Endoscopic Endonasal Management of Rare Sellar Lesions: Clinical and Surgical Experience of 78 Cases and Review of the Literature

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■ OBJECTIVE: **In the present study we aim to provide further definition of a group of rare sellar diseases treated by the endoscopic endonasal approach.**

■ METHODS: **The study was a retrospective analysis of data obtained from a series of 1729 patients who underwent endoscopic endonasal surgery at 2 academic institutions (Università degli Studi di Napoli Federico II, Naples, Italy between January 1997 and December 2013 and the Wexner Medical Center at The Ohio State University between July 2010 and September 2015). Clinical charts, operative notes, and pathology reports were examined.**

■ RESULTS: **A total of 346 cases were identified to have nonadenomatous diseases. Applying the Rosner test for outliers assisted in excluding relatively frequent lesions. The final cohort of rare sellar diseases comprised 78 patients. Arachnoid cysts were the most frequently encountered sellar lesion (12 patients, 15%), followed by metastasis (11 cases, 14%), followed by hypophysitis (8 cases, 10%), oncocytoma, and glioma (6 cases, 8% each). The most frequent clinical findings were headache (28%) and visual disorders (80%). A standard endoscopic endonasal approach was performed in 44 patients (56%), and an extended approach was carried out in 34 patients (44%).**

Tumor removal was gross total in 53% of patients, subtotal in 19%, and partial in 21%.

Postoperative endocrinologic and visual deficit evaluation showed improvements in endocrine function in 8 patients (10%) and in visual disorders in 13 (16%).

Postoperative complications arose in 28% of cases, mostly represented by diabetes insipidus (10%).

■ CONCLUSIONS: **Endoscopic endonasal approaches offer some specific benefits in the treatment of these patients.**

INTRODUCTION

Pituitary adenomas account for 90% of sellar tumors, which account for 10%–15% of intracranial tumors. Nonadenomatous lesions comprise a wide spectrum of diseases, some of which are considered as rare sellar lesions.

It is useful to examine previous attempts to better define these lesions. In 1999, Freda et al.[1] proposed a classification for nonadenomatous sellar lesions, comprising several subtypes of lesions such as rest cell tumors (craniopharyngiomas, Rahtke cleft cysts, arachnoid cysts, epidermoid cysts, and chordomas) primitive germ cell tumors, gliomas, meningiomas, metastases, vascular lesions (carotid aneurysms and pituitary gland apoplexy), granulomatous, infectious, and inflammatory processes (tuberculosis, sarcoidosis, histiocytosis X, hypophysitis, pituitary abscess, mucocele). In 2005, Huang et al.[2] analyzed just nonadenomatous sellar tumors and distinguished between tumors that originated in the pituitary gland and tumors that did not. In 2008, Katsas et al.[3] introduced a new classification based on malignant potential according to the 2007 World Health Organization (WHO) classification of tumors of the central nervous system. Glezer et al.[4] referred specifically to rare sellar lesions, excluding craniopharyngiomas, which represent the second most common neoplasia of the sellar region.

Key words
- Endoscopic endonasal approach
- Rare tumors
- Skull base surgery
- Transsphenoidal sellar region

Abbreviations and Acronyms
CSF: Cerebrospinal fluid
DI: Diabetes insipidus
MRI: Magnetic resonance imaging
PNET: Primitive neuroectodermal tumor
WHO: World Health Organization

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In view of the lack of consensus, this study first lists rare sellar lesions that occurred in our experience, classifying them according to the 2007 WHO classification of tumors and then describes relevant clinical and radiologic features of these lesions.

METHODS

This study was approved by the institutional review board of the School of Medicine of Università degli Studi di Napoli Federico II, which waived the necessity for informed consent because of the retrospective nature of the study. Written informed consent was obtained from the patients before any invasive clinicodiagnostic and surgical procedure; it was obtained for the eventual publication (for scientific purposes) of any patient records/information anonymously.

A total of 1729 consecutive patients were operated on via an endoscopic endonasal approach for the removal of a sellar/

Table 1. Summary of Nonadenomatous Lesions in Our Series

	Patients	
Pathology	**n**	**%**
Arachnoid cyst	12	17
Metastasis	11	14
Lymphocytic hypophysitis	8	10
Spindle cell oncocytoma	6	8
Lymphoma	5	6
Diffuse astrocytoma World Health Organization grade II	4	5
Dermoid cyst	4	5
Epidermoid cyst	4	5
Collision tumors	4	5
Abscess	3	4
Squamous cell carcinoma	3	4
Pylocitic astrocytoma World Health Organization grade I	2	3
Germ cell tumors	2	3
Pituicytoma	2	3
Gangliocytoma	1	1
Schwannoma	1	1
Hemangioma	1	1
Chondrosarcoma	1	1
Granulocytic sarcoma	1	1
Primitive neuroectodermal tumor	1	1
Granular cell tumor	1	1
Adenoid cystic carcinoma	1	1
Total	78	100

Table 2. Histologic Classification

	Cases	
Type of Lesions	**n**	**%**
Infectious and inflammatory processes		
Abscess[4-6]	3	4
Hypophysitis[7-11]	8	10
Neoplastic diseases		
Tumors of neuroepithelial tissue		
Astrocytic tumors		
Pilocytic astrocytoma (WHO grade I)	2	3
Diffuse astrocytoma (WHO grade II)[12-14]	4	5
Neuronal and mixed neuronal-glial tumors		
Gangliocytoma[15,16]	1	1
Embryonal tumors		
Primitive neuroectodermal tumor[17,18]	1	1
Tumors of cranial and paraspinal nerves		
Schwannoma[19]	1	1
Tumors of the meningis		
Mesenchymal tumors		
Hemangioma	1	1
Chondrosarcoma	1	1
Germ cell tumors[20-22]		
Germinoma	1	1
Mixed germ cell tumors	1	1
Tumors of hematopoietic system[23,24]		
Lymphoma (Burkitt)	1	1
Lymphoma (B-cell)	1	1
Lymphoma (diffuse B-cell)	1	1
Lymphoma (diffuse large B-cell)	1	1
Lymphoma (large B-cell)	1	1
Granulocytic sarcoma	1	1
Primitive pituitary tumors		
Spindle cell oncocytoma of the adenohypophysis (WHO grade I)[25-29]	6	8
Pituicytoma (WHO grade I)[30]	2	3
Granular cell tumor (WHO grade I)[31]	1	1
Collision tumors		
Adenoma + gangliocytoma[32]	1	1

Continues