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Case report

Metal shrapnel causing psoas abscess: The first case report

Maher Al-Hajjaj [a,*], Mohammad Alsultan [b], Sarya Swed [c]

[a] Department of Urology, Aleppo University Hospital, Aleppo, Syria
[b] Department of Nephrology, Al Assad and Al Mouwasat University Hospital, Damascus, Syria
[c] Faculty of Medicine, University of Aleppo, Aleppo, Syria

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ABSTRACT

Introduction and importance: Iliopsoas abscess is defined as the accumulation of suppurative fluid within the fascia surrounding the psoas and iliac muscles. Although some cases reported psoas abscess due to foreign body, to the best of our knowledge this is the first case of metal shrapnel causing psoas abscess.
Case presentation: A 41 years old male presented to our center after a landmine explosion. After a 24-h of monitoring, he was discharged with no complaints.
Later he presented with septicemia, antalgic gait, and low back pain. Computed tomography showed right psoas abscess with metal shrapnel inside. By Anterolateral approach, we drained the retroperitoneal abscess and extracted the metal shrapnel. Follow-up for 6 months revealed no recurrence.
Clinical discussion: Iliopsoas abscess is one of the challenging cases that urologists face. We presented a patient with penetrating trauma that led to cause psoas abscess. Computed tomography is considered an excellent imaging study to evaluate such patients. Most cases of psoas abscesses treated with antibiotics and minimally invasive drainage. However, with our case, we performed open surgery to extract the metal shrapnel.
Conclusion: Psoas abscess with metal shrapnel should be treated emergently. Patients with penetrating trauma should be evaluated strictly. Follow-up is essential in patients with a history of landmine explosion. Psoas abscess with metal shrapnel inside should be treated with broad-spectrum antibiotics and open surgery for drainage.

1. Introduction

Iliopsoas abscess (IPA) is the accumulation of suppurative fluid within the fascia surrounding the iliacus and psoas muscles [1].

A psoas abscess is rare (the incidence is 0.4/100,000) but may be devastating, placing patients at risk of neurological deficits, septic shock, and even death. The common symptoms include fever, persistent back pain, and limitation of hip motion [2].

The etiology of IPA is separated into two groups as primary and secondary. Primary IPA is associated with hematogenous Staphylococcus bacteremia and secondary IPA develops following infection spreading from surrounding tissues. Secondary IPA may be seen following the spread of gastrointestinal or urinary system infection, discitis, osteomyelitis, septic hip arthritis, or infected hip prosthesis [1].

Although some reports mentioned iliopsoas abscesses secondary to foreign bodies, there are no reports regarding iliopsoas abscess with metal shrapnel following a landmine explosion.

Herein, we are going to present and discuss the first case of psoas abscess due to metal shrapnel.

This case report has been reported in line with the SCARE Criteria [3].

2. Case presentation

Five patients were brought to Emergency Department at Aleppo University Hospital after one hour of an incident of a landmine explosion. At admission, two of them died and the other two patients had a negative examination and imaging studies. The fifth one, 41 years old, had an entrance hole in the right posterolateral flank region with no active bleeding. Airway, breathing, and circulation were normal. Blood pressure was 130/69 mm/Hg, pulse 86/min. Physical examination revealed mild tenderness on the right lateral flank.

Because of the stability of the vital signs, no abdominal tenderness, normal imaging studies, and negative neurovascular examination; the patients were discharged after a 24-h observation period. He was scheduled for a follow-up. However, the patient skipped the follow-up.

Later, he presented to the emergency department after 34 days of complaints of general fatigue, high temperature, low back pain, and

* Corresponding author.
E-mail address: alhajjaj963@gmail.com (M. Al-Hajjaj).

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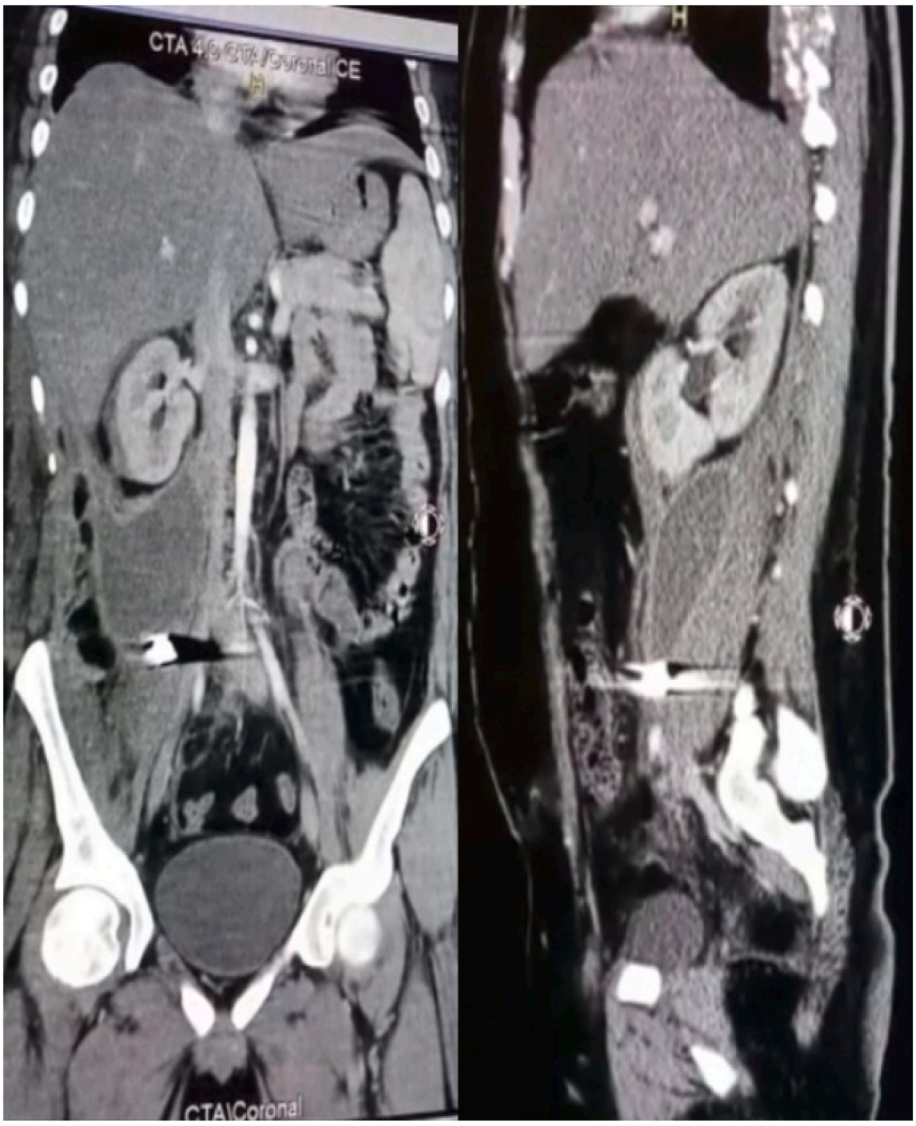

Fig. 1. Computed tomography show right psoas abscess with the metal shrapnel.

Fig. 2. The metal shrapnel after extraction.

antalgic gait. Initial blood tests included a white blood cell count of 19 × 109/L, hemoglobin level 11.9 g/dl, C-reactive protein value 112. Abdominal and pelvis ultrasound showed accumulation of fluid in the right psoas muscle with a foreign body. Computed tomography with contrast enhancement revealed psoas muscle abscess with the presence of metal shrapnel inside (Fig. 1).

After taking the patient consent, he underwent surgery. The patient was placed in a semilateral position at 45o facing away from the surgeon. By anterolateral approach, we made an incision to reach retroperitoneal space. We used sandbags to hold the patient during surgery.

The psoas abscess was drained, culture was taken, and the metal shrapnel was removed (Fig. 2).

On day 2, his general status was improved.

On day 3, the patient was discharged along with the broad spectrum of antibiotics and polyclinic follow-up.

Six months of follow-up showed full recovery and he claimed that he had no complaints.

3. Discussion

Psoas abscesses are rather rare but can be life-threatening. Such abscesses are classified as primary or secondary by reference to their

etiology. A primary abscess is caused by the lymphatic or hematological spread of a microorganism from a distant site, whereas a secondary abscess occurs after direct spread from a nearby site of inflammation or infection [2].

Our patient had a history of penetrating trauma due to a landmine explosion which caused a small hole in his right posterolateral flank region. That has led to the stability of metal shrapnel in the right psoas muscle which caused psoas abscess later.

The clinical presentation of iliopsoas abscess is variable and often non-specific [4].

Although the patient was stable, we arranged a follow-up appointment. Unfortunately, he missed the instructions and presented 37 days after the accident.

He had a state of septicemia, generalized fatigue, and low back pain. His gait was antalgic.

Iliopsoas abscess is a condition which is difficult to diagnose and, if not treated, has a mortality rate of up to 20% [1].

There was no important orthopedic problems which confirmed by X-ray.

When iliopsoas abscess is being considered, diagnosis is facilitated with the widespread use of CT and MRI and the pathology in surrounding tissues can be shown more effectively for a more accurate prediction of etiology [1].

In our case, an enhanced computed tomography was obtained to confirm the diagnosis.

It showed a large right psoas muscle abscess with the foreign body inside.

Historically, the treatment of iliopsoas abscess consisted of the surgical approach through retroperitoneal access, with removal of the abscess and necrosis, associated to adequate antibiotic therapy. Currently, with improvements in imaging techniques and greater expertise of radiologists on minimally invasive techniques, this approach has been preferred, due to lower morbidity and mortality and shorter hospital stay. Limitations concerning the method comprise patients with severe sepsis, who require a more immediate resolution of the abscess, and those presenting thick collections [5].

It is known that minimally invasive procedures have the superiority to use in such types of abscesses, but we used open surgery because of the state of septicemia the patient had and to remove the metal body forever.

The anterolateral approach was surgeon preference. We drained 300 ml of liquid pus and sent a sample for culture. The metal shrapnel was removed totally.

After the operation, the patient had recovered with low back pain controlled by analgesics.

After 72 h, we sent the patient home with instructions for follow-up.

After six months, we noted no recurrence.

4. Conclusion

Psoas abscess due to a foreign body is a rare entity. Because of insidious symptoms, the diagnosis will be late. A patient who has a foreign body in any organ should be followed up. Once the diagnosis is confirmed, open surgery is the best choice to extract foreign bodies.

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Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

Maher Al-Hajjaj: contributed in study concept and design, data collection, and writing the paper.

Mohammad Alsultan: contributed in data interpretation and writing the paper.

Sarya Swed: contributed in writing the paper.

Research registration (for case reports detailing a new surgical technique or new equipment/technology)

N/A

Guarantor

Maher Al-Hajjaj.

Declaration of competing interest

All authors declare no conflict of interest.

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