Intraspinal Abscess and Hydrocephaly Secondary to Dermal Sinus

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✔ The cases with meningitis that is unresponsive to conventional antibiotic therapy, recurrent bacterial meningitis or detection of an atypical pathogenic organism should suggest congenital neuroectodermal defects and a detailed physical examination should be done. Because of the failure of the antibiotic therapy in a patient, a careful physical examination was done and a dermal sinus was detected. In his follow-up, the presence of a intraspinal abscess and an infected dermoid cyst due to hemolytic streptococci were detected.
Key words: *Intraspinal abscess, hydrocephaly, dermal sinus*

✔ Ampirik antibiyotik tedavisine cevapsız menenjit vakaları, tekrarlayan bakteriyel menenjit yada atipik patojen organizmanın tespit edilmesi durumunda konjenital nöroektodermal defektler düşünülmeli ve ayrıntılı bir fizik muayene yapılmalıdır. Antibiyotik tedavisinin başarısızlığa uğradığı bir hastada dikkatli bir fizik muayene yapıldı ve dermal sinüs tespit edildi. İzleminde intraspinal abse ve hemolitik streptokoklar ile infekte dermoid kist varlığı gösterildi.
Anahtar kelimeler: *İntraspinal abse, hidrosefali, dermal sinus*

INTRODUCTION

Congenital dermal sinuses are the only form of occult spinal dysraphism appearing with meningitis, tethered spinal cord or neural compression[1]. In the case of a meningitis unresponsive to the conventional antibiotic therapy or in the detection of an organism which is not usually expected to be the cause of the disease, the physician should search whether there are factors which affect the patient's immune system, acquired anatomical defects and congenital neuroectodermal defects[2-4].

Although dermal sinuses are most commonly located in the lumbosacral region, they may occur at anywhere along the region starting from the upper part of the intergluteal fold to the occipital region[5]. The sinus tract ostium associated with these defects could be so small that it can easily be overlooked.

In this case, the presence of intraspinal mass and the enlarged spinal canal were shown with magnetic resonance imaging (MRI) findings. The treatment of meningitis was unsuccesful because an infected dermoid cyst had not been suspected. Despite the intensive antibiotic treatment, the CSF samples obtained by recurrent lumbar punctures were purulent in appearence and the same bacteria (alfa hemolytic streptococci) was cultured in three consecutive samples.

CASE REPORT

An 18-month-old boy patient was admitted with the complaints of high temperature, anxiety and weight loss. According to the case

history taken from his parents, starting from two months before his hospitalization, his temparature had been 39 °C at least twice a day and for the last three days he had exhibited signs of anxiety.

On admission to our hospital, he was in fatigue and lethargy. In his physical examination, a lesion about 5x3 cm in size, not bulging out of the skin, distinquishable with its dark purple colour and not having a clear ostium was detected at the middle axis of the lumbar region. He was letharjic and meningial irritation findings were positive. The fundus examination was normal. The initial neurological examination of the patient demonstrated that he had a normal power (5/5) in the upper and lower limbs. The tone in the upper and lower limbs was also normal. The cremasteric and the abdominal skin reflexes as well as the anal tone were normal. Sensation was intact.

In laboratory evaluation, the pathological findings were as follows: white blood cell (WBC) 10.400 mm^3 with 74% polymorphonuclear cell (PMNC), Hb 9.73 gr/dl, Htc 32.16%, MCV 70.06 fl and sedimentation rate 50 mm/h. The CSF sample was purulent. CSF study revealed WBC 8000/mm^3 with 100% PMNC, glucose 5 mg/dl, protein 740 mg/dl values. On gram staining, gram positive microorganisms which clustered at different sites were observed. Computerized tomography (CT) showed triventricular hydrocephaly (Figure 1). The patient in whose CSF culture alpha hemolytic streptococci were isolated was admitted as bacterial meningitis and crystallize penicillin G plus chloramphenicol treatment was started.

He was afebril on the nineth day of follow up. On the 13 th day, the CSF sample taken was still purulent and alpha hemolytic streptococci was isolated again which was sensitive to the antibiotics that were used empirically. The previous antibiotic treatment was changed as ceftriaxone plus ampicillin. In the follow-up, the patient's general condition became better and enteral nutrition was started. However CSF was still purulent on the 12th day of the ceftriaxone plus ampicillin treatment. It was suspected that there would be an abscess which was associated with the dermoid sinus and his MRI revealed an intradural mass lession with cystic formations that extended from T10-L1 to S1 level and an enlarged spinal canal were also observed (Figure 2–4). During this period, the patient had a history of 3 days progressive inability to walk, 48 hours of bowel retention and 24 hours of urinary retention and complained about a visual loss. In opthalmologic examination his pupil borders were not clear. We thought an optic atrophy could be, external ventricular drainage was applied to the patient. CSF pressure was 20 cmH_20. The macroscopic appearence of the material which was taken was quite clear and no cells were observed microscopically. The materials which were taken from the patient by recurrent lombar punctions were purulent, however, when ventricular drainage was applied, the CSF sample was sterile and the mass appearence which was detected by MR was in accordance with the LP applied region. So it was concluded that the purulent material could be belonged to a cystic formation and the patient was taken under operation

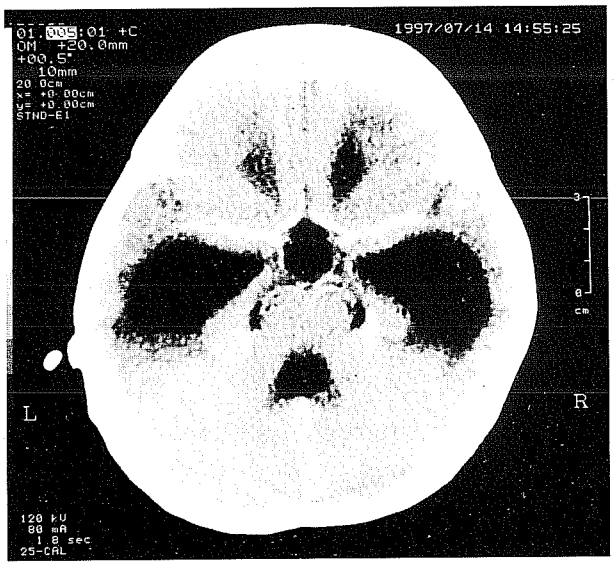

Figure 1. Computerized tomography shows triventricular hydrocephaly.

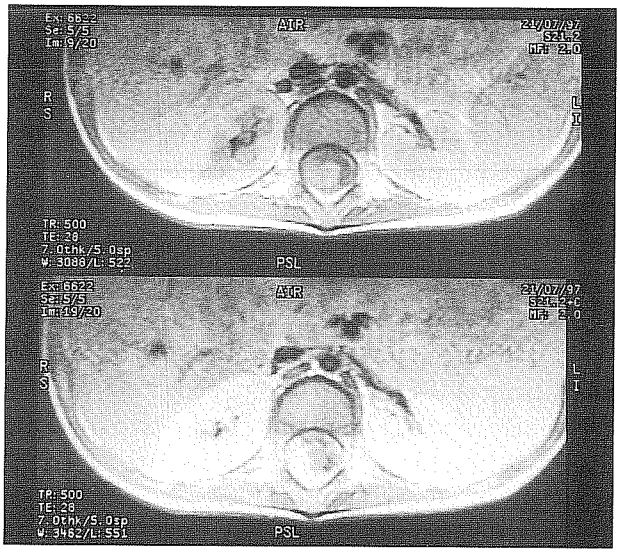

Figure 2.

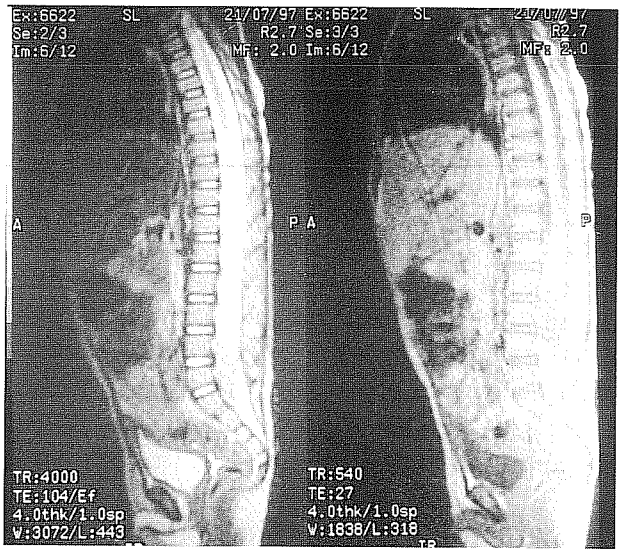

Figure 3.

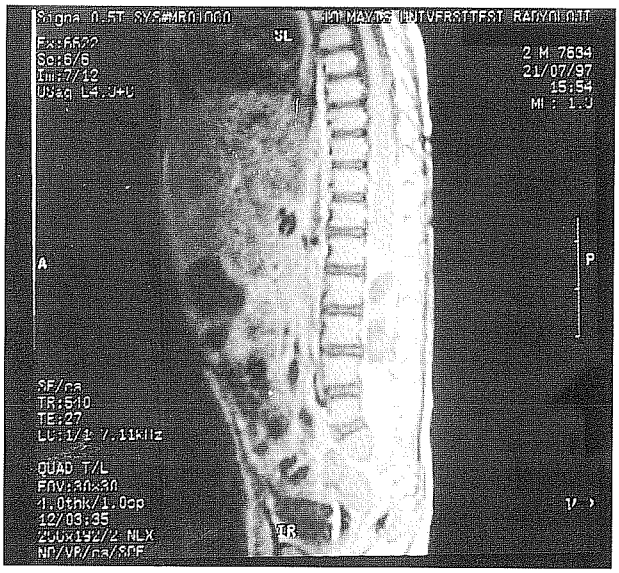

Figure 3.

Figure 2, 3, 4. Magnetic resonance imaging shows intraspinal mass that extendes from T10-L1 to S1 levels and enlarged spinal canal.

immediately. The skin was incised from L1 to S1 in the prone position. The dura was accessed by applying laminectomy at the levels of L1-L5. The abscess material was evacuated. Cystic formations having bone and hair particles were also observed. From the abscess material and cystic formations samples for pathology and culture were taken. From the sample which was taken during the operation alpha hemolytic streptococcus was cultered and the pathological interpretation of the specimen was as infected dermoid cyst and chronic inflammation of the dermoid sinus. Ten days later, because of his hydrocephalus, a ventriculoperithoneal shunt was placed to the patient whose intraspinal abscess had been evacuated. The patient who received antibiotic therapy for one more week has been discharged in a healty status. Within a two-year follow-up after the operation, no recurrent meningitis was observed and the shunt was removed because of the recovery of his hydrocephalus.

DISCUSSION

Between the third and fifth week of the intrauterine gestation, incomplete seperation of the neuroectoderm and ephitelial ectoderm results in the formation of a dermal sinus tract[6-8]. About 60% of the dermal sinus tracts go into the subarachnoid space and 27% reaches to the neural elements of the conus or filum terminale[9]. An infected dermal sinus tract that extend commonly located in the lumbosacral region, thorasic or servical dermal sinuses are present in nearly %10 of the cases[10]. Dermal sinuses provide a portal for meningitis and intraspinal abcesses in nearly the half of all the cases. The most common responsible microorganisms are Staphylococcus aureus and Escherichia Coli. These microorganisms are followed by proteus species and anaerobic microorganisms. Multiple organisms may be isolated in %20 of the cases[1]. Aerobic and anaerobic streptococci cause 18% of the cases[11]. Other organisms occasinoally reported to be responsible for epidural abscess formation include coagulase-negative staphylococci, Streptococcus pneumoniae, Haemophilus aphrophilus[12], Nocardia asteroides[13] and Aspergillus[14]. Dorsal sinus tracts can be seen within the age range of from the early childhood to the age of 25. They can be characterized with the skin manifestations such as a dimple in the skin, a hyperpigmented patch, a hairy nevus or a hemangioma. These signs can easily be missed[15]. In our case we didn't think of infectious congenital neuroectodermal meningitis at the beginning so we tried to cure the patient as if he had purulent meningitis. The detection of a spinal mass by MRI and the presence of a dermoid sinus which was in accordance with that area made us think that there might be an infected cyst or a tumor associated with the sinus tract.

As a result, the patient recovered fully with the evacuation of the spinal abscess. Dermal sinuses can be association with dermoid cysts at a rate of %30-40, or in nearly half of the cases dermoid or epidermoid tumors may occur within the focal expansions along the tract[16-18].

In a case that does not respond to successful antibiotic therapy or in recurrent meningitis, a physician should suspect the presence of congenital neuroectodermal defects and make a detailed physical examination. Since these defects can easily be overlooked.

CONCLUSION

Intradural spinal abcesses are rare lesions and unless they are diagnosed and treated promptly, they have poor prognosis. Since the case we followed did not show the signs or symptoms of the spinal cord compression, it caused a difficulty in diagnosis. For this reason a physician should highly be alert against the patient group who particularly the cases with meningitis that is unresponsive to conventinal antibiotic therapy, recurrent bacterial meningitis or detection of an atypical pathogenic organism. İf in a patient whom you think have meningitis, you still get purulent CSF material despite an effective antibiotic therapy, you may possibly be aspirating the intraspinal abscess content.

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