

Optic Nerve Injury Following Functional Endoscopic Sinus Surgery

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A case of optic nerve contusion during Functional Endoscopic Sinus Surgery (FESS) is presented. The complication was recognized in the immediate postoperative period. The patient recovered fully his visual acuity after systemic and topical steroid treatment.

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The paranasal sinuses are intimately related to the orbit and its contents. Ophthalmic complications of FESS are rare but can result in serious visual morbidity. The complications could be classified into five important anatomic regions: eyeball, orbit, optic nerve, extra-ocular muscle and lacrimal drainage system. Loss of vision might be caused by orbital hemorrhage or direct optic nerve trauma¹. The most devastating of which is severe visual loss due to optic nerve injury.

Optic nerve injury during FESS operation could be defined as optic nerve contusion due to mild injury or orbital hematoma causing pressure on the optic nerve or severe trauma causing posterior ischemic optic neuropathy leading to blindness^{2,3}. Delayed blindness may occur after a few days post-FESS operation due to epinephrine-rinsed nasal packing⁴.

The aim of this report is to increase the awareness for possible optic nerve injury during the FESS operation. To the best of our knowledge, this is the first case of FESS complication to be reported from the Kingdom of Bahrain.

THE CASE

Fifty-two-year-old Bahraini patient underwent FESS operation and septoplasty under GA on 26 March 2012. In the immediate postoperative period, the patient had right eye conjunctival hemorrhage and semi-dilated pupil. The ophthalmologist on-call saw the patient; a clinical diagnosis of optic nerve contusion demonstrated by semi-dilated pupil, mild reduction in visual acuity and enlargement of blind spot seen on the visual field test was reported. The rest of the ocular examination was normal. Systemic and topical steroids were prescribed and the patient showed significant improvement and returned to normal visual acuity with normal visual field test and no diplopia or other deformities on ophthalmic examinations, in one month's time after the FESS operation, see figures 1, 2 and 3.

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Figure 1: Slit Lamp Picture First Post-FESS Day



Figure 2: Fundus Picture First Post-FESS Day

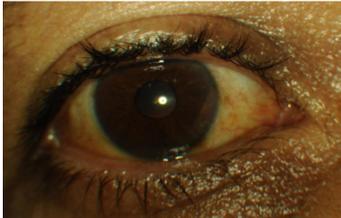


Figure 3: Full Recovery: Four Weeks Post-FESS

DISCUSSION

The close anatomical relationship between the orbit and the paranasal sinuses places the optic nerve at risk during Functional Endoscopic Sinus Surgery (FESS)⁵. Optic nerve, extra-ocular muscles and lacrimal drainage apparatus are susceptible to injury during FESS operation⁶. The risk of injury is related to the skill of the sinus surgeon, previous sinus or orbital surgeries, extent and severity of diseases and anatomical variation⁷.

Suspicion of direct optic nerve injury should be contemplated if the pupil dilates rapidly during surgery (either from globe ischemia or from damage to pupillomotor nerves) or if, after surgery, there is severe visual loss with poorly reactive pupil and relative afferent pupil defect⁸. Rapidly increasing proptosis, subconjunctival hemorrhage and periorbital ecchymosis are indications of severe orbital hemorrhage with secondary compressive optic neuropathy, which should be recognized during surgery. A very tense orbit might require decompression by incision into the eyelid skin creases and evacuation of hematoma from the orbital fat⁹.

Blindness after endoscopic ethmoidectomy due to optic nerve injury was reported from several studies¹⁰.

CONCLUSION

A case report of optic nerve contusion during Functional Endoscopic Sinus Surgery (FESS) was reported.

Serious vision threatening complications should be avoided during FESS operation. The surgeon should be aware of all the signs that indicate any threat to the optic nerve and other vital structures in the orbit. Recommendation of using micromanipulator under adequate and clear vision during FESS operation is highly advisable to prevent these uncommon complications. Ophthalmologist on-call should be involved if any unusual ophthalmic signs are present to prevent any inadvertent visual-threatening incidences.

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