



Paraspinal Abscess with Spinal Canal Extension Requiring Emergency Thoracotomy Drainage

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ABSTRACT: Paraspinal and epidural abscesses are rare medical emergencies. In approximately one-third of the cases, a source of infection cannot be identified. Clinical outcome can be catastrophic if left untreated. We reported the first case of paraspinal abscess with extensive spinal canal extension in a young man who exhibited acute onset of back pain. A paraspinal abscess extending into spinal canal from T5 to T7 was subsequently found. Emergency right thoracotomy was then performed and evacuation of paraspinal abscess was done. The abscess cavity was found extending to the left paraspinal area where complete destruction of intervertebral disc and thoracic vertebral bodies were seen on either side. Early intervention improves the prognosis in patients with paraspinal abscess. Despite the advances of modern diagnostic and management methods, about 30% of patients with paraspinal abscess may not have a favourable outcome.

KEYWORDS: Paraspinal Abscess; Spinal Canal Extension; Emergency Thoracotomy; Thoracotomy Drainage; medical emergencies

I. INTRODUCTION

Paraspinal and epidural abscesses are rare medical emergencies. The meta-analysis found the predisposing risk factors to the development of epidural abscess include diabetes (15–53.7% cases), spinal surgery (22%), and intravenous drug use (8.8%) [1]. A few of the cases are reported to be related to alcoholism and trauma [2]. In approximately one-third of the cases, a source of infection cannot be identified [3]. Clinical outcome can be catastrophic if left untreated. The common presenting symptoms were back pain (71%), fever (66%), and paralysis (34%) in later stages [1].

There have been only a few published case reports in medical literature regarding paraspinal abscesses [2, 4-9]. Even less literature has been published on the topic of paraspinal abscesses with epidural extension. To our knowledge, there has not been a case of paraspinal

abscess with extensive spinal canal extension. We present a rare case of a young man who exhibited acute onset of back pain. A paraspinal abscess extending into spinal canal from T5 to T7 was subsequently found.

II. CASE REPORT

A 41-year-old gentleman who was an intravenous drug user on methadone therapy, presented with sudden onset of persistent non radiating severe back pain associated with drowsiness after waking up from sleep. Besides, he also complained of worsening of bilateral lower limbs weaknesses over past one week which left him wheelchair bound most of the time. Notably, he has a background history of T6/7 discitis and osteomyelitis in which he just completed a long-term course of intravenous antibiotics a month ago. Computerized Tomography (CT) scan of thorax (Fig. 1) revealed a paravertebral collection extending from T5-T7 measuring 90 x 50 x 50 mm (Fig. 2) at the site of previous disc-osteomyelitis consistent with recurrent disease in addition to patchy ground-glass and consolidative changes throughout bilateral lungs. Clinical findings and laboratory blood results prompted the diagnosis of septic shock secondary to pneumonia, bacteraemia and paravertebral abscess. He was then started on intravenous flucloxacillin, metronidazole and gentamicin for Staphylococcus aureus bacteraemia likely related to previous Hickmann line inserted for his long-term antibiotics. Emergency right thoracotomy was then performed and evacuation of paraspinal abscess was done. Maloney Bougie was placed in oesophagus prior to operation as a guide. Intraoperatively, the lower lobe of right lung was found adhered to spine posteriorly and upon adhesiolysis which allowed access to the abscess cavity, large volume of pus was drained. The abscess cavity was found extending to the left paraspinal area where complete destruction of intervertebral disc and thoracic vertebral bodies were seen on either side (Fig. 3). Subsequent



microbiology culture finding reported isolation of *Staphylococcus aureus*.

III. DISCUSSION

The classical triad of symptoms which includes back pain, fever and neurological deterioration is presented only in 10-15% of patients at first contact [8]. A prompt diagnosis is crucial to achieve a positive outcome but unfortunately a non-specific clinical picture may result in diagnostic difficulties. Four stages may be identified in paraspinal abscess development: 1) back pain at the level of the affected spine, fever, spine tenderness; 2) radicular pain radiating from the affected part of spinal cord, nuchal rigidity, hyper-reflexia; 3) neurological deficits such as hypoaesthesia, motor weakness, bowel or bladder dysfunction; 4) paralysis [9].

In this case, the presenting complaints were very classical in addition to the presence of multiple risk factors. The worsening of bilateral legs weaknesses was notably a “red flag” which led us to investigate further. Different mechanisms were hypothesized to be responsible for the motor weakness of lower limbs such as external compression by a paraspinal abscess or an ischaemic process associated with the compression of spinal arteries or transverse myelitis.

The diagnosis should be based on neuroimaging studies. The gold standard of imaging diagnostics in spinal abscess is MRI with gadolinium, having a sensitivity and specificity higher than 90%. MRI determines the extent of the abscess in both longitudinal and axial planes, which is essential for planning surgery. It may also help to differentiate infection from neoplasms. The delay in spinal cord MRI is unacceptable if the imaging study is available. However, we could not perform MRI on admission in this instance in view of surgical emergency.

The only effective therapy for paraspinal abscess is evacuation of the abscess and microorganism eradication. Decompression and debridement of infected tissues is the method of choice. Surgery should be performed as soon as possible and followed by specific culture-guided intravenous antibiotics for four to six weeks. The final neurological outcome corresponds strongly with the duration and the degree of neurological deficit prior to surgery. Patients in stage 1 or 2 may have a full recovery, patients in stage 3 may have no weakness or a lesser degree of weakness, whereas patients in stage 4 may benefit from surgery only if they undergo decompression within 24-36 hours after the onset of neurological symptoms. Nevertheless, even timely surgical

intervention could not guarantee a full and uneventful recovery.

IV. CONCLUSION

In conclusion, early intervention improves the prognosis in patients with paraspinal abscess. Despite the advances of modern diagnostic and management methods, about 30% of patients with paraspinal abscess may not have a favourable outcome. Increased awareness of the disease is essential for rapid recognition and immediate introduction of treatment. Early diagnosis is the key to an optimal outcome with regard to paraspinal and epidural abscesses.

FIGURE



Fig. 1 CT scan of thorax – sagittal view



Fig. 2 CT scan of thorax – axial view



Fig. 3 Intraoperative finding of abscess cavity invading between T6/T7 vertebra causing irregular edges of vertebral body



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