A CASE REPORT ON RIGHT SIDE CORTICO-CAVERNOUS FISTULA

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INTRODUCTION: The cortico-cavernous fistula is uncommon and uncommonly uncommon. A cortico-cavernous fistula is characterized by an abnormal vascular connection between the internal or external carotid arteries and the venous channels of the cavernous sinus. If left untreated, it might cause additional complications such as intracerebral hematoma, subarachnoid hemorrhage, epistaxis, and otorrhagia. Secondary cortico-cavernous fistula cause glaucoma.

CASE PRESENTATION: The interventional radiology unit of the tertiary care hospital in Wardha received an admission of a 22-year-old man. He arrived complaining of a 15-day-old facial and nasal bone injury, which had left him with suitable eye redness, pain, and edema in addition to a headache. Additionally, he was traumatized by a vehicle accident. There is no history of hematemesis, nausea, or vomiting. There is no history of a cold, a cough, or a concussion. Such illnesses as diabetes mellitus, hypertension, T.B., and asthma were absent.

There was a physical examination. Save for the eye, other physical characteristics are typical. Redness and swelling are seen in the right eye. Above the conjunctiva, is a thick, red blood vessel. The S1 and S2 noises were usual. On the abdomen, there are no scars or enlargements.

THERAPEUTIC MANAGEMENT: The patient was admitted for interventional radiology therapy of a cortico-cavernous fistula. Vital readings for the patient, like blood pressure, were 120/80. The measurements were 37 °C temperature, 75 b/m pulse, and 15 b/m respiration rate. After the patient's accident-related medical history was obtained, an evaluation of the patient's physical condition, blood work, a C.T. Scan, an MRI, an X-ray, and an E.C.G was evaluated. The patient had received antibiotics, antiplatelet medications, antiemetics, antacids, and analgesics. The patient has been advised to undergo cortico-cavernous fistula embolization surgery.

Keywords: Cortico-cavernous fistula, carotid artery, venous sinus.

INTRODUCTION

The previously healthy carotid artery and cavernous sinus develop an inappropriate connection, which leads to a carotid-cavernous fistula (CCF). Trauma from a basal skull fracture leading to a tear in the internal carotid artery (I.C.A.) within the cavernous sinus is the most frequent (70%–90%) etiology of direct CCF.21-3 The incidence of basilar skull fractures. The formation of various C.C.F.s is influenced by traffic accidents, falls, and other crush traumas.3

Some of the signs and symptoms that these patients may display include conjunctival chemosis, proptosis, pulsating exophthalmos, diplopia, ophthalmoplegia, orbital pain, audible bruits, and blindness.4

Usually affecting postmenopausal, hypertensive females, atherosclerotic artery disease, and spontaneous rupture of an existing aneurysm are the two unusual causes. 1–3 Even if the I.C.A. is still intact, tiny meningeal arteries that supply the cavernous sinus's dural wall are prone to spontaneous rupture.

These fistulas typically result in less severe symptoms like slow growth, slight orbital congestion, proptosis, and little to no bruit.5 Patients may exhibit arterialized conjunctiva, episcleral vessels, and limbal injection. Fistulas can change or go away on
their own. Initially, patients with CCF can visit an ophthalmologist for their eye issues. A thorough history, examination, and frequent diagnostic imaging may result in an accurate and quick diagnosis. While studies of these patients from the Middle East and African countries have been recorded considerably less frequently, investigations of CCF patients with ophthalmological issues have predominantly been carried out in western countries (7–10). The purpose of this review paper is to provide an overview of the demographics and clinical traits of patients with suspected and confirmed cases of CCFs who visit an ophthalmologist, including ophthalmological complaints, radiological findings, and current therapeutic techniques.

**EPIDEMIOLOGY:**

However, investigations have indicated that it can occur up to 4% in individuals with skull base fractures and 0.2% in those with traumatic brain injury. The true prevalence of cortico-cavernous fistulas is unknown—Bilateral CCFs, which can happen in as much as 1% of trauma cases. Spontaneous CCFs are more prevalent in postmenopausal patients and account for up to 30% of all CCFs described in the literature. This may occur in as many as 24% of those with aneurysms, depending on their size and shape.

**CASE HISTORY:**

In Wardha, Maharashtra, India, a cortico-cavernous fistula case was discovered in the interventional radiology department of a tertiary care hospital. The hospital managed this difficult circumstance because of the expert leadership of the medical and surgical teams and the first-rate nursing care.

**PATIENT INFORMATION:**

In the interventional radiology ward of the tertiary care hospital in Wardha, a 22-year-old man was admitted. He arrived complaining of suitable eye redness, pain, swelling, and a headache related to a 15-day-old face and nasal bone injury. He also experienced trauma in the form of a car accident. There is no history of hematemesis, nausea, or vomiting. There was a physical examination. save for the eye, other physical characteristics are typical. Redness and swelling are seen in the right eye. Above the conjunctiva is a thick, red blood vessel. The S1 and S2 noises were usual. No lymph nodes, liver, or spleen are enlarged, and there are no scars on the abdomen. There isn't any fluid buildup. The extremities, both upper and lower, are healthy.

**MEDICAL, FAMILY, AND PSYCHO-SOCIAL HISTORY:**

There was no history of comorbidities in the patient's family. The patient is a member of a nuclear, middle-class household. He resides with his mother, brother, sister, and parents. The patient's family has no history of diabetes mellitus, hypertension, asthma, or tuberculosis. The patient is awake, alert, and in good mental health. He also maintains friendly interactions with the doctor, nurses, other patients, and family members. The patient does not engage in unhealthy behaviors like smoking, chewing tobacco, or consuming alcohol.

**RELEVANT PAST INTERVENTION WITH OUTCOMES:**

For the above-mentioned complaint, a patient was admitted to a private hospital. He was getting relief from that hospital. Then the patient was referred to the tertiary care hospital Wardha.

**Diagnostic studies:**

There was a history collection. There was a physical examination. Except for the redness and swelling in the right eye, everyone's physical appearance was normal. above the conjunctiva, a thick, red blood vessel. Every routine inquiry has been completed. The total platelet count is 1.98, the total red blood cell count is 4.42, the total white blood cell count is 6900, the M.C.H.C. is 34.4, the MCV is 91.3, the MCH is 31.4, and the hemoglobin is 13.9. There was an ultrasound. Digital angiography, or subtraction angiography, was performed. Computed tomography was performed, and the results revealed that proptosis had increased superior ophthalmic veins, expanded extraocular muscles, and orbital edema. That supports the cortico-cavernous fistula diagnosis.
THERAPEUTIC MANAGEMENT:

The patient was admitted to the interventional radiology ward in a tertiary care hospital in Wardha. He arrived complaining of right eye redness, pain, and swelling as well as a headache related to a 15-day-old face and nasal bone injury. He also experienced trauma in the form of a car accident. After that, the history was finished. There was a physical examination. All routine blood tests were completed. CT scan, angiography, and ultrasound were performed. Fluid IV began for the patient. The patient was then given antibiotics like inj. Manocef and normal antiplatelet medications like a tab. clopitab and tab. ecosprin, antiemetics like inj. set, antacid medicines like a tab. pantop, analgesic medications like tab. Zerodolsp, and eye drop moxifloxacin.

TREATMENT ON ADMISSION:

Inj. monocle 1 gm given intravenously twice daily; tabs. capital 75 mg once daily; tabs. ecosprin 150 mg once daily; and tabs. Oral delivery of tab, intravenous injection of emset 4 mg if required, three intravenous infusions of Entomol 100 ml, and an oral dose of pan top 40 mg once daily. In addition to receiving two doses of zerodol ap per day, the patient also receives moxifloxacin eye drops every six hours.

The patient was advised to have surgery for cortico-cavernous fistula embolization

PROGNOSIS:

Patient condition improved with good follow-up and results.

OUTCOMES:

Despite the patient's most substantial attempts, their lively health and her general health will both improve. Patients are asked to visit the emergency room for follow-up if they exhibit the following signs and symptoms. The results of diagnostic and other tests are crucial.

DISCUSSION:

A 22yr older man was admitted to the interventional radiology ward in the tertiary care hospital, Wardha. He came with a complaint of redness in the right eye, pain, and swelling in the right eye, as well as headache associated with facial and nasal bone injury for 15 days. But also he had a history of trauma i.e., road traffic accident.

A carotid-cavernous fistula (CCF) is a dysfunctional union of the carotid artery and the veins of the cavernous sinus. Even though the fistula might manifest on its own, it usually does so after a head injury, as in the case of our patient. One retrospective analysis found that it could take up to two years for a patient to present following an accident.⁹

A carotid-cavernous fistula that is abnormal (CCF). There are four basic forms of fistulas (types A-D). A type A fistula is a direct, high-flow connection between the cavernous internal carotid artery and the cavernous sinus. The most frequent CCF following a head injury is this one. Direct fistulas are believed to form after an aneurysm burst or after trauma tears the cavernous internal carotid artery wall. As a result of the rapid entry of high-pressure arterial blood into the venous system, venous hypertension develops.¹⁰

Indirect fistulas of type B-D form between the meningeal and cavernous sinus branches of the external or internal carotid artery. There is little flow from these fistulas. Although the etiology of Types B through D is uncertain, they have been connected to pregnancy, sinusitis, aging, and trauma. Mild proptosis and dilated conjunctival and episcleral vessels are a few of the symptoms that may occur. These low-flow fistulas typically recover on their own.¹¹

Symptoms of a Type A fistula frequently arise suddenly and dramatically. Many symptoms, including unilateral vision loss, proptosis, lid edema, pulsatile tinnitus, and diplopia, are typically experienced by people with direct Type A fistulas. A trio of clinical characteristics, including exophthalmos, orbital bruit, and dilated conjunctival vessels, have been identified.¹²
Clinical symptoms include cranial nerve palsies, dilated and tortuous retinal arteries, optic disc edema, proptosis, elevated intraocular pressure, and venous congestion of the eyelids (3, 4, or 6). In one retrospective review of 11 traumatic CC fistulas, the three most common clinical symptoms were proptosis dilated conjunctival vessels, and an orbital bruit. All of the patients had these symptoms (Brosnahan, 1992). The second most typical clinical feature in 10/11 patients was conjunctival chemosis. Eight of the eleven individuals had sixth nerve palsy, compared to five with third and fourth nerve palsies. A third nerve palsy that resulted in an efferent pupillary impairment was present in five out of eleven individuals. Dilated retinal vessels (4/11 patients), optic disc edema (2/11 patients), and increased intraocular pressure (3/11 patients, range 26-30 mmHg) were less frequently observed.

It's vital to refer the patient to the appropriate medical specialist for therapy when a direct C.C.F. is discovered—either an interventional neurologist or a neurosurgeon. Direct fistulas require treatment at all times. Several therapeutic techniques are described in the literature, such as balloon embolization, liquid embolic agents, transarterial or transvenous embolization using coils, and stent implantation. These therapies have a 55–99% closure success rate for fistulas. Treatment-related risks include vision loss and a worsening of oculomotor nerve palsy.

CONCLUSION:

In the interventional radiology ward of the tertiary care hospital in Wardha, a 22-year-old man was admitted. He arrived complaining of correct eye redness, pain, swelling, and a headache related to a 15-day-old face and nasal bone injury. He also experienced injuries from road traffic. The diagnosis of cortico-cavernous fistula follows a detailed study. The course of action was conservative. The patient's prognosis was good following treatment. Overall, the patient responded well to treatment, was stable, and improved their condition.

ETHICAL APPROVAL: - not relevant

PATIENT INFORM CONSENT: - The patient's informed consent has been obtained for writing a case report and publishing.

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REFERENCES


