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Management of Orbital Tumors with 08 Cases at the Neurosurgery Department of Military Hospital in Rabat-Morocco

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Abstract

Orbital tumors are lesions that appear in the orbital craniofacial limits. To this end, teams of different ophthalmologist and neurosurgeon specialists provide the treatment of these tumors. We present here the experience of the neurosurgery department of the military hospital of Rabat in the management of these tumors. We retrospectively evaluated the records of 08 patients with orbital tumors, hospitalized in our neurosurgery department from January 2020 to December 2021. Results: In 06 patients, five different histological entities were observed, a transcranial approach was used for five patients, and only three underwent lateral orbitotomy, Postoperative results varied, depending on pathology, location and the extent of the tumors, as well as the approach. This study aims to review the place of neurosurgery in the management of orbital tumors as well as the important role that the neurosurgeon should play in the evaluation and treatment of this pathology.

Subject Areas

Clinical Trials, Neurology

Keywords

Orbital Tumors, Orbitotomy Lateral, Neurosurgery

1. Introduction

The orbital tumor is a rare but serious pathology, compromising the visual prognosis, and includes all benign and malignant tumors developed at the expense of the orbit [1]. It is present in a non-specific stereotyped clinical picture and the Imaging is essential to know the location, nature and repercussions of

the orbital mass. Moreover, it has a great histological diversity due to the architectural complexity of the orbit [2]. The treatment consists of three axes; chemotherapy and radiotherapy surgery, the neurosurgeon is concerned with orbital tumors for several reasons. The purpose of this work is to assess the service experience in terms of care of this pathology, and to compare our results with those of the literature.

2. Materials and Methods

This is a Retrospective analysis of 08 cases of orbital Tumors treated between January 2020 and December 2021 at the Neurosurgery Department of Military Hospital in Rabat.

Different parameters were used from the medical records, from our neurosurgery department. A pre-established operating sheet produced for this purpose enabled the collection of epidemiological, clinical, para-clinical, therapeutic and evolutionary data. These parameters are then collected and analyzed.

3. Results

During 2 years, we admitted 08 cases of orbital tumors to our department.

3.1. Sex Ratio

In our series, we had 03 female and 05 male (**Figure 1**).

3.2. Age Repartition

The age distribution of our cases varies from 26 to 76 years with an average of 33.43 year

3.3. Consultation Deadline

It is defined by the time elapsed between the first clinical sign and the diagnosis. It varied between 4 days and 02 years, with an average of 09 months.

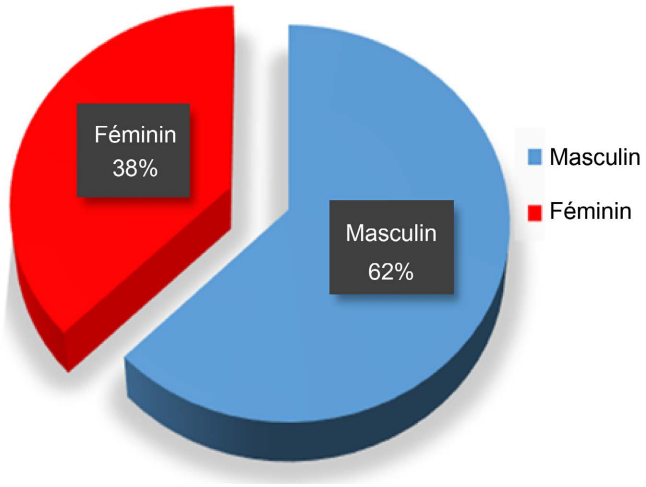


Figure 1. Sex ratio.

3.4. Clinical Exam

Figure 2 shows the clinical appearance of redness with proptosis, ptosis of the left eye and subconjunctival hemorrhage. The majority of patients had proptosis as a clinical sign 75%, followed by other local inflammatory signs in 03 cases, then the decline in visual acuity, followed by orbital pain in 02 cases (Figure 3).

3.5. Imaging Finding

Imaging has a key role in the diagnosis and follow-up of orbital tumors, even if the definitive diagnosis remains histological exam. Six cases out of 08 or (75%) benefited from the couple CT, and fronto-orbital MRI. Moreover, an MRI was directly requested as first intention in 01 cases (Table 1).

Lesions during orbital tumors are multiple and varied, we show you radiological aspects found in our patients in CT and MRI images (Figures 4-7).

3.6. Surgery

All patients were operated (100%), and the choice of approach depended on the location of the tumor, the tumor volume and the histological type. we performed 03 lateral orbitotomies with bone removal and 05 cases by transcranial routes: 03

Figure 2. Clinical appearance of redness with proptosis, ptosis of the left eye and subconjunctival hemorrhage.

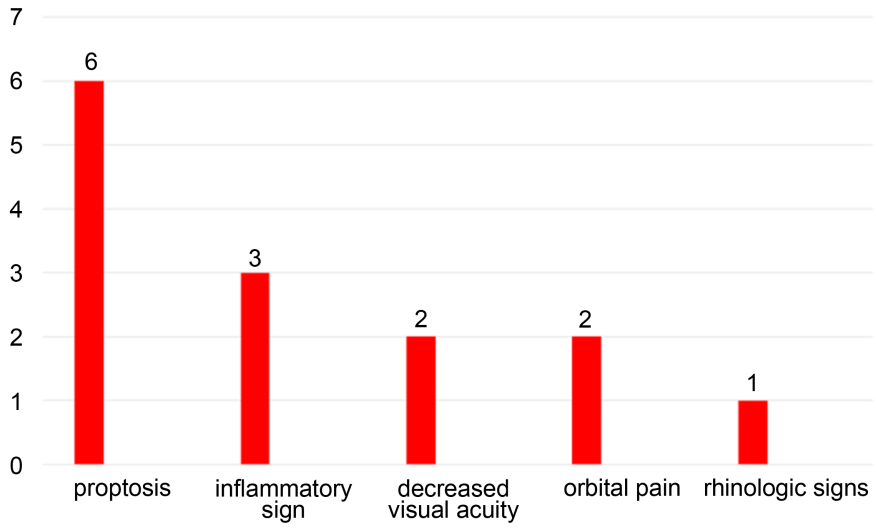
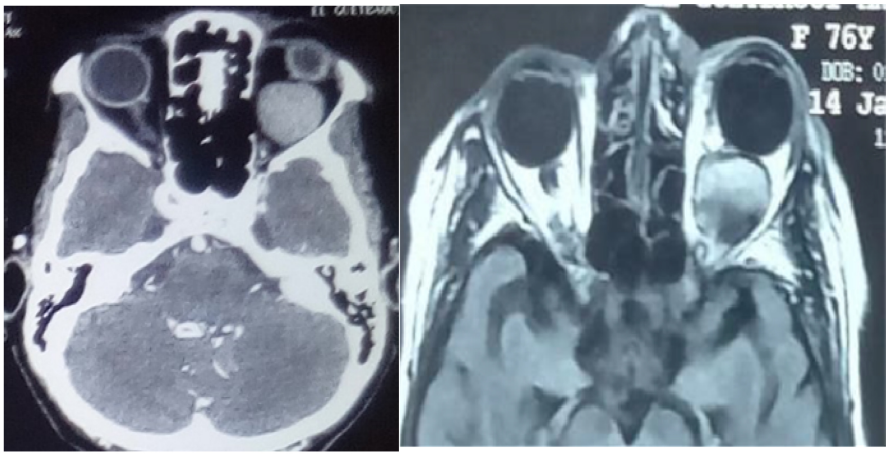
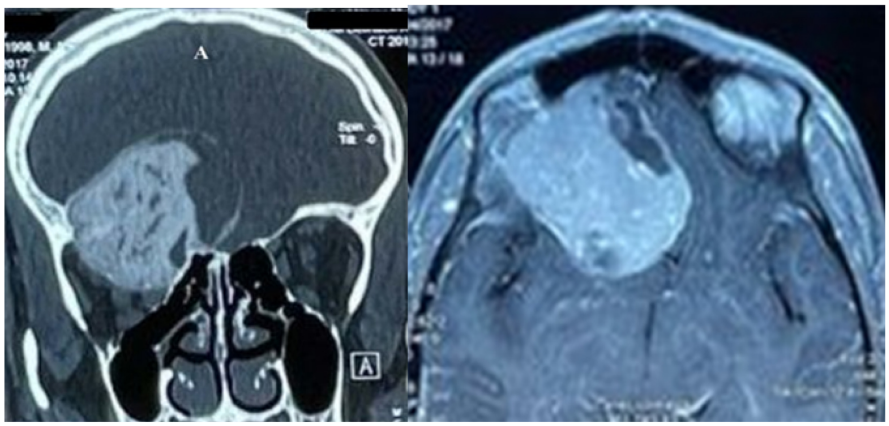


Figure 3. Distribution of patients according to clinical signs.



(A) (B)

Figure 4. CT scan (A) and Axial T1-weighted (B), show an Orbital Cavernous Hemangioma.



(A) (B)

Figure 5. CT scan (A) and MRI (B) show an orbital ossifying fibroma.

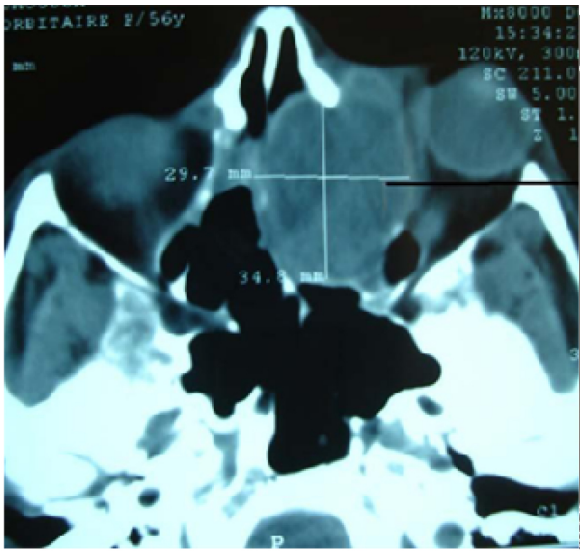


Figure 6. CT scan of Fronto-orbital mucocele.

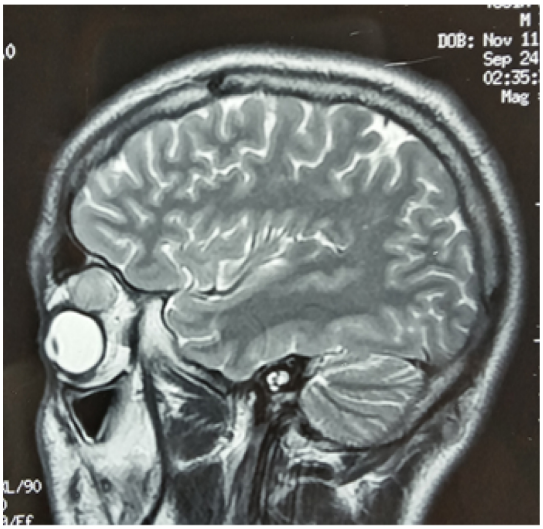


Figure 7. MRI of an orbital pleomorphic adenoma.

Table 1. Distribution of imaging in our patients.

EXAM	FREQUENCY	PERCENTAGE
Ct-scan + MRI	06	75%
CT SCAN	01	12.5%
MRI	01	12.5%
TOTAL	08	100%

cases by fronto-temporo-zygomatic approach and 02 cases of fronto-pterional approach (**Figure 8** and **Figure 9**).

The Optical Microscope was used for 06 cases and the Cryophobe device was used in 03 cases (cavernous hemangioma) (**Figure 10**).

3.7. Histological Findings

The histologic study was essential to confirm the definitive diagnostic of orbital tumors. We note in our series a predominance of cavernous hemangioma, representing 37.5% of cases (**Table 2**).

3.8. Evolution

The postoperative follow-up was evaluated on the data of the last consultation recorded in writing by a doctor of the service on the file. The average follow-up is 06 months (**Figure 11**). The evolution was simple in 07 cases (87.5%), with one case of a bad scar.

Two patients were lost to follow-up, which made their long-term follow-up very difficult.

4. Discussion

4.1. Epidemiology

The average age of discovery of orbital tumors in the literature varies between 51

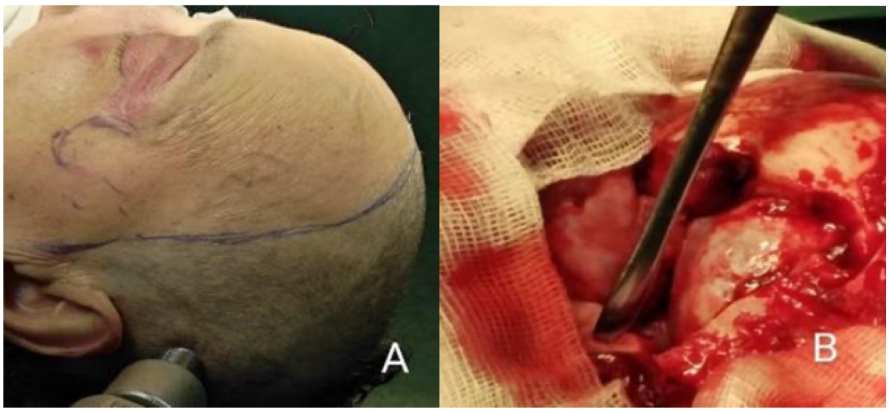


Figure 8. Position (A), fronto-temporo-zygomatic approach (B).

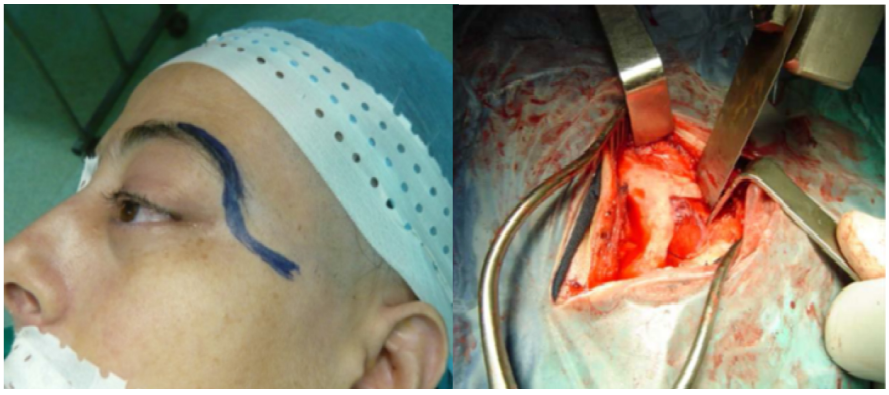


Figure 9. Lateral orbitotomy with bone removal according to Stallard-Wright incision.

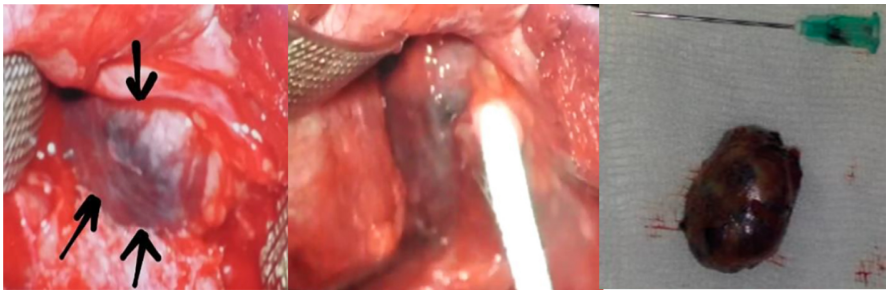


Figure 10. Cavernous hemangioma was extracted with a cryoprobe.

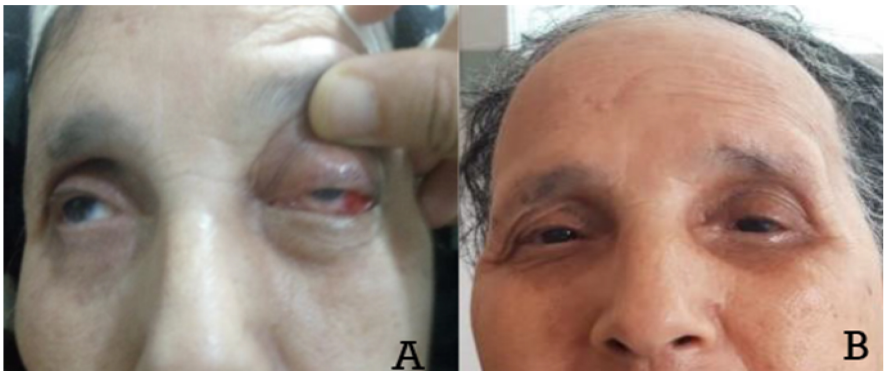


Figure 11. Evolution of one of our patient, preoperative (A), postoperative (B).

Table 2. Distribution of histological diagnoses.

Tumor Type	Number of Cases	Percentage
Cavernous Hemangioma	03	37.5%
Mucocele	02	25%
Ossifying Fibroma	01	12.5%
Spheno Orbital Meningioma	01	12.5%
Pleomorphic Adenoma	01	12.5%

and 75 years (**Table 3**). However, in our series we found an average age very young.

The male predominance in our series is explained by the fact that our patients are essentially soldiers, most often men.

4.2. Clinical Finding

The clinical symptomatology is largely dominated by proptosis, which constitutes 95.24%, 97%, 62.96% of the reasons for consultations in several series: CHAOUI [4], BARHDADI [5] and BELMEKKI [6], respectively, thus concurring with the results found in our study (75%). It can be isolated or associated with other clinical signs (**Table 4**).

4.3. Radiological Finding

Both MRI and CT are effective examinations for detecting orbital lesions [7]. The MRI has become by far the most widely used in the evaluation of orbital tumors since its appearance in 1983. In our study, we found that 87.5% of patients benefited from CT against 75% who had MRI; this showed that despite the place of MRI in orbital pathology it has not dethroned the scanner (**Table 5**).

4.4. Surgery

The choice of the surgical approach is carefully discussed according to many criteria: clinical, topographical and histology. Wide, sub-frontal pathways with removal of the superior or pterional orbital rim will be chosen for surgery for sphenorbital meningioma, fibrous histiocytomas, lymphangiomas and smaller pathways with lateral or posterolateral orbitotomy, for tumor surgery lacrimal gland, cavernous hemangiomas, or other well-circumscribed tumors such as schwannomas [10].

Cavernous hemangioma: 02 cases were operated by lateral orbitotomy and 01 case by fronto-temporo-zygomatic flap, in two cases, the excision was complete on bloc, and one case the excision was considered subtotal (with 06-month control MRI showing a small fragment of 5 mm).

Mucocele: (02 cases) the treatment consisted on the evacuation of the contents and resection of the shell of the tumor while trying to restore the ventilation of the sinus, the choice of the fronto pterional approach was chosen to be the most

Table 3. Distribution according to the mean age of onset in the literature.

Series	Average Age
Levecq [1]	52 years
Shields [2]	60 y
Bihan [3]	Between 51 and 75
Our Serie	33 years

Table 4. Comparison of the clinical results of our series with the literature.

	Proptosis	Decreased Visual	Orbital Pain	Occulomotricity Trouble	Inflam. Signs
Chaoui [4]	95.24%	71.43%	9.52%	9.52%	23.8%
Barhdadi [5]	97%	79.6%	____	57.8%	____
Belmekki [6]	62.96%	14.81%	25.92%	25.92%	_____
Our Series	75%	25%	25%	25%	37.5%

Table 5. Comparison of imaging used in our series with those from other national studies.

Series	Chaoui	Ait Benali [8]	Madaidou [9]	Our Series
CT performed	90.47% of patients	86.95% of patients	All patients	87.5% of patients
MRI performed	52.38% of patients	34.78% of patients	_____	75% des patients

radical and to avoid recurrence.

Spheno-orbital meningioma: one case was approached by frontopteriontemporal flap, with resection Simpson 2, and we noticed a spectacular regression of clinical signs.

Ossifying fibroma: we had a single case operated by frontopterional flap with resection of the frontal bone and the tumor in its entirety then we completed the gesture by cranioplasty in a month.

Pleomorphic adenoma: we had one case of this benign tumor located in superolateral and it was totally resected by a lateral orbitotomy was the ideal approach with regression of the proptosis.

4.5. Histological Results

In the neurosurgical series, tumors originating from the nervous system and the meninges are in the lead (30% to 50%), followed by vascular tumors in second place (15% to 20%). In third position, tumors of ENT origin (10% to 15%). In our modest study, vascular tumors (cavernous hemangioma) are in the lead (**Table 6**).

Table 6. Comparison our histological result with other studies results.

	Lariboisière [11]	Chaoui	Notre étude
Vascular tumors (cavernous hemangioma)	19%	38.09%	37.5%
Nervous system and meningeal tumors	31%	38.09%	12.5%
Primitive orbital walls (ossifying fibroma)	6%	4.76%	12.5%
Tm and ENT masses (mucocele)	9%	4.76%	25%
Tm of the lacrimal gland (pleomorphic adenoma)	5%	____	12.5%

4.6. Prognosis

The prognosis of orbital tumors is dominated by the histological nature and intracranial extension and at the base of the skull; it depends to the topography of the tumor and the importance of the invasion and the suffering of the optic nerve, and finally by the precocity and the quality of the care.

In our study, the prognosis was very good, with few complications.

5. Conclusions

Understanding orbital tumors are imperative to designing appropriate management and achieving optimal outcomes, and a good mastery of the approaches to the orbit gives excellent functional results and little morbidity.

The aim of our study was to present the experience of our service and to show the place of neurosurgery in the management of orbital tumors even if this management sometimes requires very close multidisciplinary collaboration.

Conflicts of Interest

The authors declare no conflicts of interest.

References

[1] Levecq, L., De Potter, P. and Guagnini, A.P. (2005) Epidemiology of Ocular and Orbital Lesions Referred to an Ocular Oncology Center. *Journal Français d'Ophtalmologie*, **28**, 840-844. https://doi.org/10.1016/S0181-5512(05)81002-2

[2] Shields, J.A., Shields, C.L. and Scartozzi, R. (2004) Survey of 1264 Patients with Orbital Tumors and Simulating Lesions: The 2002 Montgomery Lecture, Part 1. *Ophtalmology*, **111**, 997-1008. https://doi.org/10.1016/j.ophtha.2003.01.002

[3] Le Bihan, V. (1999) Epidémiologie des tumeurs orbitaires extra-oculaires. Tome 3, LE Bihan, Paris.

[4] Chaoui (2018) Les Tumeurs de L'orbite (à propos de 23 cas). Thèse, Faculté de

Medicine, Fès.

[5] Barhadi, H. (1997) Les voies d'abords neurochirurgicales de l'orbite: à-propos de 64 cas et revue de la littérature. Thèse N° 3/1997, faculté de médecine et de pharmacie de Rabat, Rabat.

[6] Belmekki, M., Elbekkali, M., Abdellah, H., Benchrifa, F. and Bennaha, A. (1999) Epidémiologie des processus orbitaires chez l'enfant: à propos de 54 cas. *Journal français d'ophtalmologie*, **22**, 393-394.

[7] Desjardins, L. (2000) Ophthalmological Tumors in Children: Diagnosis and Therapeutic Strategy. *Journal Français d'Ophtalmologie*, **23**, 926-939.

[8] Benali, A. (2012) La prise en charge neurochirurgicale des tumeurs orbitaires expérience du service de neurochirurgie CHU Med VI faculté de médecine de Marrakech. http://wd.fmpm.uca.ma/biblio/theses/annee-htm/FT/2012/these17-12.pdf

[9] Madaidou, N., Tahiri, H. and Chakib, A. (2008) Profil épidémiologique des exophtalmies chez l'adulte. *Journal Marocain d'Ophtalmologie*, **19**, 21-25.

[10] Civit, T. (2010) Classification of Orbital Tumors. *Journal of Neurosurgery*, **56**, 122-123. https://doi.org/10.1016/j.neuchi.2010.02.009

[11] Cophignon, J. and Maurier, K.L. (1974) Tumeurs et Masses Orbitaires. 176-185. https://neuro-dev.unilim.fr/