Case Report

Spinal–epidural Abscess Presenting as an Acute Abdomen in a Child: A Case Report and Review of the Literature

Abstract

Abdominal presentations in patients with spinal–epidural abscess (SEA) are not uncommon. However, it needs to be continually emphasized that the atypical presentations of these diseases could delay the timely diagnosis and consequently prompt management, which threatens spinal cord, leading to potential to paralysis or even death. We report a case of a young girl who presented with abdominal pain and fever. The diagnosis of SEA was unfortunately so delayed that the patient did not show any functional recovery postoperatively. This report aims to highlight the importance of high level of clinical suspicion to recognize an atypical presentation of the SEA. Moreover, the fully detailed history-taking and physical examination are of paramount importance. Spinal underlying pathologies should always be considered as a cause of abdominal pain, especially in children.

Keywords: *Abdominal pain, delayed diagnosis, epidural abscess, exploratory laparotomy, misdiagnosis*

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Introduction

Epidural abscess of the spinal column is a rare condition that can be fatal if left untreated. Despite advances in medical knowledge, imaging techniques, and surgical interventions, spinal–epidural abscess (SEA) remains a challenging problem that often eludes diagnosis and receives suboptimal treatment. The objective of this case is to improve the timely diagnosis and initial appropriate treatment of epidural abscess. This case has been reported in line with the SCARE guidelines.[1] Formal written consent from the patient and patient's parents including approval to publication was obtained. The publication of this paper is approved by the Scientific Board of the University of Aleppo.

Case Report

A previously healthy 13-year-old female child arrived at the emergency department complaining acutely of diffuse constant abdominal pain that was neither radiating nor prandial dependent. She denied nausea, vomiting, diarrhea, pulmonary symptoms, or neurological complaints such as weakness or numbness. Although she told the doctor that she had one episode of involuntary discharge of urine, this statement was not clearly stressed and unfortunately overlooked. Her medical and surgical history was unremarkable. No history of trauma was reported. The physical examination showed tenderness and suspected rebound tenderness in the abdomen, especially in the right iliac fossa. She also had a temperature of 39°C. On further questioning, it was declared that the pain had started subtly 1 week earlier in the form of nonspecific abdominal pain. At that time, and after excluding brucellosis, typhoid fever, and Mediterranean fever, an internist diagnosed the complaint as nonspecific intestinal infection. On the previous days, the pain had often responded to analgesics. Laboratory tests showed elevation in the white blood cells and inflammatory markers. Abdominal ultrasound was unremarkable.

The generalized abdominal pain was most elicited in the right iliac fossa, what made a diagnosis of appendicitis very possible. With the presence of fever and chills, a diagnosis of acute abdomen "most probably suspected complicated appendicitis" was made. The patient underwent exploratory laparotomy whose findings were unremarkable. Postoperatively, when the patient was asked to walk, she refused

How to cite this article: Fakhouri F, Ghazal A, Alnaeb H, Hezan R, Araj J. Spinal–epidural abscess presenting as an acute abdomen in a child: A case report and review of the literature. Asian J Neurosurg 2018;13:1247-9.

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Access this article online

Website: www.asianjns.org

DOI: 10.4103/ajns.AJNS_177_17

Quick Response Code:

claiming and she was unable to move her legs. The neurological examination of the patient revealed sensory loss as well as areflexic paraplegia. After neurological consultation, a magnetic resonance imaging of the thoracic spine was performed, which showed mid-thoracic epidural cystic mass, extending from T5 to T9 with maximal cord compression at the level of intervertebral disc T5–T6. The mass was heterogeneous on both T1 and T2, with marginal contrast enhancing [Figure 1].

The patient underwent emergent posterior laminectomy and evacuation of an abscess. Histopathological and microbiological examination confirmed a diagnosis of a bacterial nonspecific abscess. An appropriate medical treatment was carried out for 3 months. Although the abscess was cured, the patient showed no neurological improvement after a 1-year follow-up.

Discussion

Theoretically, all pathologies capable of causing bacteremia can potentially result in SEA. The most common cause of SEA is hematogenous spread, which is responsible for approximately 50% of cases. 10%–30% of cases are reported to result from direct extension of local infection, usually vertebral osteomyelitis, psoas abscess, or contiguous soft-tissue infection. 15%–25% are due to invasive procedures or spinal instrumentation. However, in up to 30% of cases, the source of infection could not be identified. Many reported patients had absolutely no risk factors as in our case. Nonetheless, in spite of various possible etiologies, the prognosis is comparable, and the only way to prevent permanent neurological deficits is timely management**.**

The initial misdiagnosis could be because of the atypical presentation and the incomplete review of the other systems during history-taking.

In a study, Chen *et al*. analyzed 17 patients with SEA; three of them (17.6%) were initially misdiagnosed as having intra-abdominal pathology. Furthermore, one of these three patients needed exploratory laparotomy.[2] In another reported case of a 61-year-old woman, she presented with epigastric pain and constipation, then progressed rapidly into urinary retention and paraplegia.[3] In a third case, a 68-year-old male was presented with intractable abdominal pain in the right upper quadrant so that the case was initially misdiagnosed as gastric ulcer for 3 weeks until lower extremities paralysis developed, which was only partially reversible after surgical management.[4]

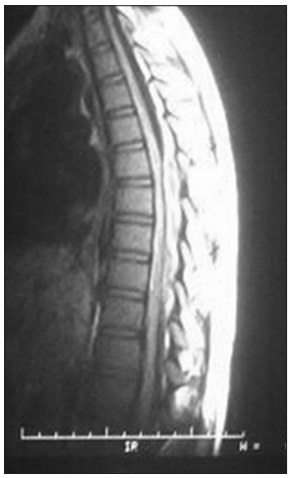

Figure 1: Sagittal T1-weighted magnetic resonance imaging of the thoracic region with contrast: Extradural mass extending mainly from T5 to T9, severely compressing the spinal cord

In the majority of cases, delay in the diagnosis results in irreversible neurological deficits, making the early recognition of the disease and prompt consultation of a neurosurgeon and/or infectious disease specialist crucial to the optimization of the neurological outcome.

The relationship between spinal–epidural space-occupying lesions and abdominal pain seems to need more attention. Reviewing the literature,[3-10] we noticed that not only many cases of epidural abscess but also many cases of spontaneous spinal–epidural hematoma reported to share initial presentation of abdominal or even periumbilical pain. In the majority of these cases, the lesions were in the thoracic and lumbar areas.

In the general population, the peak incidences arise in the sixth and seventh decades of life and it is commonly associated with risk factors such as diabetes mellitus, intravenous drug misuse, chronic renal failure, alcoholism, and cancer.[11] On the other hand, an analysis of 12 pediatric cases without risk factors showed an average age of 9.6 years,[12] compared to 13 years in our case.

SEA in previously healthy children is extremely rare, with only 12 reported cases between 2001 and 2014, according to Vergori *et al*.[12]

We searched PubMed using the following keywords: spinal epidural abscess, spinal epidural hematoma and found out that this is the second report of a case mimicking an acute abdomen to the degree; it necessitated a laparotomy, with only one reported case.[2]

In the authors' opinion, the patient was very shy and withdrew into herself instead of clearly expressing her urinary complaint, which could have been a helpful clue to diagnosis. Young ladies in many societies are generally very shy and unable to express sensitive complaints, especially regarding genital or perineal changes. This may mislead doctors and adds a special challenge. It is our task to make sure that the clinical history is detailed enough and to pay additional attention in such patients before ruling out any possibilities. Shyness and social withdrawal add extra challenges to the practicing physicians in a variety of societies from Nigeria[13] to China[14] and from Denmark[15] to Iran.[16] Female gender and puberty age seem to be important risk factors. This problem could even influence the patient's attitude towards undergoing medical examinations.[13,16]

Little is known about general practitioners' understanding and integration of this existential dimension into their encounters with their patients. Cultural barriers such as shyness and lack of self-awareness seem to hinder general practitioners in communicating issues related to the existential dimension.[15]

In patients presenting with acute abdomen, a careful neurological examination is important, especially when the abdominal pain is not typical, or when the source of suggested infection is unknown. In the majority of SEA patients, the clinical triad of fever, back pain, and neurological deficit is not present. Atypical presentations are not uncommon including abdominal pain, even mimicking an acute abdomen.

Even a very small oversight in history-taking could potentially change the quality of life of a patient, both short term and lifelong, from an active young girl to a disabled human being.

Conclusion/Recommendation

The variable differential diagnosis of acute abdomen and the rarity of SEA lead to an underestimation of SEA occurrence, especially in children without risk factors. Careful history-taking and physical examinations, including reviewing other systems and being repeated when necessary, is the key to early diagnosis. Only with appropriate intervention, early in the course of disease, excellent results could be achieved.

Acknowledgment

In recognition of her support in regard to grammatical refinement, Mrs. Anne Menzel has our thanks.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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