



A Rare Cause of Superficial Cerebral Hemosiderosis: Spinal Surgery *Serebral Süperfisial Hemosidorozis Ender Bir Nedeni: Spinal Cerrahi*

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Dear Editor,

A woman aged 54 years was admitted to our clinic with symptoms of progressive gait difficulty for 6 months, along with imbalance and hearing disorders. Her symptoms started a year before and were ongoing with gradual progression. It was found that the patient had undergone surgery on the 1st and 2nd vertebral levels due to meningioma 20 years ago and was left with a mild sense of weakness in her right leg thereafter. Findings from a physical examination were normal. In a neurologic examination, the following were found: bilateral hearing loss more salient on the left and decreased muscle power in the lower extremities (MRC grade: right proximal 3/5, distal 2/5; left proximal and distal 4/5). Patella and achilles reflexes were bilaterally hyperactive and the plantar reflexes were bilaterally extensor. Bilateral hypesthesia was present beneath the T1-2 level. Ataxic gait in a wide stance unrelated with paraparesis and intentional tremor on both upper extremities were detected. Findings compatible with frontal dementia were determined in neuropsychiatric evaluation. Cerebrospinal fluid (CSF) obtained from a lumbar puncture was slightly xanthochromic and its pressure was normal. Primary CSF examination detected 5 lymphocytes /mm³, and 350 erythrocytes /mm³. Biochemical CSF examination revealed the following: glucose 70.6 mg/dL,

protein 94.6 mg/dL, ferritin 18 mmol/L (n=6-12 mmol/L), iron 14 mmol/L (n=1.6±1.2 mmol/L). In the audiogram, pure tone average in air conduction was 45 dB on the right and 43 dB on the left ear, and in bone conduction both ears had an average of 35 dB. Findings were in concert with bilateral mild sensorineural hearing loss. In brain magnetic resonance imaging (MRI), particularly on T2 images and especially gradient echo sequences (GRE), hemosiderin deposition was observed on the surface of the cerebellar hemispheres and cerebellar foils (Figure 1). Spinal MRI revealed focal syringohydromyelic expansion due to the operation performed on the spinal cord T3 level and cord traction with 2.4x1.6 cm pseudomeningocele collection due to surgery on T1-T2 levels (Figure 2). Hypointensity was observed in lumbar MRI, mostly on T2 sections in the subpial space stretching towards the conus medullaris level (Figure 3). No aneurysm or vascular malformation were detected in computerized tomography (CT) angiogram in the brain. Superficial cerebral hemosiderosis (SCH) was considered a long-term complication of microbleeds due to traction in the operated area. Decompressive surgery was performed. Progression of symptoms stopped in the third week.

Superficial hemosiderosis developing as a result of hemosiderin deposition is a rare chronic disease of the CNS, which is diagnosed using typical radiologic findings (1,2).

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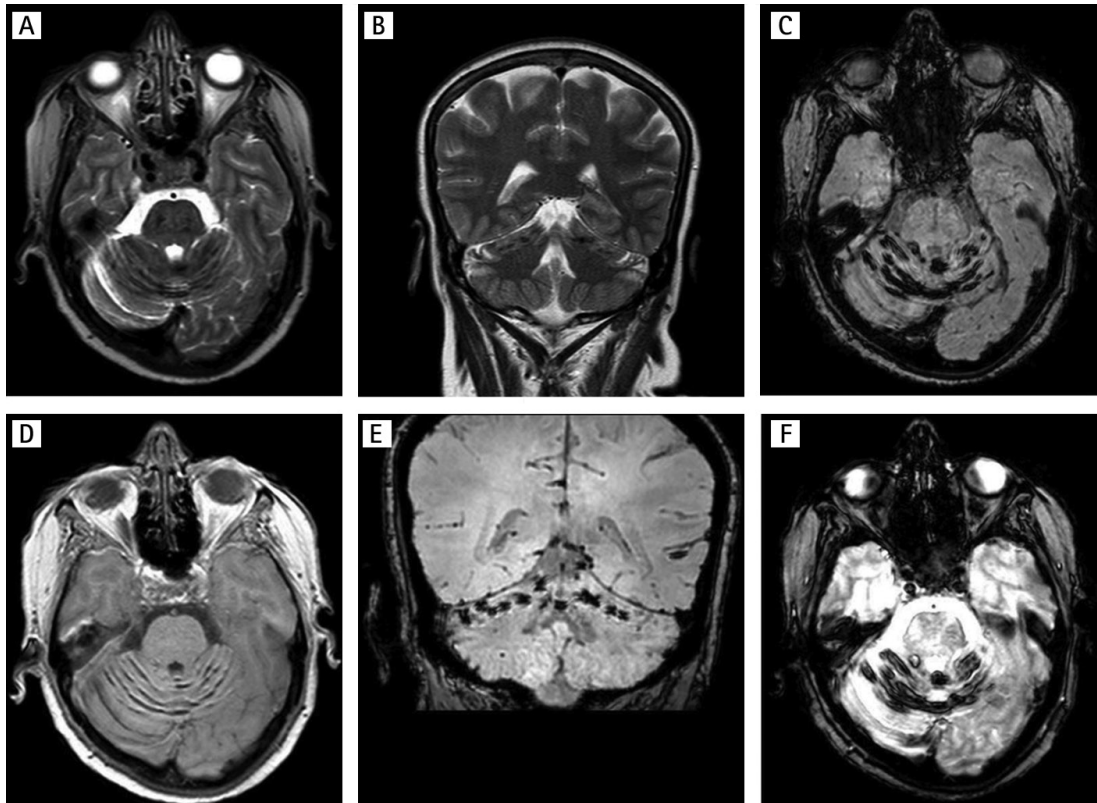


Figure 1. A) Axial T2A, B) Coronal T2A, C) Axial gradient echo, D) Axial T1A, E) Coronal gradient echo, F) Axial T2A in sequences; low signal appearance related to hemosiderin deposition was monitored in superficial structures associated with superficial hemosiderosis between cerebellar foils in posterior fossa sections. The same findings appear saliently in gradient echo sequences.

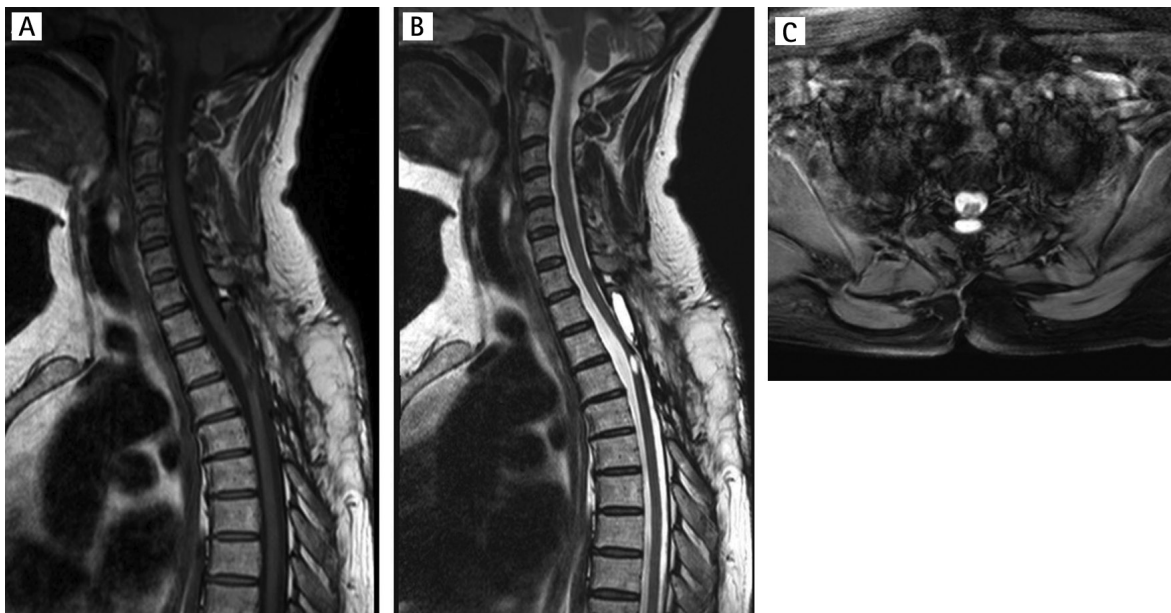


Figure 2. A) Sagittal T1A, B) Sagittal T2A, C) Axial T2A; focal syringohydromyelic expansion in T1-T3 levels in the cord and post-operational pseudomeningocele collection are observed. Appearance of the cord retracted towards the posterior and pressure on the dural subarachnoid space are also observed.



Figure 3. A) Sagittal T2A, B) Axial T2A; hypointense signal compatible with hemosiderin deposition was observed at the conus medullaris level in magnetic resonance imaging examination of the lumbosacral region.

Cerebral hemosiderin deposition is observed with even greater clarity on T2/GRE-focused MRI images. Observation of hypointensities due to hemosiderin deposition, particularly in the sylvian and cortical gyri, ventricle ependymal surface, brain stem, cerebellar foil, superior vermis, and the pial surface of the medulla spinalis on MRI images is sufficient for diagnosis (1,2,3). Cohesions occurring in the surgical region following spinal surgery may cause SCH as a long-term complication by inflicting microhemorrhages (4).

Ethics

Informed Consent: Consent form was filled out by all participants.

Peer-review: Internally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: Levent Öcek, Feray Güleç Uyaroğlu, Ali Çayır, **Concept:** Levent Öcek, Yaşar Zorlu, **Design:** Levent Öcek, Yaşar Zorlu, **Data Collection or Processing:**

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