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Case Report Open Access

Incidental Finding of Froin Syndrome during Spinal Anesthesia in a 72-Year-Old Patient

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Abstract

Froin Syndrome is characterized with xanthochromic CSF, high CSF protein content, complete blockage of CSF circulation. We reported our case of Froin Syndrome, a quite rare entity, with its radiologic features and characteristics of CSF biochemistry in the light of literature.

Introduction

Georges Froin (1874-1932) reported in 1903 that xanthochromic cerebrospinal fluid (CSF) and coagulation caused meningeal irritation. His paper was published in Gazette des hopitaux in 1903 [1].

In 1910, Max Nonne explained spinal cord blockage related with high protein content. This condition may also be seen in meningitidis and epidural abscesses. Protein levels of spinal cord may elevate to 5 g/l while its normal value is between 0.15 and 0.45 g/l.

We reported our case of Froin Syndrome, a quite rare entity, with its radiologic features and characteristics of CSF biochemistry in the light of literature.

Case Report

A 72-year-old ASA III male patient was taken to operation room in order to perform total knee prothesis. He was monitorized with electrocardigraphy (ECG), blood pressure and SpO2. Patient was put into sitting position. Subarachnoid space was accessed at L 4-5 intervertebral space through a 22G spinal needle under sterile conditions.

Cerebrospinal fluid (CSF) was seen to be xanthochromic (clear light yellow, citrine). This condition was considered to be investigated and anesthesia was abandoned. CSF material was obtained in a sterile way and samples were sent to biochemistry and microbiology laboratories for examination.

Protein level of CSF was 2146 mg/dl (normal value of CSF protein: 15-45 mg/dl). Microbiology results were normal.

Froin Syndrome was suggested according to these findings. Cranial and spinal (cervical, thoracal and lumbar) MRI revealed an intramedullary mass lesion 63 x 13 mm in size at level of T2-L1 spines (T1 hypointense, T2 peripherally hyperintense). These findings were radiologically consistent with extradural spinal mass.

The patient was referred to neurosurgery clinic after he and his relatives had been informed.

Discussion

Froin Syndrome is characterized with xanthochromic CSF, high CSF protein content, complete blockage of CSF circulation [1,2]. CSF is normally clear and colorless. While blood protein level is 5500-8000 mg/dl, level of CSF protein is 15-45 mg/dl [2]. High protein content of CSF has many reasons. For example, protein concentration elevates 1 mg for per 1000 erythrocytes in subarachnoidal hemorrhage. Protein levels of CSF may elevate up to 200 mg/dl in viral inflammation of ependyma and meninges and up to 500 mg/dl in bacterial meningitidis and Guillian-Barre Syndrome [3]. CSF is xanthochromic in spinal block, subarachnoidal hemorrhage (SAH), Guillian-Barre Syndrome, subdural hematoma, tumors (acustic neurinoma), acute purulent menigitidis, blood dyscrasias [2].

Radiologic examinations being normal made us exclude subarachnoidal hemorrhage, subdural hematoma, acustic neurinoma. Normal microbiology results have led us to exclude acuute purulent meningitidis.

We suggested Froin Syndrome due to absence of pathologic neurologic findings in the anamnesis and preoperative examination of the patient, normal microbiology results, thoracal MRI results (an intramedullary mass lesion 63 x 13 mm in size at level of T2-L1 spines (T1 hypointense, T2 peripherally hyperintense, centrally hypointense) and CSF protein level of 2146 mg/dl (Figure 1).

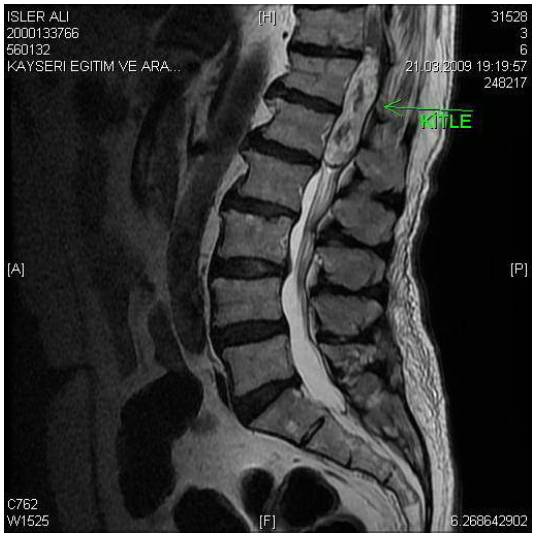


Figure 1: Thoracal MRI results (an intra-medullary mass lesion 63 x 13 mm in size at level of T2-L1 spines (T1 hypointense, T2 peripherally hyperintense, centrally hypointense).

We postponed the operation and decided to take the patient to orthopedics ward in order to investigate.

CSF biochemistry results of the patient were consistent with Froin syndrome. Mass lesions may be seen in posterior fossa and intramedullary region in Froin syndrome and the syndrome may lead to obstruction [4,5].

We obtained cranial and spinal MRI in order to support the diagnosis. MRI result was consistent with melanocytoma radiologically. In case of detecting abnormal CSF appearance in the course of lumbar punction done for spinal anesthesia, CSF samples should be sent to biochemistry and microbiology laboratories.

In this case, we detected Froin Syndrome, a very rare entity.

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