รายงานผู้ป่วย

Meningioma presenting as a nasopharyngeal mass

Waiphot Chanvimalueng*

Chanvimalueng W. Meningioma presenting as a nasopharyngeal mass. Chula Med J 2000 Jan; 44(1): 39 - 47

While the nasopharynx is most commonly regarded by otolaryngologists as a primary site of neoplastic involvement, it is also an avenue of spread of base-of-the-skull tumors.

This report of a rare case of extrameningeal meningioma of the sphenoid sinus and nasopharynx will be augmented by a review of the literature on this subject.

A 39-year-old female patient presented with right exopthalmos and right nasal obstruction. Computed tomography revealed a homogenous isodense, enhancing extra-axial mass at the right middle cranial fossa, sphenoid sinus, and nasopharynx measuring about 1.2x3.6 cm. in size. The tumor in the sphenoid sinus and nasopharynx was removed by the otolaryngologist and neurosurgeon, a histological examination resulted in a diagnosis of transitional meningioma with psammoma bodies.

This report indicates that meningiomas may grow invasively to tremendously large sizes resulting in their initial presentation as a nasopharyngeal mass.

Key words : *Nasopharyngeal mass, Meningioma.*

Reprint request : Chanvimalueng W. Department of Otolaryngology, Faculty of Medicine, Thammasat University, Pathumthani 12120, Thailand.

Received for publication. August 4,1999.

*Department of Otolaryngology, Faculty of Medicine, Thammasat University

ไวพจน์ จันทร์วิเมลือง. เนื้องอกชนิด meningioma **มาด้วยอาการมีก้อนบริเวณ** nasopharynx **จุฬาลงกรณ์เวชสาร** 2543 **ม.ค**; 44(1): 39 - 47

ขณะที่บริเวณ nasopharynx เป็นตำแหน่งแรกของการเกิดก้อนเนื้องอกซึ่งมักได้รับการตรวจพบ โดย โสต ศอ นาสิกแพทย์ ตำแหน่งนี้ยังพบด้วยว่าเป็นทางแพร่กระจายของก้อนเนื้องอกบริเวณฐานกะโหลกศีรษะ และ มาเกิดเป็นก้อนบริเวณ nasopharynx ด้วยเช่นเดียวกัน

ในผู้ป่วยรายนี้เป็นเนื้องอกชนิด meningioma ที่พบนอกเยื่อหุ้มสมองคือบริเวณ sphenoid sinus และ nasopharynx ซึ่งพบได้ยาก

ผู้ป่วยหญิงอายุ 39 ปี มารับการรักษาด้วยอาการ ตาข้างขวาโปน และคัดจมูกเอ็กซ์เรย์คอมพิวเตอร์พบเนื้องอกบริเวณฐานกะโหลกศีรษะ, sphenoid sinus และ nasopharynx ขนาดประมาณ 1.2 x 3.6 เซนติเมตร ก้อนเนื้องอกบริเวณ sphenoid sinus และ nasopharynx ได้รับการผ่าตัดออกโดย โสต ศอ นาสิกแพทย์ ร่วมกับศัลยแพทย์ระบบประสาท และผลชิ้นเนื้อ วินิจฉัยเป็นเนื้องอก meningioma ชนิด Transitional

รายงานฉบับนี้แสดงให้เห็นว่าเนื้องอกชนิด meningioma ขนาดใหญ่ อาจเจริญเติบโตและรุกล้ำทำให้ผู้ป่วยเกิดอาการและมาพบแพทย์ด้วยก้อนบริเวณ nasopharynx

The nasopharynx is most commonly regarded by otolaryngologists as a primary site of neoplastic involvement. Sometimes the nasopharynx is difficult to examine, even by physicians experienced in diagnosis and examination of this region. [1] A fiberoptic scope may be helpful in a difficult case.

The mucous membrane of the nasopharynx contains lymphoid tissue, epithelial tissue, and minor salivary glands. The epithelial component of the nasopharyngeal mucous membrane is variable and contains stratified squamous epithelium, pseudostratified ciliated epithelium, and indeterminate epithelium. Because the nasopharynx (including its epithelium, lymphoid tissue, and supporting structures) contains a wide variety of cell types, many different lesions may occur. These lesions range from embryologic anomalies to benign and malignant neoplasms. [2]

Fu and Perzin (1974) reviewed the 35-year-period records at the laboratory of surgical pathology of the Presbyterian Hospital in New York City for a clinicopathologic study of nonepithelial tumors of the nose, paranasal sinuses, and nasopharynx. The histologic classification and distribution are shown in (Table 1). The number and distribution of tumors in the nasopharynx alone were not noted, except for vascular tumors. As expected, angiofibromas were the most common benign tumors, and all 38 occurred in the nasopharynx.[3]

In the tumor registry of the Mayo Clinic, malignant tumors of the nasopharynx have been subdivided by light microscopy into three main groups: squamous cell carcinomas (keratinizing, nonkeratinizing, and undifferentiated); lymphomas; and a miscellaneous group consisting of adeno-carcinomas, plasma cell myelomas, cylindromas, rhabdomyosarcomas, melanomas, fibrosarcomas, carcinosarcomas, and unclassified spindling malignant neoplasms (Table 2). The nonglandular, non-lymphomatous epithelial malignancies, collectively called nasopharyngeal carcinoma (NPCs), are the most common neoplasms of the nasopharynx.[1]

Table 1. Benign nonepithelial tumors of the nasal cavity, paranasal sinuses, and nasopharynx in 156 cases.

Type of tumor	No. of cases
Vascular	81
Capillary hemangioma	30
Cavernous hemangioma	5
Venous hemangioma	3
Benign hemangioendothelioma	3
Angiomatosis	1
Glomus tumor	1
Angiofibroma	38
Osseous and fibroosseous	52
Osteoma	31
Fibrous dysplasia	9
Ossifying fibroma	7
Osteoblastoma	1
Giant cell tumor	4
Chondroma	7
Myxoma	7
Fibroma	5
Leiomyoma	2
Lipoma	1
Rhabdomyoma	1

Table 2. Malignant tumors of the nasopharynx from Mayo Clinic Tissue Registry, 1972 - 1981.

Type of tumor		No. of cases	%
Squamous cell carcinoma*		120	71
Lymphoma		31	18
Miscellaneous		18	11
Adenocarcinoma	6		
Plasma cell myeloma	3		
Cylindroma	2		
Rhabdomyosarcoma	2		
Melanoma	2		
Fibrosarcoma	1		
Carcinosarcoma	1		
Unclassified spindling Malignant neoplasm	1		
Total		169	100

*Combined World Health Organization types 1, 2, and 3

Those patients presenting with nasopharyngeal masses such as sphenooccipital chordoma,[4] amyloidosis,[5] chondrolipoma,[6] aggressive giant pituitary adenoma,[7] craniopharyngioma,[8] chromophobe adenoma,[9] and choristoma[10] have been reported.

This case report described here is a case of meningioma presenting as a nasopharyngeal mass in a 39-year-old female, which meningiomas are tumors of adults, with the main age of incidence ranging between 20 and 60 years. The peak incidence is around the age of 40. A female preponderance is seen. Most meningiomas are solitary, but multiple meningioma can occur, alone or in association with neurofibromatosis.[11] Meningiomas constitute about 15 percent of primary brain tumors and 25 percent of spinal cord tumors.[12]

Case Report

A 39-year-old Thai female presented with blurred vision of the right eye and a mild degree of right nasal obstruction for about approximately two years before admission. One year after the onset of these symptoms, she had right exopthalmos and right nasal obstruction increased in severity. The patient reported blurred vision of the right eye and epistaxis with spontaneous remission. In the four months prior to admission, she complained of severe right exopthalmos, intermittent epistaxis and right nasal obstruction. A physical examination revealed exopthalmos at the right side, pupil 3 mm. reacted to light on both sides and normal eye ground. VA: right eye-finger count at 1/2 foot, left eye –20/20. Anterior rhinoscopic examination showed right inferior turbinate enlarged, but no polyp was seen and the

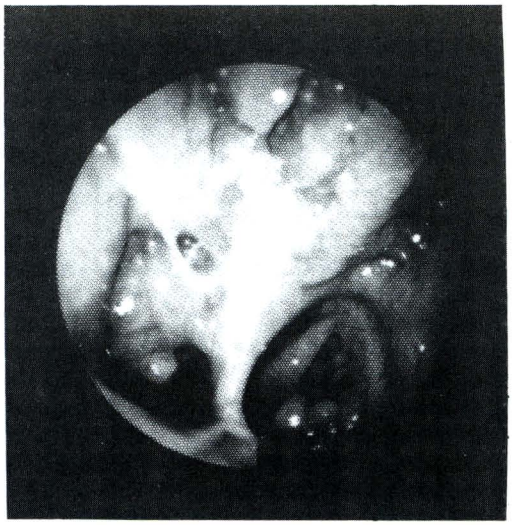

Figure 1. Showing a multinodular, smooth surface mass at right choana, right roof and lateral wall of nasopharynx.

left nasal cavity was within normal limits. Posterior rhinoscopic examination showed a multinodular smooth surface mass at the right choana, right roof and lateral wall of the nasopharynx (Figure 1). Indirect laryngoscopic examination showed normal epiglottis, vocal cord and pyriform sinus. Otoscopic examination showed that the right tympanic membrane was perforated with a diameter about 5 mm. There was no discharge and the left tympanic membrane was intact. The routine laboratory examination, chest x-ray and liver function test findings were normal.

A computerized tomography (CT) scan revealed a homogenous isodense, enhancing extra-axial mass at the right middle cranial fossa, sphenoid sinus, and nasopharynx of about 1.2 x 3.6 cm. size. It was adhered to the right lesser wing of the sphenoid bone, causing pressure effects on the right temporal lobe and brain edema involving the right cavernous sinus and tentorium. Encasement of the right internal carotid artery was seen. There was hyperostosis of the greater and lesser wings of the body of the right sphenoid bone, petrous part of temporal bone, clivus, posterior ethmoid bone and pterygoid plate. A slight midline shift to the left was noted with effacement of the right lateral ventricle. A narrowing of the right superior orbital fissure, displacement of the right intraconal components and protusion of the right globe were identified (Figure 2). Nasopharyngeal biopsies were performed and bleeding was controlled by posterior nasal packing for about one week. The pathologic report was consistent with mixed meningocytic and fibroblastic (transitional) meningioma with angiomatous and psammomatous components.

The patient was given a right frontotemporal craniotomy with air-drill for removal of intracranial tumor by the neurosurgeon and transeptal sphenoidectomy for removal of sphenoid sinus and nasopharyngeal tumor by the otolaryngologist. Postoperative status: the patient had good conscious and no neurological deficit.

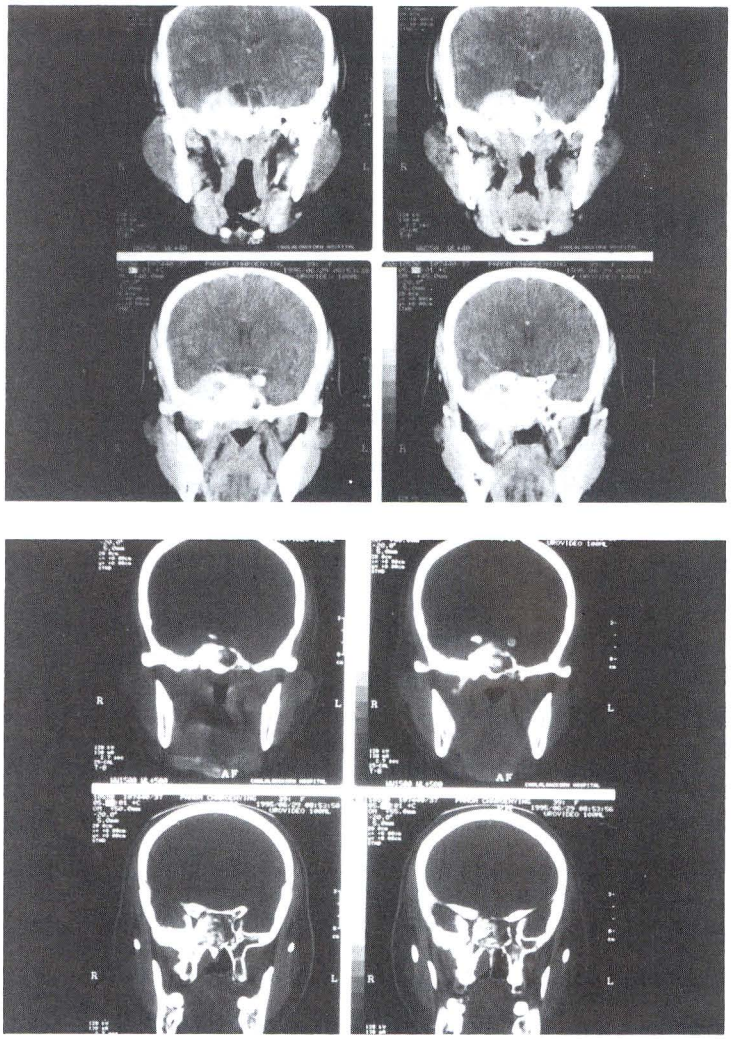

Figure 2. A: CT scan revealed homogenous isodense, enhancing extra-axial mass at right middle cranial fossa, sphenoid sinus and nasopharynx.

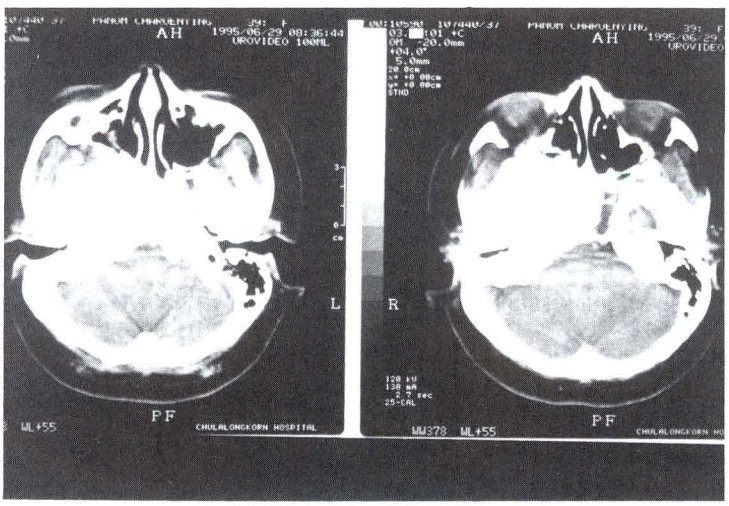

Figure 2. B: Showing hyperostosis of greater and lesser wings of body of right sphenoid bone, petrous part of temporal bone, clivus, posterior ethmoid bone and pterygoid plate.

Discussion

In adults, 90 percent of intracranial meningiomas occur in the supratentorial compartment (Table 3). Because meningiomas are presumed to arise from arachnoid or arachnoid cap cells, or both, it is not surprising that the majorityn of supratentorial meningiomas are clustered around the venous sinuses and dural folds where arachnoid granulation are found.[13]

Table 3. Meningioma location.

Location	Percentage			
	Cushing and Eisenhardt (n = 295)	Chan and Thompson (n = 257)	Jaaskelainen (n = 657)	Kallio et al. (n = 935)
Convexity	18	21	25	22
Parasagittal	22	31	21	27
Falx	2	*	10	*
Sphenoid wing	18	14	12	23
Middle fossa	3	N/A	3	*
Olfactory groove	10	8	8	18
Tuberculum (suprasellar)	10	5	10	*
Orbitocranial	N/A	<1	N/A	N/A
Basal	N/A	4	N/A	N/A
Posterior fossa	8	16	3	10
Tentorial	(5.1)	N/A	(3)	N/A
CPA	(2.3)	N/A	(4)	N/A
Foramen magnum	(< 1)	N/A	N/A	N/A
No dural attachment	2	N/A	N/A	N/A
Intraventricular	(1.3)	1.5	N/A	N/A
Sylvian	(0.7)	N/A	<1	N/A
Periocular	4	N/A	N/A	N/A
Gasseropetrosal (petroclival)	<2	N/A	N/A	N/A
Other	<2+	N/A	N/A	N/A

N/A, not available, not listed; CPA, cerebellopontine angle.

* Combined incidence with location above.

+ One orbital, two multiple, and two with schwannomas.

The occurrence of meningiomas in other locations is rare but meningiomas extended to the nasal cavity and paranasal sinus,[14] infratemporal fossa,[15] tympanic cavity,[16] neck[17] and intraoral cavity[18] have been reported. In this case, meningiomas extending to the nasopharynx and presenting as a nasopharyngeal mass is unique because of their tendency toward extracranial expansion, higher incidence of local recurrence and multicentric growth. The route of extension in this case was most likely from the medial sphenoid ridge.

Even though this case was a rare clinical representation, meningioma should be included in the differential diagnosis of a nasopharyngeal mass.

References

1. Neel HB.III. Benign and malignant neoplasma of the nasopharynx. In: Cummings CW, Schuller DE, eds. Otolaryngology Head and Neck Surgery. 2nd ed. St. Louis, Missouri: Mosby Year Book, 1993: 1355 - 71
2. Gustafson RO, Neel HB.III. Cysts and tumors of the nasopharynx. In: Paparella MM, Shumrick DA, Gluckman JL, Meyerhoff WL, eds. Otolaryngology. 3rd ed. Philadelphia; W.B. Saunder, 1991: 2189 - 98
3. Fu YS, Perzin KH. Non-epithelial tumors of the nasal cavity, paranasal sinuses, and nasopharynx : a clinicopathological study I. General features and vascular tumors. Cancer 1974 May; 33(5): 1275 - 88
4. Eisemann ML. Sphenooccipital chordoma presenting as a nasopharyngeal mass. A case report. Ann Otol Rhinol laryngol 1980 May-Jun; 89 (3 Pt 1): 271 - 5
5. Dominguez S, Wienberg P, Claros P, Claros A, Vila J. Primary localized nasopharyngeal amyloidosis. A case report. Int J Pediatr Otorhinolaryngol 1996 Jun; 36(1): 61 - 7
6. Hong KH, Seo SY, Lee DG. Chondrolipoma of the nasopharynx. J Laryngol Otol 1998 Jan; 112 (1) : 75 - 6
7. Ravichandran TP, Bakski R, Heffner RR. Aggressive giant pituitary adenoma presenting as a nasopharyngeal mass : magnetic resonance imaging and pathologic findings. J Neurooncol 1999 Jan; 41 (1): 71 - 5
8. Benitez WI, Sartor KJ, Angtuaco EJ. Craniopharyngioma presenting as a nasopharyngeal mass: CT and MRI findings. J Comput Assist Tomogr 1988 Nov-Dec; 12(6): 1068 - 72
9. Chessin H, Urdaneta N, Smith H, Van Gilder J. Chromophobe adenoma manifesting as a nasopharyngeal mass. Arch Otolaryngol 1976 Oct; 102(10): 631 - 3
10. Tahara T, Imate Y. Choristoma of the nasopharynx. ORL J Otorhinolaryngol Relat Spec 1994 Sep - Oct; 56(5): 299 - 301
11. Kepes JJ. Meningiomas: Biology, Pathology & Differential Diagnosis. New York; Masson, 1982.
12. Russell DS, Rubinstein LJ. Pathology of Tumours of the Nervous System. 5th ed. Baltimore; Williams & Wilkins, 1989.
13. Mc Dermott MW, Wilson CB. Meningiomas. in: Youmans JR , ed. Neurological Surgery. 4th ed. Philadelphia; W.B. Saunders, 1996: 2782 - 825
14. Ho KL. Primary meningioma of the nasal cavity

and paranasal sinuses. Cancer 1980 Sep 15; 46(6): 1442 - 7

15. Inglis AF, Yarington CT Jr, Bolen J. Extrameningeal meningiomas of the infratemporal fossa: diagnosis and treatment. Laryngoscope 1987 Jun ; 97(6): 689 - 92

16. Gollmitzer W, Grevers G, Vogl T. Meningioma of the sphenoid bone with involvement of the tympanic cavity. Laryngol Rhinol Otol (Stuttg) 1988 Dec; 67(12): 657 - 9

17. Nager GT, Heroy J, Hoeplinger M. Meningiomas invading the tymporal bone with extension to the neck. Am J Otolaryngeal 1983 Sep-Oct; 4(5): 297 - 324

18. Brown AM, Fordham KC, Lally ET. Meningioma presenting as an intraoral mass. Oral Surg Oral Med Oral Pathol 1976 Jun; 41(6): 771 - 6