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Subarachnoid hemorrhage complicated with cerebral venous thrombosis in pregnancy: A case report

Gebelikte serebral venöz tromboz ile komplike subaraknoid kanama: Olgu sunumu

Tuba Erdem Sultanoğlu¹, Hasan Sultanoğlu²

¹ Department of Physical Therapy and Rehabilitation, Şehitkamil State Hospital, Gaziantep, Turkey

² Department of Emergency Medicine, Ersin Arslan Training and Research Hospital, Gaziantep, Turkey

Abstract

The conditions most commonly associated with cerebral venous thrombosis are the ones characterized by hormonal changes, which include pregnancy, puerperium, and oral contraceptive use. The classical signs and symptoms of cerebral venous thrombosis include headache, papilledema, convulsions, focal deficits, coma, and death. Cerebral venous thrombosis particularly affects superior sagittal or lateral sinus, but also sinuses to which cortical deep veins open. Cerebral venous thrombosis can cause serious neurological syndromes, but thanks to the introduction and widespread use of cerebral angiography, computerized brain tomography, and cranial magnetic resonance imaging, it can be diagnosed in a timely manner. In this case report we report a 22-year-old woman with unknown pregnancy status who was subsequently diagnosed to have pregnancy and cerebral venous thrombosis and subarachnoid hemorrhage after presenting to emergency room with severe headache followed by altered consciousness.

Keywords: Pregnancy, Cerebral venous thrombosis, Subarachnoid hemorrhage

Öz

Serebral venöz trombozun en sık görüldüğü durumlar; gebelik, puerperium ve oral kontraseptif kullanımını da içine alan hormonal değişikliklerin görüldüğü tablolardır. Serebral venöz trombozun klasik tanısı serebral anjiyografinin tanınması ve yaygın kullanımıyla, bilgisayarlı beyin tomografisi ve kraniyal manyetik rezonans görüntüleme ile sağlamıştır. Bu olgu sunumunda şiddetli baş ağrısı ve sonrasında gelişen bilinç bulanıklığı ile acil servise başvuran 22 yaşında, gebe olup olmadığı bilinmeyen ama tetkiklerde gebe olduğu anlaşılan serebral venöz tromboz ve subaraknoid kanama tanısı konan hastayı sunmayı amaçladık.

Anahtar kelimeler: Gebelik, Serebral venöz tromboz, Subaraknoid kanama

Introduction

Among cerebrovascular disorders, thrombosis of cerebral veins and sinuses is a rare condition, accounting for 1-2% of all stroke episodes in adults [1]. Although etiological causes include pregnancy, puerperium, oral contraceptive use, coagulopathies, intracranial infections, cranial tumors, penetrating head trauma, lumbar puncture, malignancy, dehydration, inflammatory bowel disease, connective tissue diseases, Behçet Disease, sarcoidosis, nephrotic syndrome, parenteral infusions, and various medications, the exact cause remains unknown in 20-25% of cases [2,3].

The clinical presentation may include mild headache or focal neurological loss, although patients may also be comatose [4]. Unlike arterial stroke, cerebral venous thrombosis (CVT) is common among the young people and children, with 75% of cases being female [5].

In this case report we report a 22-year-old woman with unknown pregnancy status who was subsequently diagnosed to have pregnancy and cerebral venous thrombosis and subarachnoid hemorrhage after presenting to emergency room with severe headache followed by altered consciousness.

Corresponding author / Sorumlu yazar:
Tuba Erdem Sultanoğlu

Address / Adres: Şehitkamil Devlet Hastanesi,
Pirsultan Mah., Çetin Emeç Cad., 27500
Şehitkamil, Gaziantep, Türkiye
e-Mail: durtubaerdem@gmail.com

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Case presentation

A 22-year-old woman presented to emergency room with severe headache, nausea, and vomiting starting 5 days ago and it was followed by loss of consciousness. Her relatives gave the information that her headache was of throbbing character, spreading from the nuchal region to the top of her head, and lasting for entire day. Her recent medical history was notable for an upper respiratory infection one week ago when her symptoms had begun. Her past and family history were not remarkable. Her vital signs were as follows: Body temperature: 36.5 °C, pulse rate: 65/min, blood pressure: 106/61 mmHg, and respiratory rate: 20 /min. Her general physical examination was normal. On neurological examination, she was confused and poorly oriented, and she showed weak cooperation with the medical team. No pupil edema was present and her light reflexes were bilaterally positive. Her motor examination was without any abnormality and she showed no pathological reflexes. Laboratory examination revealed a white blood cell of 12800 and a β hcg level greater than 1000. She had a ten week gestation. A lumbar puncture examination revealed cerebrospinal fluid with no leucocyte, glucose level of 50, protein level of 41.8, old erythrocyte count of 310 and xanthochromia being positive. A magnetic resonance venography revealed venous thrombosis of both lateral sinuses but her computed tomography of the brain (CT) was normal. The patient was diagnosed with cerebral venous thrombosis and subarachnoid hemorrhage. She was transferred to the neurology clinic for further care. The medical treatment of the patient was regulated, and surgical intervention was not considered. She did not come to the follow up so there is no information about the baby. Informed consent was obtained from patient.

Discussion

CVT induces a variety of pathological changes in brain. Its classical manifestation involves large bilateral hemorrhagic infarcts affecting cortex and adjacent white matter. Although its true incidence is unknown due to a lack of specific etiological studies, its incidence is on the rise among women and the elderly [6].

Hereditary thrombophilia syndromes are responsible for 50% of thromboembolic events during pregnancy when the risk of venous thrombosis increases by 5-6 folds. CVT leading to cerebral infarction and hemorrhage is a complication of pregnancy. Cerebral sinus thrombosis typically occurs during puerperium and most commonly involves the superior sagittal sinus [1]. In line with previous reports, our patient was a case of pregnancy-induced CVT during early pregnancy, but she also had a subarachnoid hemorrhage.

In CVT, headache is the most common cause of emergency department admission (80-95%) [1,2]. Apart from headache, patients may have neurological signs such as aphasia, neglect, hemianopsia, nystagmus, diplopia, cranial nerve palsy, visual field defects, sensory loss, and hemiparesis [2,7]. When CVT is considered a diagnostic possibility based on clinical findings, CT with or without contrast should be primarily taken for diagnostic purposes. Direct and indirect (nonspecific) signs of cerebral venous thrombosis on CT have been reported.

Unfortunately, CT may be normal in 20-40% of cases [8]. Angiography and magnetic resonance imaging (MRI) should to be taken in cases without pathognomonic CT changes. Particularly superior sagittal sinus thrombosis can be readily diagnosed with MRI [9]. Other diagnostic tools include cerebrospinal fluid examination, Electroencephalography (75% abnormal and changes nonspecific), brain scintigraphy with isotope, and tests directed to underlying causes. Whereas our patient had a normal CT, MR venography made the diagnosis by demonstrating venous thrombosis in both lateral sinuses. Subarachnoid hemorrhage has rarely been reported in association with CVT, and we diagnosed it by xanthochromia positivity of erythrocytes detected in lumbar puncture. Since the clinical presentation of the disease is highly varied, no consensus exists regarding its treatment. Despite being dependent on clinical presentation, treatment of CVT consists of different combinations of anticonvulsants, antibiotics, intracranial pressure reducing methods, and antithrombotic medications. Anticoagulant use is controversial due to a risk of bleeding of a hemorrhagic infarct. Heparin is beneficial for patients with cerebral venous thrombosis although some controversies exist surrounding its intracranial hemorrhage risk and indications. In most cases, high-dose heparin is the treatment of choice when CT shows no hemorrhagic infarction. However, patients with hemorrhagic infarcts may also benefit from anticoagulant therapy and heparin [10].

CVT is a rare albeit fatal disorder. It becomes even more fatal when it is associated with subarachnoid hemorrhage. Pregnancy should be definitely questioned and CVT should be remembered as a diagnostic possibility when a woman presents to emergency department with headache and altered consciousness.

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