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Case Report

Primary Meningioma of the Nasal Cavity

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Summary

Introduction: Primary sinonasal meningiomas are rare. They pose a problem of diagnosis. We report, through an observation, the clinical characteristics, diagnostic difficulties and therapeutic modalities of primary sinonasal meningiomas.

Case presentation: A 50-year-old female patient consulted us for a left unilateral nasal obstruction without epistaxis episodes, nor smell disorders, nor headaches, evolving for more than one year. Examination revealed a grayish fleshy tumor of the left nasal cavity. MRI showed a tissue mass centered in the left nasal cavity, pushing back the inter-sinus-nasal septum without invading it and without intracranial connection. The biopsy was in favor of a meningothelial meningioma. The tumor was resected endonasally. Histological analysis confirmed the diagnosis. The evolution was favorable after a ten-month follow-up.

Conclusion: The positive diagnosis of primary nasosinusal meningiomas is difficult because of their rarity in this ectopic site and their non-specific clinical aspect. The diagnostic confirmation is anatomopathological with immunohistochemical study. Imaging confirms the primary nature of these tumors. The prognosis is excellent after complete surgical excision without further adjuvant treatments.

INTRODUCTION

Primary meningiomas of the nasal cavity and paranasal sinuses are rare and few cases have been described in the international literature [1]. Several theories attempt to explain their histogenesis. The clinical and radiological semiology is not specific, and the histological diagnosis is not always obvious. The prognosis is excellent after surgical removal, which remains the only recommended treatment [1,2]. In the light of an observation made in the ENT and CCF department of the Hassan II hospital in Fez, we will try to describe the epidemiological, diagnostic and therapeutic aspects of this ectopic localization of meningiomas.

CASE PRESENTATION

A Fifty-year-old female with no previous pathological history had unilateral left nasal obstruction for more than one year, with no epistaxis, no aqueous rhinorrhea, no smell disorders, nor facial pain. The endonasal endoscopic examination showed a fleshy tissue process, of greyish color criss-crossed by small vessels occupying the left nasal cavity, seeming to come from the middle meatus. The rest of the ENT examination was normal, there was no exophthalmy nor oculomotor disturbances. The cervical lymph nodes were all free. CT scan of the facial mass and nasosinusal MRI showed a mass with tissue signal centered on the left nasal cavity, without endocranial extension, well limited, filling the left anterior and posterior ethmoidal cells, extending basi-frontally above, to the middle concha below, pushing back the left intersinuso-nasal wall. The inner wall of the orbit was laminated. A biopsy under local anesthesia was in favor of a meningioma of the nasal cavity (Figure 1).

A macroscopically complete tumor excision by endonasal approach was performed. Intraoperatively, the tumor was friable, grayish in color, with some bleeding dissection, located outside the middle horn and invading the anterior and posterior ethmoidal cells. The orbital wall was lysed in places and the control of the roof of the nasal cavity did not reveal any CSF leak or continuity between the tumor and the meninges.

The anatomopathological examination concluded to a meningothelial meningioma with immunohistochemical expression of anti -vimentin and anti epithelial membrane antigen (EMA) antibodies. The postoperative course was simple and the clinical, endoscopic and scannographic controls carried out at 1 month, 6 months, did not show any tumor residue with a ten month follow-up (Figure 2).

DISCUSSION

Meningiomas are benign nerve tumors that develop from meningeal or arachnoid cells, representing 13% to 26% of intracranial tumors and ranking third after metastases and

gliomas [1], they are accompanied by an extra cranial or extra medullary extension in 20% of cases [2]. Primary extracranial meningiomas are rare and account for 1%-2% of all meningiomas; the orbit, paranasal sinuses and nasal cavities, oral cavity, rock, external surface of the cranial vault and skin are the most frequent ectopic locations of these tumors [2,3].

Regarding the mechanisms of this ectopy, several theories have been put forward. Ho [4], suggested that these tumors may originate from arachnoid cells present in the nerve sheaths or from ectopic arachnoid cells trapped extracranially during neural tube closure during fetal life.

Primary meningiomas of the nasal cavity and paranasal sinuses are extremely rare and represent only 0.17% of nasosinus tumors [3]. The first case was described by Shaneen in 1931 [2], and since then few cases have been published. As of 2005, Gokduman had identified 33 cases of primary nasosinusal meningiomas published in the international literature [2].

The average age of discovery of primary extracranial nasosinusal meningiomas is about 45 years with a slight female predominance (sex ratio of 1/1.2) [5]. The clinical symptoms are non-specific and common to all nasosinus tumors: nasal obstruction, epistaxis, anosmia, purulent rhinorrhea and headache are the major symptoms [1-5]. The evolution is usually slow and insidious and the tumor can reach a considerable size with extension to the neighboring organs (orbit, base of the skull), which explains the delay in diagnosis [3-5].

Imaging based on the combination of CT and MRI allows a precise lesion assessment of the tumor [1]. CT scan of the facial mass in axial and coronal sections allows visualization of the tumor, its limits and its extension towards the neighboring structures, mainly the base of the skull and the orbit, as well as the involvement of bony structures [1-6]. Primary nasosinusal meningiomas often present as a heterogeneously dense tissue process, enhanced by the injection of contrast medium [1-6]. MRI is more efficient and is generally necessary preoperatively, because it allows to define precisely the tumor volume (better definition, slices according to the three planes), to establish a more precise extension assessment by differentiating tumor extension from fluid retention or inflammation, especially in case of recurrence [6,7].

Diagnostic confirmation is anatomopathological, but sometimes difficult posing the differential diagnosis with a carcinoma, melanoma, ossifying fibroma or olfactory neuroblastoma [7]. The current WHO classification distinguishes three categories of meningioma: benign meningioma (grade I); atypical meningioma with frequent mitoses (grade II); and the anaplastic type (grade III) [7]. Four histologic varieties are classic: meningothelial, fibroblastic, transitional, and angioblastic [7]. The most common variety is meningothelial meningioma [7]

The histological appearance is characteristic for the meningothelial form, but perhaps less typical for the other forms, hence the interest of immunohistochemistry. Meningiomas strongly express vimentin and epithelial membrane antigen (EMA) and are focally positive for S-100, keratin, and carcinoembryonic antigen (CEA) [7,8]. A monosomy 22 chromosomal aberration has been described [8]. In our case, the meningioma was of meningothelial type (grade I).

For operable forms, complete surgical resection is the treatment of choice. Different approaches can be used: endoscopic endonasal approach, external para-lateronasal approach, to allow a complete exeresis with control of the sieve blade of the ethmoid and the skull base. The choice varies according to the site of development and the possible extension of the tumor.

Radiation therapy allows stabilization of non-operable lesions. Recurrence after total removal is often late, varying from 7% to 84% depending on the follow-up time and the quality of the surgical resection [5]. The survival rate at 5 and 10 years is estimated at 82% and 78% [1-5]. The prognosis of forms with associated intracranial development is less favorable.

CONCLUSION

Primary meningiomas of the nasal cavity are rare. Their etiopathogeny remains unknown. The symptomatology is non-specific. The diagnostic confirmation is anatomopathological with immunohistochemical study. Imaging confirms the primary nature of these tumors. The prognosis is excellent after complete surgical excision without further adjuvant treatment.

Declaration of interest

The authors declare that they have no conflict of interest in relation to this article.

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