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Severe Backache followed by Lumbar Puncture

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ABSTRACT

The purpose of this study is to report a case of severe back pain following lumbar puncture (LP), which was associated with an accidental tether cord syndrome (TCS) in MRI. The patient was a 10-year-old boy that was hospitalized in the pediatric ward for severe headache and to rule out meningitis. First, LP was performed for him, but he suffered very severe back pain after LP. Lumbosacral MRI was performed to rule out collection or abscess formation, but the evidence of the TCS was accidentally found; however, it was too unexpected before. In the short term follow up, the symptoms of the patient were completely resolved by using analgesics. It was shown that his pain was as a result of LP. In general, although sometimes severe lower back pain after LP may be overwhelming, if neurologic examination were normal, it is important to assure parents that it would be resolved.

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Introduction

The use of painful and invasive methods is inevitable in order to eradicate some pediatric diseases, such as painful procedures of lumbar puncture (LP) that is really important in many conditions for diagnosis or even treatment of some diseases. LP and cerebrospinal fluid (CSF) collection are commonly used for the evaluation of possible central nervous system infection, subarachnoid hemorrhage (SAH), degenerative-demyelinating diseases, and collagen vascular diseases and also to study the presence of malignant cells in the subarachnoid space. It is also used as the best diagnostic method for pseudotumor cerebri (1). The life-threatening side effects of LP are very rare, but milder complications may occur (2).

It is important to provide accurate and understandable scientific information for patients and their parents so that their level of awareness about the necessity and risks of any offensive treatment, including LP, will be improved and by accepting such actions, diagnosis and treatment will be easier for medical team (3).

Case report

The patient was a 10-year-old boy, without any history of a disease or a problem in the past, admitted in the hospital due to his first episode of severe headache. After LP, with the diagnosis of meningitis, he was under antibiotic therapy for one week. This process was carried out at a different center, and the patient did not have any evidence of the antecedents. Eight days after the start of the treatment, the patient had severe back pain and he was restless with minimal movement and his family reported that he had sustained complications and paralysis followed by LP. Referring to our pediatric center, Ghaem hospital in Mashhad, Iran, at the time of patient's clinical examination walk-

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ing pattern was normal, muscular force was 5/5, and no paresthesia was detected. In order to rule out the partial treated meningitis, the patient was hospitalized and LP was performed for the second time, the CSF analysis was normal but the patient was still symptomatic. Lumbosacral MRI was also performed for the patient to rule out collection or abscess formation. Although the radiology report was normal, but in consultation with the pediatric neurologist and neurosurgery specialist, tethered cord syndrome was under suspicion.

Ultimately, according to normal CSF and no complication in lumbosacral MRI, the patient was discharged with the diagnosis of back pain following LP, without any other complications. In follow up, patient was symptom free with the use of analgesics, and after a week the symptoms were completely resolved. We think the finding of tether cord syndrome (TCS) was an accidental finding and it was not the consequence of LP.

Discussion

All medical procedures, whether minor or major, as a stressor, will cause the anxiety of patients and their companions. These conditions have more delicacies in the pediatric age group, with more stress and excitement for the patients and their family (3-5). Although LP is a safe diagnostic or therapeutic procedure in experienced hands, fears of pain or complications sometimes makes parents to refuse consent (3-5). On the other hand, if any new sign falls afterwards, usually the parents attribute it to the LP (6).

In general, lumbar puncture is a very low-risk step, when it is performed by an experienced clinician, although in some cases it causes short-term side effects. The most common complications caused by LP include headache, nausea, vomiting and back pain (pain in the site of procedure), and the most serious consequence is the brain herniation (7). Back pain is one of these complications that usually occur around the needle site insertion. This pain can also be felt in the back of the legs. Back pain in some patients can be very severe and intolerable, but in many cases, in a few days, pain subsides and can be treated with NSAIDs. There is not proven information on the mechanism of this severe pain, but perhaps the reason can be attributed to the damage of soft tissue at the site of LP or nerve root irritation. Other complications include cerebral and spinal herniation, postdural puncture headache, cranial neuropathies, infections, and bleeding (7)

As mentioned, in our patient, a lumbosacral MRI was performed to rule out the collection and abscess formation. There was no evidence of these problems but the signs of TCS were found accidentally that was unexpected because he did not have any symptoms of TCS before this episode of illness.

TCS is mostly congenital and this syndrome is often observed during infancy and childhood; however, the reported cases are due to spinal cord injury or operation (8). In sum, any factor that entraps the spinal cord can cause this syndrome (9). The TCS is usually manifested with symptoms such as pain, spastic gait, sphincter problems, lower limb weakness, and intestinal dysfunction (10). The gold standard for diagnosis of TCS is to measure the pressure and elasticity of the spinal cord under direct observation. Since this method is too invasive, noninvasive methods such as examining the position of the spinal cord in MRI are used for this purpose (8).

In 2006, a case of pseudo tethered cord syndrome was reported as an unusual manifestation of LP complications by Ogul et al (11). The patient was a 14-year-old boy with the chief complaint of seizure. He had paresthesia in both lower limbs. The primary diagnosis was meningitis, and LP was performed for the patient and CSF analysis was normal. In MRI, filum terminale adhesion was detected suggestive of TCS. The brain MRI was normal, and the lumbosacral MRI as a control imaging was normal (11).

The researchers pointed out that the findings reported in the patient's MRI is unusual as a complication of LP. They suggested that LP consequences might mimic the TCS in MRI; however, it is not real TCS. And additional imaging may prevent misdiagnosis (11).

To sum up, it does not seem that the tethered cord in presented case was the result of LP or the cause of patient's severe back pain. Because first of all, pain is a nonspecific symptom and it is almost an unusual finding in patients with TCS (12). Moreover, although the cases of acquired TCS have been reported, their incidences are much lower than congenital ones and are usually caused by infection, tumor, or surgical manipulation rather than LP (10).

We attributed his severe back pain to LP. His TCS was an accidental finding that seems to be congenital and asymptomatic, and not related to LP.

Conclusion

To sum up, it seems that the physicians and the family of patients need to be aware that even debilitating, severe and unusual backaches may occur after LP. In these cases, if the neurologic examinations are normal, the pain will be temporary and will not cause a persistent or serious complication. The pain should be controlled with palliative and supportive treatments.

Conflict of Interest

The authors declare no conflict of interest.

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