia. Respiratory distress: 0.

After surgery, the patient noted pain the in the right iliac region, with persistent fever up to 38.2° C. A follow-up examination revealed negative changes: CRP

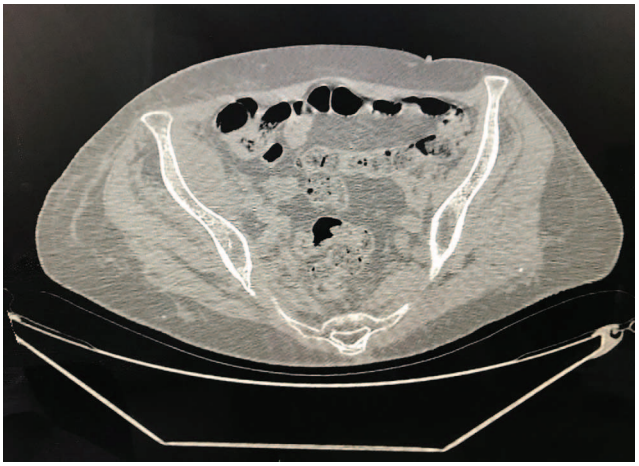

Figure 1. *Computed tomography of the hip joints: swelling and thickening of the iliopsoas muscle on the right with swelling of the adjacent tissue is determined, muscle density is reduced, small gas bubbles are detected subcapsularly*

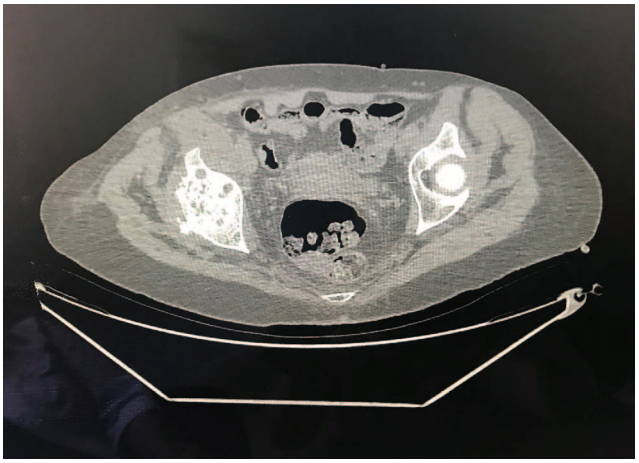

Figure 2. *Computed tomography of the hip joints: the articular space of the right hip joint is sharply narrowed, the head of the femur is flattened, with the presence of areas of cystic restructuring and deep usurs, with marginal osteophytes, the roof of the acetabulum is expanded due to osteophytes, with many areas of cystic restructuring and deep usurs , ankylosis formation*

increase from 419 mg/L to 563 mg/L, hypoalbuminemia (albumin: 22 g/L); all other parameters, including leukocytosis, remain the same (WBC: 14.54×10^9/L, ESR: 52 mm/h).

The post-surgery area was examined using ultrasound of abdomen and right pelvic region, which showed an abscess in the right pelvic area.

On September 22, 2022, the pelvic abscess was drained (100 mL of pus); the wound was dilated. Further revision showed that the abscess cavity extends along the iliac wing and connects to the previously drained cavity (Pirogov's access) on the right. A discharge sample was taken for culture. No microbial growth was recorded.

Despite the surgery and system antibacterials, the patient still had persistent fever up to 38.1°C and pain in the surgery site. Complete blood count demonstrated leukocytosis, with tendency to lymphocyte depletion. In order to rule out coronavirus infection, COVID-19 RNA PCR was performed on September 22, 2022, and the test came positive. According to the routing, since the patient had COVID-19, she was transferred to the respiratory hospital at the Regional State Budgetary Healthcare Institution Primary Healthcare Unit No. 2, Purulent Surgery Department, for further treatment with the following referral diagnosis:

Primary diagnosis: Right iliopsoas abscess, opened and drained on September 20, 2022. Right inguinal abscess, opened and drained on September 22, 2022.

Mild COVID infection (confirmed with PCR on September 22, 2022).

Complications: Sepsis (blood culture dd September 21, 2022. St. aureus). Mixed acute origin kidney injury (prerenal + toxic) dd September 12, 2022, nonoliguric variant. Treated on September 12, 2022. Left-side lower lobe pneumonia. Respiratory distress: 0.

Comorbidity: Stage II hypertensive disease, uncontrolled arterial hypertension. Chronic kidney disease C2 (GFR 71 mL/min/1.73 m^2 for creatinine level dd September 21, 2022). Mild mixed origin anaemia. Bilateral coxarthrosis (stage II on the left and stage III–IV on the right), functional class IV, chronic pain syndrome, VAS 9 points.

Abscess treatment in the respiratory hospital at the Regional State Budgetary Healthcare Institution Primary Healthcare Unit No. 2: daily dressings and antibacterial therapy. Following two negative PCR test results (dd October 10, 2022 and October 11, 2022), on October 12, 2022, the patient was transferred to the Purulent Surgery Department, at City Clinical Hospital No. 3 for further treatment of her primary disease. During hospitalisation, the wounds were treated and healed up.

An ultrasound examination of the lower limb veins which was conducted during hospitalisation revealed some signs of occlusive thrombosis of medial veins of the shank on both sides; and traditional therapy was prescribed. A follow-up examination dd November 7, 2022 demonstrative positive laboratory changes: significantly reduced signs of inflammation (WBC: 4.33×10^9/L, albumin 29.6 g/L, CRP 0 mg/L). The therapy made it possible to eliminate acute phlebothrombosis and adduction contracture of the right lower limb; the patient was discharged in satisfactory condition, with improvements, for outpatient follow-up.

Currently, the patient is followed up by a traumatologist, rheumatologist; right hip replacement surgery is planned.

Discussion

Iliopsoas abscess is a rare disease which is difficult to diagnose even without any history of diseases. Long-lasting pain syndrome which hid the abscess made it impossible to timely diagnose a life-threatening condition. The value of this case study is that it demonstrates the importance of practitioner's attention to details in case of a long-lasting pain syndrome. During admission, the primary priority was intoxication syndrome, which was treated as a result of pneumonia, while the pain syndrome that persisted with slowly developing symptoms, required NSAIDs, tramadol, blocks and had an objective cause (posttraumatic coxarthrosis), was not taken into account. As the patient could not walk and lied for a majority of time, a comprehensive examination was challenging due to the marked pain syndrome, and a musculoskeletal infection was not suspected. Long-term NSAIDs which disguised the inflammatory process did not allow making the diagnosis sooner. In our clinical experience, we often face a situation when symptomatic treatment disguises manifestations of severe diseases. This case study demonstrates that a long-lasting pain syndrome should be taken seriously, and the situation should be treated from a different perspective every time the patient asks for help.

Conclusion

Iliopsoas abscess should be included in differential diagnosis in patients with fever, leg pain, antalgic gait with limited lip movement, and positive psoas symptom. Instructing medical professionals in the signs of iliopsoas abscess is essential for timely diagnosis of this life-threatening condition.

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