Superior Branch Palsy of the Oculomotor Nerve Caused by Acute Sphenoid Sinusitis

VERAJIT CHOTMONGKOL, M.D.*,
SEKGSAN CHAINUNSAMIT, M.D.**

Abstract

A 52-year-old man presented with unilateral headache for 6 days. Physical examination revealed an ipsilateral paresis of the superior division of the oculomotor nerve with chemosis. CT scan of the paranasal sinuses showed ipsilateral sphenoid sinusitis with cavernous sinus involvement. The symptoms were completely improved by medical treatment only.

Key word : Acute Sphenoid Sinusitis, Oculomotor Nerve Palsy

The oculomotor nerve divides into superior and inferior divisions in the anterior portion of the cavernous sinus. Therefore, divisional paresis is classically localized either in the anterior cavernous sinus or in the posterior orbit[1-4]. Nevertheless, divisional oculomotor paresis has been described in patients with lesions affecting the subarachnoid portion and intrinsic brainstem disease [5-7]. Isolated paresis of the superior division, producing ptosis upgaze palsy, is relatively uncommon. Its etiologies are viral infection, intracavernous carotid artery aneurysm, diabetes mellitus, enlargement of the third ventricle, basilar apex aneurysm, surgical manipulation of the third cranial nerve, bacterial meningitis, lymphoma, cryptococcal meningitis, intrinsic brainstem diseases (infarction, demyelination secondary to multiple sclerosis and hemorrhage), acute leukemia and chronic sphenoid sinusitis. Of the latter, it is the first reported case of a superior branch oculomotor nerve palsy related to an erosive sinusitis and cured by sinusotomy[9]. We herein report a case of acute sphenoid sinusitis with superior branch palsy of the third cranial nerve and cured by medical treatment alone which, to our knowledge, has never been reported.

CASE REPORT

A 52-year-old previously healthy man was admitted to Srinagarind Hospital in February 1997 because of severe left temporal headache for 6 days.

* Department of Medicine,
** Department of Otolaryngology, Faculty of Medicine, Khon Kaen University, Khon Kaen 40002, Thailand.

He also had symptoms of nasal obstruction without nasal discharge.

Physical examination revealed a distressed man with normal body temperature. He had a normal physical and neurologic examination, except for a mild ptosis, paresis of the superior rectus muscle and chemosis of the left eye. The other extraocular movement, pupil and corneal reflex were intact. Anterior and posterior rhinoscope demonstrated mucopus from the left middle meatus and the left choana respectively.

Complete blood count showed white blood cells 11,800 per mm^3 with 66 per cent polymorphonuclear cells, 30 per cent lymphocytes, 2 per cent monocytes and 2 per cent eosinophils. Blood urea nitrogen, creatinine, blood glucose, electrolytes, urine examination and chest X-ray were within normal limits. A computed tomography (CT) with contrast enhancement of the paranasal sinuses revealed right and left ethmoid sinusitis and left sphenoid sinusitis with bulging of the lateral wall of the left cavernous sinus without bony destruction (Fig. 1). The extraocular muscles, optic nerves and orbits were apparently normal.

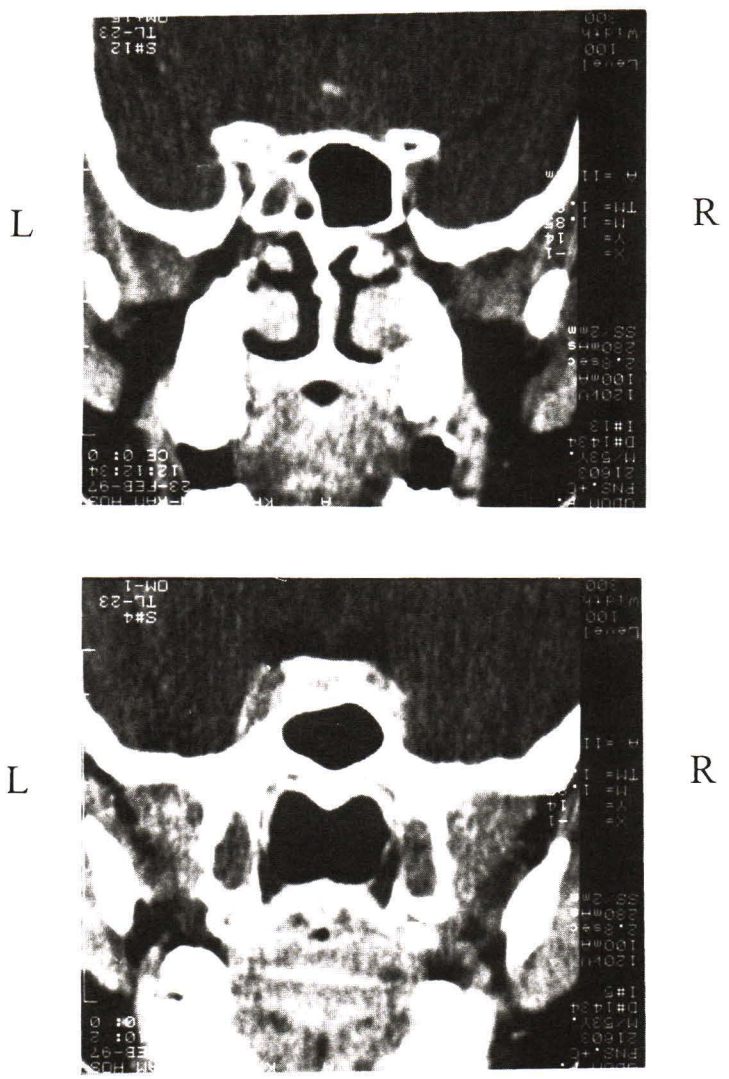

Fig. 1. Coronal view of a computed tomography with contrast enhancement of the paranasal sinuses showed left sphenoid sinusitis with bulging of the lateral wall of the left cavernous sinus.

The patient was treated with intravenous augmentin® (amoxicilln-clavulanate) 1.2 g every 8 hours for 1 week, then switched to oral augmentin 375 mg plus amoxicillin 250 mg every 8 hours for 2 weeks and nasal decongestant.

His symptoms gradually improved, including the ocular signs. Paresis of the superior division of the oculomotor nerve resolved completely within 3 weeks. Repeated rhinoscope showed normal findings.

DISCUSSION

In our case, an isolated weakness of the left levator palpebrae and superior rectus muscle resulted from involvement of the superior division of the ipsilateral third nerve and acute sphenoid sinusitis was the etiologic disease, from CT scan findings and clinical response after treatment. Although we did not observe other cranial nerves involvement in favor of cavernous sinus syndrome, it is likely that the lesion was in the cavernous sinus from the associated symptom of chemosis and CT scan findings.

As a general rule, surgical treatment is indicated for patients who have sinusitis that do not respond to medical therapy or have serious complications such as intracranial infections and venous sinus thrombosis(10). However, our patient had a good clinical response from medical treatment without surgical intervention.

From this patient and a case of Stefanis and Przedborski(9), the etiology of the superior branch of the oculomotor nerve from the sphenoid sinusitis should be looked for with early management to prevent serious complications.

(Received for publication on August 7, 1997)

REFERENCES

1. Derakhshan I. Superior branch palsy of the oculomotor nerve with spontaneous recovery. Ann Neurol 1978;4:478-9.
2. Feder R, Camp WA. Superior branch palsy of oculomotor nerve and pupillary constriction caused by intracranial carotid artery aneurysm. Ann Neurol 1979;5:493-5.
3. Masucci EF, Kurtzke JF. Diabetic superior branch palsy of the oculomotor nerve. Ann nerurol 1980; 7:493.
4. Osher RH, Corbett JJ, Schatz NJ, Savion PJ, Orr LS. Neuro-ophthalmolgic complications of enlargement of the third ventricle. Br J Ophthalmol 1978;62:536-42.
5. Guy J, Savino PJ, Schatz NJ, Cobbs WH, Day AL. Superior division paresis of the oculomotor nerve. Ophthalmology 1985;92:777-84.
6. Chotmongkol V, Techasuknirun A. Superior division paresis of the oculomotor nerve caused by cryptococcal meningitis. J Med Assoc Thai 1992; 75:548-50.
7. Ksiazek SM, Repka MX, Maguire A, et al. Divisional oculomotor nerve paresis caused by intrinsic brainstem disease. Ann Neurol 1989,26:714-8.
8. Navacharoen W, Limsukon P, Chaimongkol B. Superior branch palsy of the oculomotor nerve caused by hematologic malignancy. Chiang Mai Med Bull 1988;28:13-8.
9. Stefanis L, Przedborski S. Isolated palsy of the superior branch of the oculomotor nerve due to chronic erosive sphenoid sinusitis. J Clin Neuro-ophthalmol 1993;13:229-31.
10. Montgomery WW. Introduction to sinus surgery. In: Montgomery WW, ed. Surgery of the upper respiratory system. 3rd ed. Baltimore: Williams & Wilkins, 1996:31- 40.

ความผิดปกติของแขนงบนของเส้นประสาทสมองคู่ที่ 3 ที่เกิดจากการอักเสบเฉียบพลันของโพรงไซนัส สฟีนอยด์

วีรจิตต์ โชติมงคล, พ.บ., เสกสันต์ ชัยนันท์สมิตย์, พ.บ.***

รายงานผู้ป่วย 1 **ราย เป็นผู้ชายอายุ** 52 **ปี มีอาการปวดศีรษะข้างซ้ายมา** 6 **วัน** การตรวจร่างกายพบตาซ้าย มีหนังตาตก ตามองขึ้นข้างบนไม่ได้ และเยื่อบุตาขาวบวม การตรวจคอมพิวเตอร์สแกนของโพรงไซนัสของจมูก พบมีการอักเสบของโพรงไซนัสสฟีนอยด์และ cavernous sinus ผู้ป่วยหายเป็นปกติด้วยการรักษาทางยาโดยไม่ต้องผ่าตัด

คำสำคัญ : การอักเสบเฉียบพลันของโพรงไซนัส สฟีนอยด์, ความผิดปกติประสาทสมองคู่ที่ 3

* ภาควิชาอายุรศาสตร์,

** ภาควิชาโสต ศอ นาสิก และลาริงซ์วิทยา, คณะแพทยศาสตร์ มหาวิทยาลัยขอนแก่น, ขอนแก่น 40002