

Acquired superior oblique muscle palsy after smooth functional endoscopic sinus surgery: A case report

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Abstract

Purpose: To present an iatrogenic superior oblique muscle palsy after smooth functional endoscopic sinus surgery.

Case report: A 68-year-old man with hypertension & dyslipidemia presented with persistent binocular oblique diplopia for 3 months after functional endoscopic sinus surgery (FESS). According to his statement, he suffered from chronic sinusitis for years and he decides to take surgical intervention due to refractory symptoms. After smooth surgery, his sinusitis improved much but he started to suffer from diplopia. His symptoms off & on initially, especially while driving. Therefore he was referred to ophthalmology clinic for check due to he no longer tolerated the traffic sign disparity. Extraocular muscle movement (EOM) was normal but manifest hypertropia in left eye with right head tilt were noted. Prism cover test showed left esotropia 4 prism diopters (Δ) and hypertropia 5.5Δ in primary gaze and relieved in left gaze but deteriorated in right gaze. Limitation in inferior-nasal gaze was also found. Force-duction test revealed positive in left head tilt. Image torsion was denied in both eyes. His vision, intraocular pressure, and slit-lamp examinations were normal. Thus superior oblique muscle palsy in left eye was suspected. Magnetic resonance image (MRI) showed left side sphenoid sinusitis and residual retention cysts in the left maxillary sinus, with unclearly defined left superior oblique muscle bundle and epimysium. The brain parenchyma was normal. Thus revised FESS was done after discussion with otolaryngologist. Finally, residual hypertropia 2Δ in left eye was noted during clinic follow-up and he no longer need the aid of prism glasses.

Conclusion: Etiology of isolated superior oblique muscle palsy are congenital (38.3%), trauma (29.3%), microvascular (23.3%), tumor, and undetermined (7.5%). Therefore 60% patients suffered from acquired superior oblique muscle palsy should take brain image for further evaluation. The typical symptoms of acquired superior oblique muscle palsy are vertical diplopia, torsion image, abnormal head posture, and history of trauma or onset time point. FESS is a highly sophisticated type of surgery for removal of tissue obstructing the osteometal complex and the facilitation of drainage the normal non-obstructing anatomy and mucous membrane. Ophthalmic complications associated with FESS mainly occur due to the shared common anatomic areas. Laterally, the optic nerve and medial rectus muscle may lie in intimate contact with the posterior ethmoid cells and sphenoid sinus. Orbital involvement in endoscopic sinus surgery occurs in 0.5% to 3% of all procedures, and represents 16% to 50% of all complications. Major complications include extra-ocular muscle injury, persistent diplopia, nasolacrimal duct injury, orbital hemorrhage, optic nerve injury, subperiosteal abscess, orbital cellulitis, cavernous sinus thrombosis, enophthalmos, and open globe injury. The risks of injuries to the ocular structures associated with FESS depend on (1) Surgeon's experience, (2) Extent and severity of sinonasal disease, (3) History of previous sinus surgery, and (4) Intraoperative view of the anatomical structures of the sinus and orbit. If muscle injuries in cases where the involved muscle is intact, but parietic, no immediate surgical intervention is recommended. The antagonistic rectus muscle should be injected with botulinum toxin while awaiting recovery of the parietic muscle to avoid its contracture. However, surgical approaches like reattachment or transposition should be attempted if the muscle was transected or destructed. Even in our patient with smooth surgery, diplopia still induced by residual fluid accumulation in adjacent area. Further surgical intervention maybe necessary in refractory symptoms.

Keywords: acquired superior oblique muscle palsy; functional endoscopic sinus surgery; hypertropia; esotropia

Introduction

Purpose

We will present an iatrogenic superior oblique muscle palsy after smooth functional endoscopic sinus surgery

Case Reports

A 68-year-old man with hypertension & dyslipidemia presented with persistent binocular oblique diplopia for 3 months after functional endoscopic sinus surgery (FESS). According to his statement, he suffered from chronic sinusitis for years and he decides to take surgical intervention due to refractory symptoms. After smooth

surgery, his sinusitis improved much but he started to suffer from diplopia. His symptoms off & on initially, especially while driving. Therefore he was referred to ophthalmology clinic for check due to he no longer tolerated the traffic sign disparity. Extraocular muscle movement (EOM) was normal but manifest hypertropia in left eye with right head tilt were noted. Prism cover test showed left esotropia 4 prism diopters (Δ) and hypertropia 5.5Δ in primary gaze and relieved in left gaze but deteriorated in right gaze (figure 1). Limitation in inferior-nasal gaze was also found. Force-duction test revealed positive in left head tilt. Image torsion was denied in both eyes. His vision,

intraocular pressure, and slit-lamp examinations were normal. Thus superior oblique muscle palsy in left eye was suspected. Magnetic resonance image (MRI) showed left side sphenoid sinusitis and residual retention cysts in the left maxillary sinus (figure 2A), with unclearly defined left

superior oblique muscle bundle and epimysium (figure 2B). The brain parenchyma was normal. Thus revised FESS was done after discussion with otolaryngologist. Finally, residual hypertropia 2Δ in left eye was noted during clinic follow-up and he no longer need the aid of prism glasses.



Fig 1



Fig 2

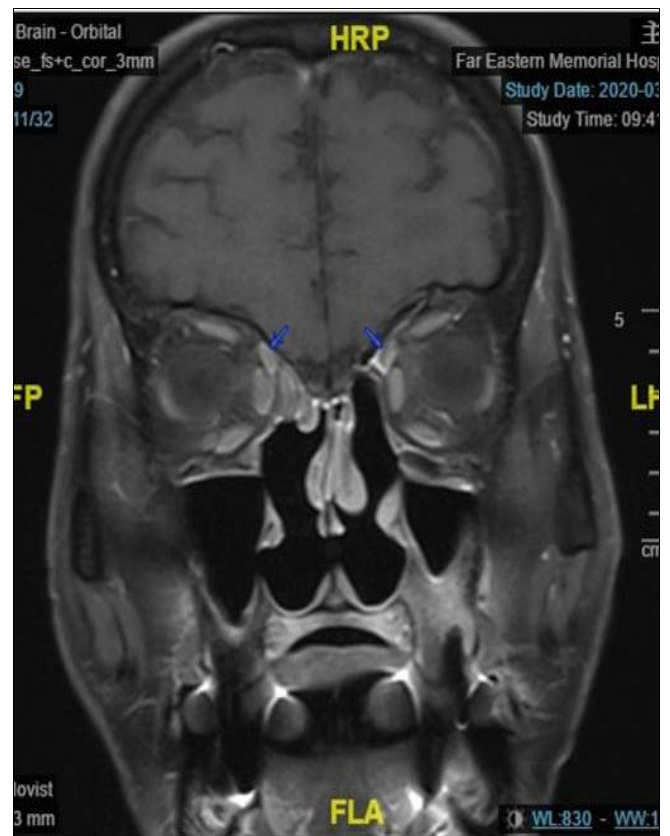


Fig 3

Discussion

Etiology of isolated superior oblique muscle palsy are congenital (38.3%), trauma (29.3%), microvascular (23.3%), tumor, and undetermined (7.5%) ^[1]. Therefore 60% patients suffered from acquired superior oblique muscle palsy should take brain image for further evaluation. The typical symptoms of acquired superior oblique muscle palsy are vertical diplopia, torsion image, abnormal head posture, and history of trauma or onset time point ^[2]. FESS is a highly sophisticated type of surgery for removal of tissue obstructing the osteometal complex and the facilitation of drainage the normal non-obstructing anatomy and mucous membrane. Ophthalmic complications associated with FESS mainly occur due to the shared common anatomic areas ^[3]. Laterally, the optic nerve and medial rectus muscle may lie in intimate contact with the posterior ethmoid cells and sphenoid sinus. Orbital involvement in endoscopic sinus surgery occurs in 0.5% to 3% of all procedures, and represents 16% to 50% of all complications ^[4]. Major complications include extra-ocular muscle injury, persistent diplopia, nasolacrimal duct injury, orbital hemorrhage, optic nerve injury, subperiosteal abscess, orbital cellulitis, cavernous sinus thrombosis, enophthalmos, and open globe injury ^[2]. The risks of injuries to the ocular structures associated with FESS depend on (1) Surgeon's experience, (2) Extent and severity of sinonasal disease, (3) History of previous sinus surgery, and (4) Intraoperative view of the anatomical structures of the sinus and orbit ^[5]. If muscle injuries in cases where the involved muscle is intact, but paretic, no immediate surgical intervention is recommended. The antagonistic rectus muscle should be injected with botulinum toxin while awaiting recovery of the paretic muscle to avoid its contracture. However, surgical approaches like reattachment or transposition should be attempted if the muscle was transected or destructed ^[6]. Even in our patient with smooth surgery, diplopia still induced by residual fluid accumulation in adjacent area. Further surgical intervention maybe necessary in refractory symptoms.

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