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HEMORRHAGIC COMPLICATIONS AND CRITICAL CARE CHALLENGES DURING HEPARIN PRESCRIPTION: A CASE REPORT

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ABSTRACT: Periorbital ecchymosis occurs due to head and face trauma, base skull fracture, craniotomy or ophthalmic operations. There are some less common causes including: hematologic disorders (coagulation disorders, thrombocytopenia), vascular disorders (hemangioendothelioma, varicose veins around the eyes), inflammatory diseases (myositis, amyloidosis), skin disorders (herpes simplex), migraine and increased intracranial pressure. In this paper we have presented a 31 years old lady who developed headache, diplopia and unilateral periorbital ecchymosis spontaneously during the 5th week of pregnancy without any history of head and neck trauma or surgery. Ophthalmologic exam, blood pressure and primary lab data were normal. In further evaluations, superior sagittal sinus thrombosis was diagnosed based on to the brain CT, MRI and MR venography results. Therapeutic dose of unfractionated heparin started. Some hemorrhagic complication occurred but disappeared with supportive care. The patient's symptoms gradually vanished within a week after her admission. Patient continued the pregnancy by using therapeutic dose of low molecular weight heparin without any complications. Pregnancy was terminated by cesarean section in the 38th weeks without any complication for the mother and the newborn.

CASE REPORT: A 32 year old lady who was referred to the emergency ward of Eye Hospital, due to the developed headache, diplopia and unilateral periorbital ecchymosis during fifth week of pregnancy without any history of head and neck trauma or surgery.

Ophthalmologic basic examinations such as visual acuity, slit lamp examination, retinal examination and also primary lab data were normal.

Ecchymosis was unilateral without pain and ptosis, limited to the right upper eyelid^{1, 2} (Photography was performed after obtaining informed consent from the patient).



IMAGE 1: LEFT PERIORBITAL ECHYMOSIS (ANTERIOR VIEW)

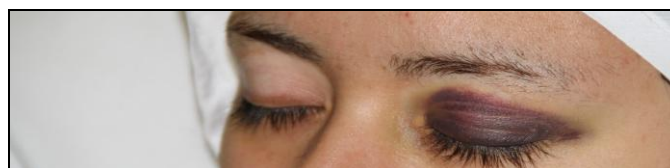



IMAGE 2: LEFT PERIORBITAL ECHYMOSIS (LATERAL VIEW)

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For further neurological evaluation patient was transferred to the neurology ward, where sixth cranial nerve palsy was detected while the brain CT scan was normal. Superior sagittal sinus thrombosis was diagnosed according to the brain MRI.

Consequently, patient was admitted to the intensive care unit as a high risk pregnant woman. Medical team consisted of intensivist, obstetrics-gynecologist, neurologist, neurosurgeon, hematologist, and rheumatologist, decided to start continuous infusion of intravenous unfractionated heparin with therapeutic dose based on the protocol (maintaining partial thromboplastin time within 75 to 110 seconds), and it had started.

After the first week of treatment clinical symptoms gradually began to fade away and severity of headache decreased. Ecchymosis around the eye gradually faded and then disappeared. Lateral movement of the eye (sixth cranial nerve function) returned to normal within 10 days. However, the most important challenge for this patient was gross hematuria. Despite a drop in hemoglobin and packed cell requirement, considering the importance of heparin therapy, intravenous infusion of unfractionated heparin continued with the aim to reduce partial thromboplastin time in the range of 55 to 75 seconds, under the observation of an urologist.

Hematuria gradually disappeared over the next two weeks.

Laboratory test had just shown positive anti-phospholipid antibody after three weeks of admission in the ICU. Patient general condition was good with stable vital signs. Intravenous unfractionated heparin was discontinued; however it was replaced with subcutaneous low molecular weight heparin (60 mg/12hr). Subsequently patient was discharged from the ICU with continuing subcutaneous dose of low molecular weight heparin. Pregnancy was terminated in the 38 weeks through elective C/S without any complications for the mother or the newborn. Furthermore, a therapeutic dose of low-molecular-weight heparin was restarted again the next day, after operation. Patient was discharged in good general condition and was recommended to do a follow up by visiting gynecologist and neurologist.

DISCUSSION: Leakage of the blood from the capillaries into the subcutaneous tissue leads to skin discoloration of periorbital bruising due to trauma or surgery. In people with coagulation disorders and vasculitis, this may occur even with a slightest impact¹. Peripheral arteries around the eyes are originated from the Lacrimal and Ophthalmic artery, Venous drainage are through the superior and inferior ophthalmic veins to the cavernous sinus that anastomoses with facial vein (an Angular branch and Trigoid)^{1, 3}. The abrupt rise in the cerebral venous pressure due to cerebral venous thrombosis or abrupt rise of intracranial pressure, may rupture capillary network which leads to periorbital ecchymosis⁴.

The cerebral venous drainage is done in the cerebral venous sinuses and then into the internal jugular vein. Cerebral venous sinus thrombosis (CVST) occurs when a blood clot forms in the brain sinuses, Major factors that lead to thrombosis include thrombophilia, trauma and infection. Untreated cerebral venous sinus thrombosis may lead to impaired cerebral perfusion by tissue congestion and increased intracranial pressure.

Thrombophilia is more common in pregnancy, parturition, blood cancers, lung and pancreas cancers, nephrotic syndrome, trauma, dehydration, blood hyper-viscosity, hyper-homocysteinemia, protein C and S deficiency, factor five Leiden mutations, positive anti-phospholipids antibodies, and collagen vascular diseases (Behcet disease, polyarthritis nodosa and Wegener), inflammatory diseases (Ulcerative colitis), OCP consumers and androgen treatment cases^{5, 6, 7, 8, 9}. Cerebral venous sinus thrombosis is more common among young adults, especially young women¹⁰.

Clinical symptoms vary between; simple headache to increase intracranial pressure, seizures, focal neurological deficit and even loss of consciousness. However, in cavernous sinus thrombosis following symptoms may occur: fever, headache, nausea and vomiting, pain and tenderness of the eye, conjunctival edema, protrusion of the eye, nerve palsy of third, fourth, fifth and sixth cranial nerves, pupil size changes, retinal hemorrhage, papillae edema, impaired orbital branch of trigeminal nerve, bruising and edema of the upper part of the face^{11, 12, 13, 14}.

Definite diagnosis is based on CT scan, MRI and Brain MR Venography⁵. Treatments for thrombosis of cerebral venous sinuses include: anticoagulation therapy and supportive care (consist of reducing the intracranial pressure^{15, 16}. Severe cases may require thrombolysis or neurosurgery^{17, 18}.

Ecchymosis around the eye in cavernous sinus thrombosis commonly occurs with cavernous sinus syndrome, but a noteworthy point about this patient was that, her clinical symptoms and radiologic evidences did not match with cavernous sinus syndrome.

The ecchymosis in this patient might be due to the abrupt increase in intracranial pressure. Another point in management of the anticoagulation and its complications in this case was that despite of severe hematuria, the coagulation therapy was not stopped and continued with lower partial thromboplastin time goals.

Cerebral venous sinus thrombosis should be considered in differential diagnosis of all headaches and eye symptoms.

CONCLUSION: Cerebral venous sinus thrombosis, is life threatening condition, that may presented with non-classic features. Anticoagulant therapy is lifesaving but may have some hemorrhagic complications, which should be partially ignored and managed conservatively.

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CONFLICT OF INTEREST: We have no conflict of interest to declare.

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