

A *Mycobacterium tuberculosis* Induced Chronic Retropharyngeal and Cervical Epidural Abscess in a Patient with Symptoms Similar to a Cerebrovascular Accident. A Miraculous Response to Surgery

Babak Mirzashahi^{1*}, Seyyed Hadi Kalantar², Saeed Panahi², Sare Moslemi³ and Atie Samie⁴

¹Orthopedic Surgeon, Orthopedic Department, Imam Khomeiny Hospital Complex, Tehran university of Medical sciences, Tehran, Iran

²Orthopedic Resident, Orthopedic Department, Imam Khomeiny Hospital Complex, Tehran University of Medical Sciences, Tehran, Iran

³Radiology Resident, Tehran University of Medical sciences, Tehran, Iran

⁴Surgical Technology Department, Tehran University of Medical Sciences, Tehran, Iran

***Corresponding Author:** Babak Mirzashahi, Orthopedic Surgeon, Orthopedic Department, Imam Khomeiny Hospital Complex, Tehran university of Medical sciences, Tehran, Iran.

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Abstract

Cervical epidural abscess is rare yet a life threatening condition which needs immediate surgical intervention to prevent further morbidity and mortality. Sometimes it can be misdiagnosed and mistreated as a cerebrovascular accident since the symptoms can mimic a brain damage. Here we present a special case of A 41-year old man with a presumed history of CVA from 2 years ago and hemiparesis who was presented with signs of new brain involvement considering a new CVA since he developed hemiparesis on the other side as well and was treated accordingly, but further radiological studies showed it was a massive retropharyngeal abscess with extension to cervical epidural abscess. The patient underwent a surgical evacuation and debridement and cord decompression and two stage instrumentation in order to stabilize the cervical spine. To our amazement he miraculously regained muscle forces the day after the decompression surgery and within a month. The pathogen responsible for the abscess was *Mycobacterium tuberculosis*. Cervical epidural abscess is thought to be an emergent situation and should be treated in less than 36 hours in order to prevent irreversible motor function damage and death. Although TB has a tendency for slow progression, in our case a very late diagnosis and treatment of this condition led to satisfactory results.

Keywords: Cervical Epidural Abscess; Surgical Decompression; Chronic; Tuberculosis; Cerebrovascular Accident

Introduction

Spinal epidural abscess is a rare condition but when this incidence happens, it puts the patient life and motor function in danger and in many cases leads to irreversible damage. This condition can happen more in patients with drug and alcohol abuse as well as diabetic patients and those with liver or kidney insufficiencies [1-4]. Diagnosis of cervical spinal epidural abscess can be more challenging as the neurological symptoms of the patient are close to those with cerebrovascular accident and may be misdiagnosed or diagnosed with significant delay [5].

The main pathogenesis to cause CEA is believed to be SA [6,7], but other pathogens such as *Streptococcus*, brucellar SEA or tubercular abscess can be other rare causes of this condition which need careful attention [7]. Previous studies have shown the importance and effectiveness of surgical intervention in treatment of CSEA [5,8].

In this case report we present a very rare and interesting case of chronic CSEA with mimicking symptoms of CVA in a 41 years old male with a quadriplegia whose symptoms faded away soon after surgical intervention.

Case Presentation

A 41-year old cachectic male was brought to our Emergency department with dyspnea and quadriplegia over 2 weeks, he had a history of left side hemiparesis over past 2 years as a result of stroke, his new symptoms occurred during past 60 days including right side muscle weakness, urinary incontinence and facial papulovesicular lesions, fever and coughs. He didn't experience aphasia or dysphagia. Physical examination revealed MRC grade I/V in lower limbs and grade III/V in upper limbs. Clonus test, Hoffmann's reflex, Babinski sign, Oppenheim and Hand test were positive. Muscle reflexes were increased in lower extremity as well. His brain perfusion scan was normal. Brucella IgG and IgM were negative. His CBC indicated white cell count of 8500/mm³ with normal differentiation. His viral markers (anti HIV Ab Anti-HCV Ab and HBS Ag) were nonreactive. The patient was admitted with an assumption of new CVA on previous one, but the initial brain CT scan was inconclusive thus he underwent brain MRI. In his brain MRI (without contrast) there was no evidence of recent infarction in diffusion weighted images. Mild dilatation of lateral and third ventricles and bilateral nonspecific periventricular white matter abnormal signal intensity foci were reported which were not justified patient's symptoms (Figure 1). The patient underwent cervical

MRI with and without contrast later in which a large 30*9*5 cm ring enhancing collection (abscess) was seen in prevertebral and retropharyngeal spaces down to T3 level with posterior extension to epidural space at C5 to C7 levels with anterior compression effect on spinal cord without cord signal change. Inflammatory changes were also seen in C5 to T3 vertebral bodies and C6-C7 disc space (Figure 2,3).

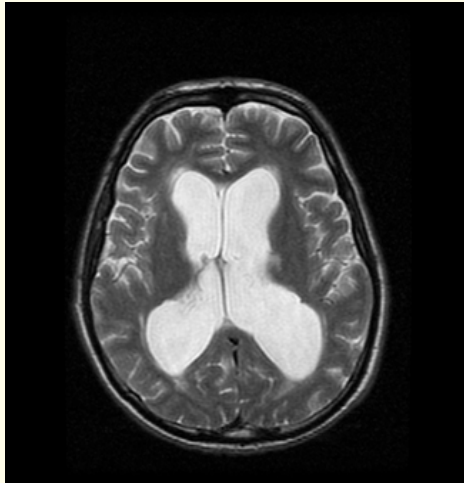


Figure 1



Figure 2

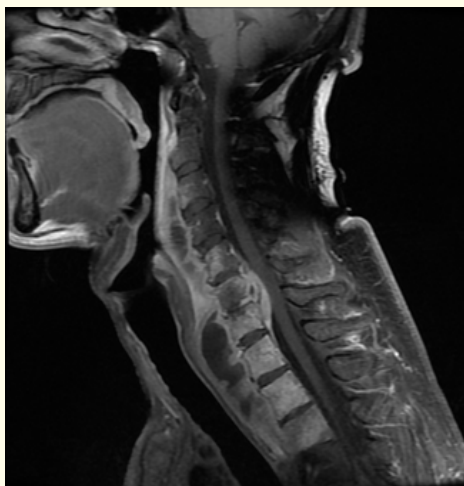


Figure 3

The patient was finally scheduled for surgery in a special setting with thoracic surgery team co-operation because of the involvement of mid thoracic vertebrae and abscess extension. Anterior lower cervical and sternotomy approach was used. After exploring the innomi-

nate vein and artery, prevertebral fascia was opened. Then as shown in figure 4 a voluminous yellowish abscess came out and the rest was drained and multiple samples were sent for bacterial, fungal and tuberculosis culture and PCR.

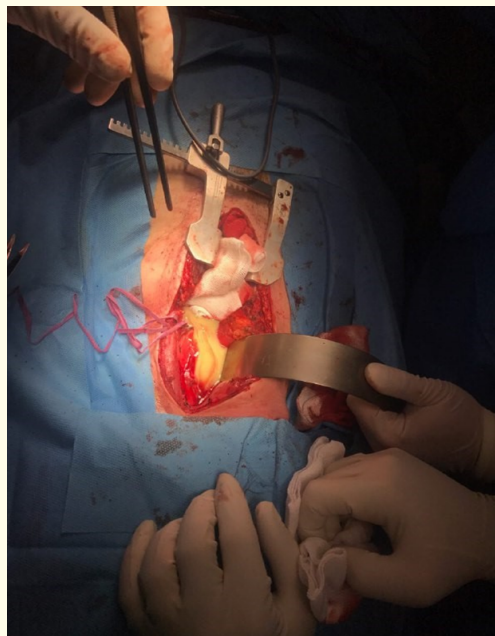


Figure 4

After drainage C6 and C7 corpectomy was done and spinal canal has been decompressed.

An expandable corpectomy cage inserted into the resected part of the spinal column (C5-T1) (Figure 5).



Figure 5

At last with a titanium plate fixation was performed to secure the vertebral bodies and cage (Figure 6).

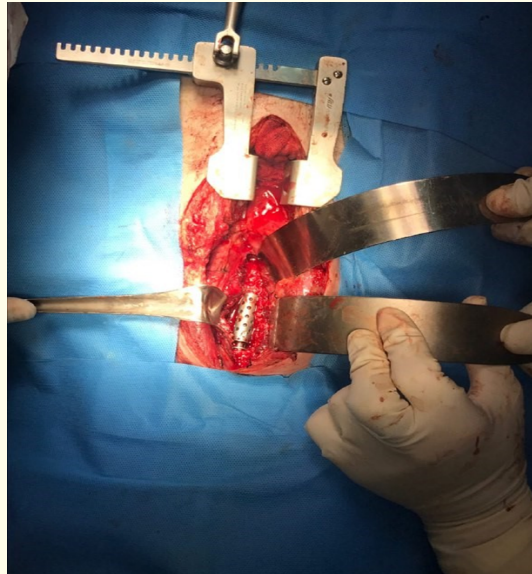


Figure 6

Patient was examined after the first surgery in the Intensive Care Unit again, we were thrilled as the initial clinical results were incredible. The right side forces were increased in both upper and lower extremities significantly and by many surprises the forces on the contralateral limbs had been also increased significantly which were III/V in both lower extremities and 4/5 in upper extremities. The patient himself was amazed of these results as he couldn't move up his left leg in the past year and now he could. After initial recovery he underwent another surgery for posterior spinal fusion, final sagittal CT scan sagittal cut views of the patient are shown in figure (Figure 7,8).

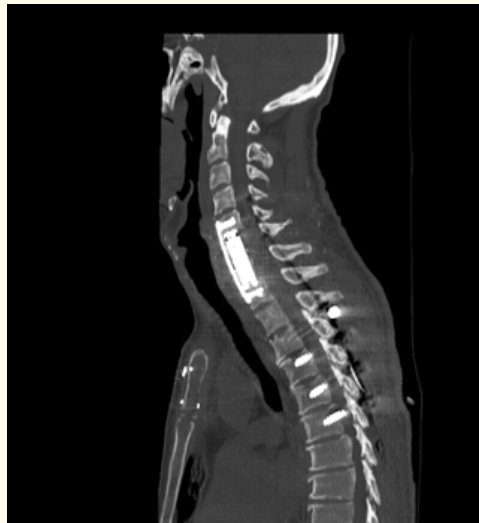


Figure 7



Figure 8

The physiotherapy sessions started quickly after initial post surgical recovery, the patient could walk with the help of his physiotherapist.

The pathology specimen showed necrotic lesion due to infection, the aerob/anaerob culture were negative for bacteria, PCR test for fungal infection were also negative but TB PCR and culture were positive and a retropharyngeal cervical epidural abscess was recorded for the patient and medical treatment started immediately.

One month follow-up revealed improvement in forces of both upper and lower extremities on both sides and patient was able to walk with his walker independently.



Figure 9

Discussion

Cervical epidural abscess (CEA) is a serious spinal infection and can be very problematic but due to the fact that its symptoms are very unusual and the incidence is rare, it may be under diagnosed in many cases.

Incidence of spinal epidural abscess is an extremely rare condition and is evaluated to be 2 to 25 per 100,000 patients [9] and estimates on the frequency of CEA are 14% of all SEA [8]. Studies showed that CEA is a rare condition, in one study says that the incidence of CEA may be as low as 1 in 70,000 to 1 in 400,000 hospital admissions [6]. Published symptoms in a study which retrospectively investigated patients for 11 years, include neck/back pain (62.5%), neurological deficits (62.5%), and fever (31.3%). Comorbidities in that study were cardiovascular disease (56.3%), renal disease (37.5%), and diabetes mellitus (37.5%) [6], in our case the patient had a history of diabetes and hypertension.

Stroke as a sudden neurological deficit can be similar in a number of symptoms with CEA. Published literature warn carefully to detect this condition; Before distinguishing among stroke mechanisms, clinicians should first ask whether the findings could be caused by a non-vascular process, such as a brain tumor, metabolic disorder, infection, demyelination, intoxication, or traumatic injury that mimics stroke [11]. In 2014 one study cared to highlight two cases provisionally diagnosed as stroke which turned out to be cervical epidural abscess [5]. In their cases immediate surgical intervention was done in order to minimize the tragic complications, both cases partially regained motor function early after decompression surgery. In our case since the patient was misdiagnosed with cerebrovascular attack and treated for that reason from 2 years prior to this admission, the initial diagnosis for him was an acute on chronic brain ischemia which worsened his motor function bilaterally but when the radiological evaluations were performed, our neurologists were stunned by the clear brain MRI so by performing a cervical MRI a vast retropharyngeal abscess with extension to epidural space was revealed.

Previous studies showed that CEA involve lower cervical region (C5-C7) [6], in our case it is from lower cervical down to proximal thoracic vertebrae.

In one study the consequences of non-surgical treatment were investigated: the failure rates for non-operative treatment of CEA remain high (e.g., 41 - 42.5%), contributing to significant morbidity (22% risk of permanent paralysis), and mortality (3 - 25%) [8]. Paralysis is a disastrous complication of delayed or undiagnosed cervical epidural abscess, studies have shown delayed in treatment of epidural abscess can lead to irreversible neurological deficits and paralysis due to CEA which lasts longer than 36 hours without surgical intervention will be irreversible [5]; although in our patient the previous symptoms of neurological deficit which were related to previous CVA and so called "new CVA" on were resolved the first day after surgical evacuation of the abscess and decompression of spinal canal and the patient gained an MRC IV/V of both upper extremities.

Many studies have shown that early surgical intervention can lower the risk of mortality and morbidity in cases with CSEA and the most of the have emphasized that it should be performed within 24 to 36 hours of its incidence [6,12]; In our patient the surgical intervention was not performed within the golden period and the abscess is believed to be chronic, but not only the patient survived such a large chronic abscess but also regained muscle forces immediately after surgical decompression; although main pathogenesis of SEA has been shown to be S.A and in our case was *Mycobacterium tuberculosis* which lead to chronic abscess formation and more subtle symptoms.

CSEA may have many symptoms which can range from fever to malaise, loss of consciousness, or gait disturbance, neurological deficit and mimic CVA in some cases [5,8], in our case the patient was afebrile and yet his symptoms were very similar with patients experiencing CVA, due to his weakness and cachexia and previous history of drug abuse we guessed he might have been neglected by the health care system and his family, but the TB was progressing all this time.

Conclusion

CSEA is a very dangerous condition and can lead to permanent neurological deficit and can be underdiagnosed in patients with generalized weakness or previous CVA and it should always be kept in mind to perform a cervical MRI as well as Brain MRI in patients with suspicious CVA symptoms who has no obvious findings on CT scan, surgical intervention in subclinical slow progressive infection such as TB may relieve patient's symptoms even after the known "golden time", but more investigations should be performed to confirm these findings.

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