



CERVICAL EPIDURAL ABSCESS DUE TO NASAL SEPTAL PERFORATION

NAZAL SEPTAL PERFORASYONA BAĞLI OLUŞAN SERVİKAL EPİDURAL APSE

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SUMMARY:

Spinal epidural abscess is a rare but serious condition; where as delayed diagnosis and medical treatment can cause neurological deficiency or even death. Generally symptoms are non-specific that patients generally attend hospitals because of neck and waist pain, localized tenderness. In advanced stages fever and neurological symptoms can be seen. Seldom; it can be seen in cervical region. We present a case report of a 52 years-old man with nasal septal perforation attended our clinic because of neck pain, developed fever and neurological symptoms diagnosed as spinal epidural abscess and treated with drainage of abscess.

Key words: Cervical epidural abscess, nasal septal perforation, surgical treatment

Level of evidence: Case report, Level IV

ÖZET

Spinal epidural apseler nadirdir fakat gecikmiş tanı ve tedavi nedeniyle nörolojik hasar hatta ölüme neden olabilen ciddi durumlardır. Genellikle hastaların boyun ve sırt ağrısı ve lokalize hassasiyetle hastaneye başvurmasına neden olan belirtiler özgün değildir. İlerlemiş evrede ateş ve nörolojik bulgular görülür. Nadiren servikal bölge tutulumu olur. Bu çalışmada boyun ağrısı, ateş ve nörolojik belirtilerle başvuran ve burundan septal perforasyon gelişen, spinal epidural apse tanısı konulan ve absenin drenajı ile tedavi edilen 52 yaşında bir erkek hasta sunulmuştur. Bu olgu sunumunda nadir görülen bu antitenin tanı ve tedavisi literatür bilgileri ışığında tartışılmıştır.

Anahtar Kelimeler: Servikal epidural apse, nazal septal perforasyon, cerrahi tedavi

Kanıt Düzeyi: Olgu sunumu, Düzey IV

INTRODUCTION:

Nasal septal perforation can be result of not only traumatic and iatrogenic causes but also sarcoidosis, Wegener's granulomatosis, systemic lupus erythematosus (SLE), Rheumatoid arthritis (RA), Crohn's disease, tuberculosis, syphilis, AIDS, inflammatory diseases, carcinomas or using of cocaine and long-term medication such as topical corticosteroids. Untreated infections such as septal abscess can cause septal cartilage necrosis and also intracranial and systemic complications^{2,3,8,13}.

Spinal epidural abscess is formed by collection of pus or inflammatory granulation tissue between dura mater and the overlying vertebral column¹³. This is a rare disease with non-specific symptoms such as localized tenderness, neck and waist pain which makes difficult to diagnose. With early diagnosis and appropriate treatment, excellent recovery could be gained⁸.

Spinal epidural abscess generally occurs in thoracic and lumbosacral area¹¹. It can be rarely seen in cervical region. When seen in cervical region; it generally causes neck pain. During advanced stages neurological deficits and high fever can be seen.

We represent a case that attended our clinic with neck pain and developed neurological symptoms and fever afterwards and diagnosed as cervical spinal epidural abscess that was unresponsive to medical therapy and treated successfully with abscess drainage by an anterior approach.

CASE REPORT:

A fifty two-year-old male with head and neck pain and high fever for 3 days admitted to our clinic. Ear nose and throat (ENT) examination showed 8x9 mm (width x length) nasal perforation in nasal septal cartilage and purulent drainage in nasal cavity and nasopharynx. Patient's blood tests showed sedimentation 28 mm/h, CRP 100.70 mg/L and complete blood count 11.55×10^3 leukocytes/ μL with neutrophil predominance (82.27 %) were present. Than patient is hospitalized and blood, urine culture and urinalysis were taken during high fever. Brucella agglutination test and human immunodeficiency virus antigens were negative. A paranasal computed tomography scan showed only hypertrophy of left inferior and middle turbinate and septal perforation. A cervical tomography showed osteophytes changes in vertebrae and degenerative changes in facet joints. When patient suffered numbness in both arms, a cervical vertebral magnetic resonance imaging (MRI) was taken. Thickness of dural structures starting from C3 proximal level to C4, C5-6 disc level; edematous changes, compression of epidural granulation and hypertrophic structures seen in anterior of epidural space in dural sac and anteriorly of right paracentral of spinal cord in level of C3; heavily of right anterior dural sac and spinal

cord starting from C4; dural sac, spinal cord, both anteriorly to neural root in C4-5; dural sac and spinal cord and left lateral anteriorly from C5 to C6-7. Intense enhancement of the mass was observed (Figure-1). (T1 Weighted Sagittal image).



Figure-1. Preoperative sagittal T1-WI enhanced MRI revealed highly enhanced elevation of longitudinal ligament and hypointense center. Anterior subarachnoid space narrowed and abscess that pushes cord and narrows anterior-posterior diameter of spinal channel is shown (arrow).

The patient's blood cultures and nasal cavity cultures revealed *Staphylococcus aureus* (*S. aureus*) and methicillin-resistant coagulase-negative staphylococci. Than cephalosporins, rifampicin, and daptomycin group of antibiotics were started; and patient was performed an anterior cervical discectomy. A right paramedian incision was made under the cricoid cartilage, laterally to medial margin of sternocleidomastoid muscle; trachea, esophagus medially were excluded. Disc space was opened and osteophytes located posteriorly were cleaned. Abscess was drained by opening both PLL and foramen. Postoperative CRP was 8.80 mg/L and sedimentation rate was 69 mm/hr and patients symptoms were settled down later on. Pathological examination of abscess showed fibrous cartilage. Abscess culture also showed *Staphylococcus aureus*. Postoperative follow-up was performed by a computed tomography with no complications and patient was discharged

on postoperative third day. In the six-month postoperative follow-up showed no recurrence (Figure-2).

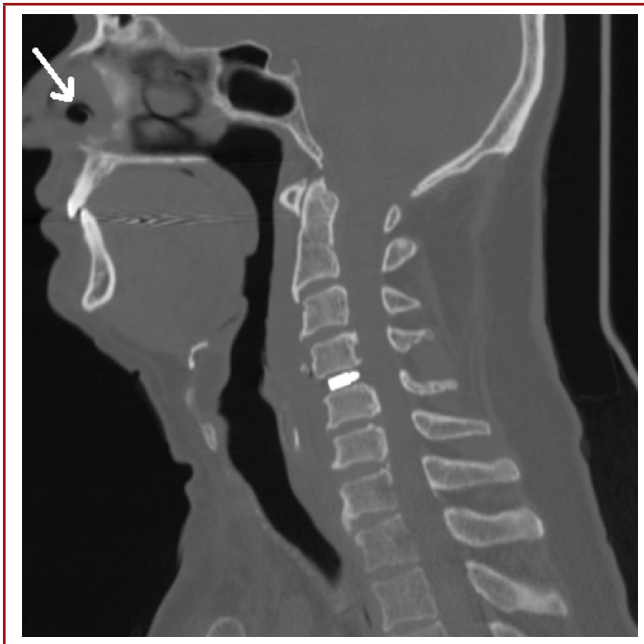


Figure-2. A postoperative sagittal CT scan shows a PEEK cage and postoperative decrease in edema and compression. Patient had approximately 6mm septal perforation (arrow).

DISCUSSION:

The spinal epidural space is a continuous vertical sleeve filled with fat, arteries and venous complexes¹³. Abscess in this area move through dural sheath, may involve multiple segments. Generally a spinal epidural abscess occurs posteriorly³. Spinal epidural abscess were generally seen in males and in 6-7th decades.

Etiopathogenesis of about 30-40 % of all spinal epidural cases is unknown. However, spreading with direct invasion was seen about 10-30 % of cases and generally takes places from vertebral osteomyelitis or psoas muscle abscess. Baker et al. showed 26 % of cases arisen from infections like fruncles, pharyngitis and dental abscess² where as other reviews showed cases arisen from skin, urinary and respiratory system about 50 %¹¹. Iatrogenic factors after invasive procedures such as lumbar puncture, peridural and epidural anesthesia, occurs in 15 % cases⁵. Although invasive procedures may be major factors alone; they can also result in abscess formation via ascendant path through skin⁹. Abscess can also be seen during paraspinal injection of steroid and analgesics^{2,9}. About 15-35 % cases develops after a trauma. Other risk factors include diabetes mellitus, advanced age, alcoholism, intravenous drug use, immune deficiency diseases, such as HIV/AIDS may take place. Peridural/Epidural catheters placed more than 2-4

days also increase the risk¹³. But in this case no morbidity was found.

Most common (75 %) pathogen bacteria is found to be *Staphylococcus aureus*^{2,15}. Gram negative bacteria are found about 10-45 %¹³. Other pathogens include *Haemophilus parainfluenzae*¹, *Brusella*¹⁰ and *Actinomices israeli*⁷ and *Aspergillus* species in patients with AIDS⁶. However, culture can be negative in 40 % of cases⁴.

Especially in early stages nonspecific symptoms make harder to diagnose. Patients generally consult for pain and tenderness in the abscess area¹². In advanced stages, depending on the level of abscess compression, incontinence and paralysis may occur. This process may vary from several days to several months. Headache, fever, and neurological deficits constitute the triad of abscess¹⁴. Increase in inflammation markers in blood is observed. The definite diagnosis can be made with myelography and gadolinium enhanced MRI⁴.

After surgery medical treatment is the primary option, surgeries such as laminectomy, hemilaminectomy or laminar fenestration implementation is recommended. Paralysis more than four days may not benefit from surgical intervention for repairing neurological deficit therefore led a poor outcome. In our case, the patient's neurological deficits disappeared following surgery, and the patient was discharged without any deficits.

In our case, patient was 55 years old and male. He attended our clinic for his neck pain and in two days fever and neurological symptoms especially arm tenderness and difficulty in walking occurred. After these symptoms MRI was taken and abscess formation was shown. Culture taken from perforated mucosa showed *S. Aureus*. Blood culture taken simultaneously also showed growth of *S. Aureus* which might indicate nasal septum perforation was the focus of infection. It is known that nasal septal abscess can cause nasal perforation and intracranial abscess formation¹⁴. In literature, there are no cases of spinal epidural abscess as a complication of nasal septal perforation. However, patients with nasal septal perforation with neck pain and neurological deficits, spinal epidural abscess should be thought as a complication. This association may be coincidental, but in patients with cervical spinal epidural abscess, nasal pathology should be considered as focus of infection.

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