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Meningioma of the Optical Nerves in a Case at the Hospitalier Center of Saint Denis in Ile de France

Adama Dembele[1,2*], Moro Sidibe[1,2], Ibrahim Conaré[2], Mamadou Kolé Sidibé[2,3], Larcheveque Florence[4], Seror Julien[4], Abdoulaye Napo[2,3], Daouda Goita[2], Oumar Diallo[1,2], Djonny Jonas Dembele[2], Mamadou Adama Togo[2], Kadiatou Ba Koita[2,3], Abdoulaye Nouhoum Coulibaly[2], Cheick Fantamady Tounkara[2], Nouhoum Touré[2], Abdoulaye Konaté[2], Jeannette Traore[2,3], Sanoussi Bamani[2,3], Lamine Traoré[2,3], Japhet Popanou Théra[2,3]

[1]Regional Hospital of Sikasso, Sikasso, Mali
[2]Alliance for the Development of Community Ophthalmology (ADOC), Bamako, Mali
[3]African Tropical Ophthalmology Institute, Bamako, Mali
[4]Hospital Center, Saint Denis, France
Email: *admskidembele@gmail.com

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Abstract

Summary: Optic nerve tumors are rare tumors, representing 3% - 5% of intracranial tumors developing mainly along the optic nerve and/or the chiasm. Optic nerve meningiomas are histologically benign tumors whose severity is linked to diagnostic and especially therapeutic difficulties. The Optic nerve meningioma is the second leading cause of optic nerve tumor after glioma. **Observation:** We report the case of a 49-year-old woman from South Asia, who consults an ophthalmology department for progressive visual loss in her right eye for about a year with her glasses and would like to renew her optical correction. Having no particular medical history apart from left unilateral blindness is known for approximately 15 years. Magnetic Resonance Imaging (IRM) cerebral found a tissue mass with a clear outline and polylobules on the left temporo-peduncular. Through this case, we describe the circumstances of discovery of the disease, the clinical characteristics, as well as our diagnostic approach. **Conclusion:** In the majority of cases, these are benign tumours, the circumstances of which are discovered in multiple ways. A mostly unilateral and non-improvable loss of visual acuity must attract our attention. Renewing glasses may be the reason for discovering the disease. Today Magnetic Resonance Imaging (IRM) remains an important and capital examination for the diagnosis and monitoring of this pathology.

Keywords

Meningioma, Optic Nerve, Decreased Visual Acuity, IRM

1. Introduction

Meningiomas are usually benign tumors developed from the meningothelial cells of the arachnoid.

Optic nerve meningioma represents the second cause of tumoral involvement of the optic nerve after gliomas, 5% to 10% of orbital tumors and less than 2% of meningiomas [1]. Their most common clinical manifestation is progressive unilateral optic neuropathy. However, we often observe some difficulties, particularly on the diagnostic level due to the lack of specificity of the initial signs, on the therapeutic level, due to the radical nature of the surgical treatment, and on the evolutionary level because of the threat to the contralateral visual function represented by an intracranial extension. We report the case of a forty-nine-year-old woman presenting with a meningioma of the optic nerves manifested by progressive loss of right unilateral visual acuity.

Through this case, we describe the circumstances of discovery of the disease, the clinical characteristics, as well as our diagnostic approach.

2. Description of the Case

This was a 49-year-old woman from South Asia, who consulted for a renewal of her optical prescription due to a progressive loss of visual acuity in the right eye for about a year with her glasses without any other associated signs. We found unilateral left blindness known for about 15 years, no particular medical and surgical history. Also as gynecological history: G3P3V3 (3 Pregnancies, 3 Parities, 3 Alive), without notion of gestative contraception.

On examination, visual acuity was 2/10 Parinaud 8 in the right eye and an absence of light perception in the left eye.

Examination of the anterior segment noted an incipient cortical cataract in both eyes with positive photomotor reflex in the right eye and diminished in the left eye.

Air tonometry found ocular pressure of 16 mm hg in the right eye and 17 mm hg in the left eye.

The fundus after dilation found a clear vitreous, a macula and normal retinal periphery in both eyes. There was complete papillary pallor in the left eye and temporal papillary pallor in the right eye (**Figure 1**). Goldman's visual field revealed right temporal hemianopsia (**Figure 2**). Magnetic Resonance Imaging (IRM) cerebral found a tissue mass with a clear and polylobulated left temporo-peduncular contour measuring 56 mm anteroposteriorly, 51 mm transversely, and 48 mm high. She presents a hypo signal in T1, hyper signal in T2. The oculo-orbital topometry was normal and symmetrical with bilateral optic atrophy

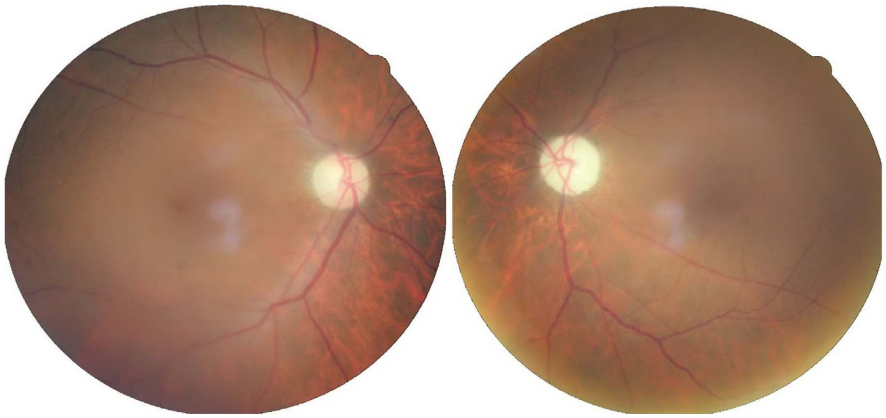

Figure 1. (a) Fundus right, (b) Fundus left showing papillary pallor.

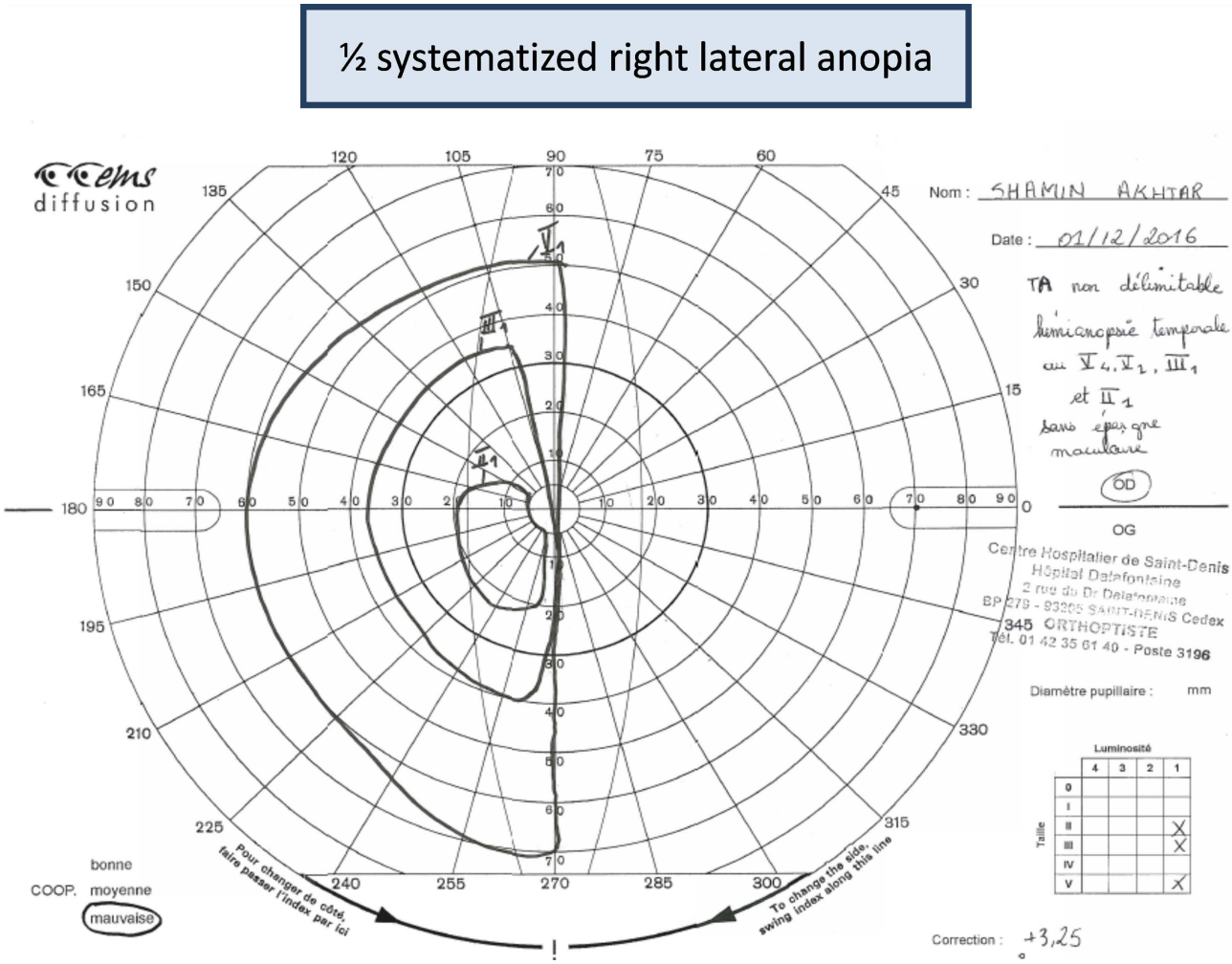

Figure 2. CV Goldmann of the left eye with temporal hemianopsia, without macular sparing.

and discrete hypersignal of the two optic nerves, thus concluding with a left jugo-olfactory and sphenoidal meningioma filling the sellar compartment.

IRM also found filling of the opto-chiasmatic cistern with envelopment of the

cisternal portion of the two optic nerves and of the chiasma, responsible for bilateral atrophic optic neuropathy predominantly on the left, without intra-orbital extension (Figure 3). In view of these clinical and paraclinical signs, the diagnosis of optic nerve meningioma was made. The patient was subsequently sent to the neurosurgery department of the Rothschild Eye Foundation (FOR) in Paris for treatment. After investigation and confirmation by a second IRM at the FOR, it was decided to abstain from surgery and institute close clinical and paraclinical monitoring.

After one year of follow-up, the signs and symptoms remained clinically and paraclinically stable. We continue to follow the patient in order to adapt our therapeutic attitude to the clinical and paraclinical evolution.

3. Discussion

The majority of orbital meningiomas consist of intracranial meningiomas that have spread to the orbit. Of primary orbital meningiomas, 96% are optic nerve meningiomas [2].

The etiopathogenesis of optic nerve meningiomas is poorly understood, however certain factors such as age, sex, existence of a pregnancy, and visual acuity seem to have an important role in the genesis of the disease. The clear female predominance of meningioma (80%) has been extensively described in the literature [2].

We report a case of optic nerve meningioma in a 49-year-old woman. The age of our patient was identical to that of a woman in the series by M. Bouyon *et al.*

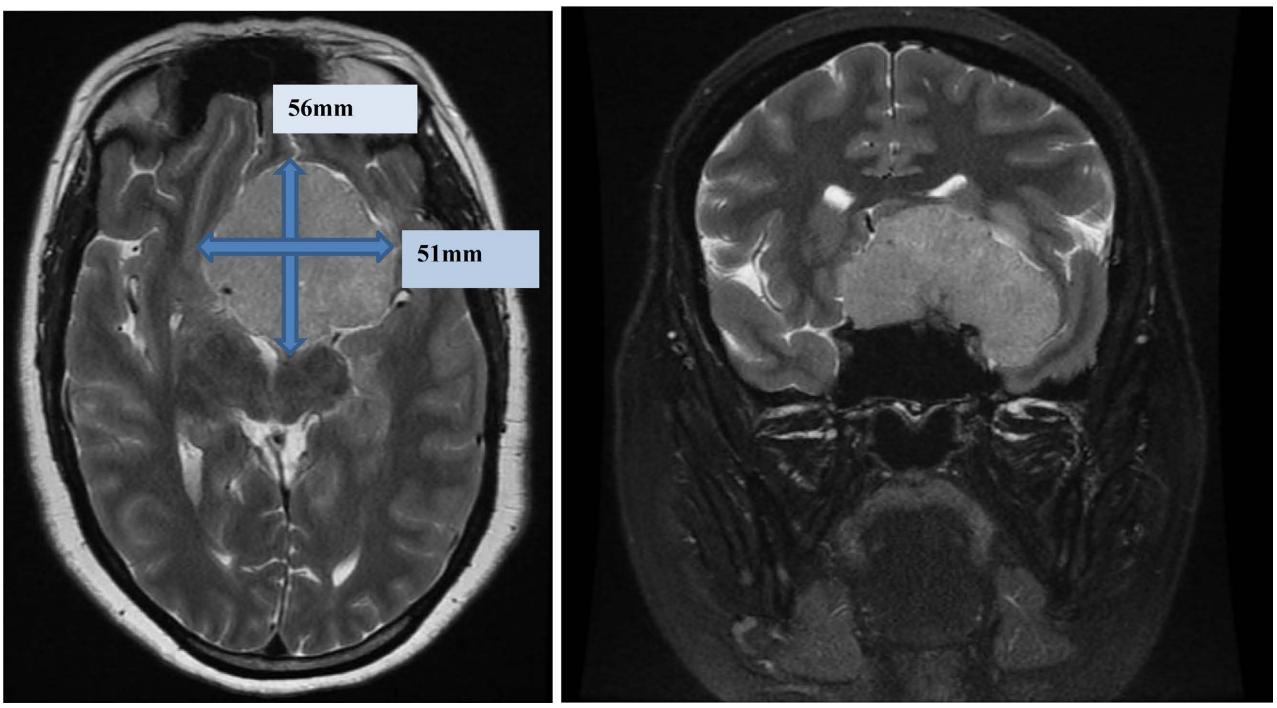

Figure 3. IRM showing a tissue mass with clear contour and poly lobulated left temporo-peduncular measuring 56 mm antero posteriorly, 51 mm.

[3]. On the other hand, it was lower than two other patients in the same series, respectively 55 and 53 years old at the Strasbourg University Hospital, France in 2009 [3]. Diplopia and decreased visual acuity were the main reasons for consultations with suspected multiple sclerosis. Saeed P *et al.*, [4] in a series including 88 patients including 6 children, reported a mean age lower than ours, *i.e.* 40.3 years. They thus establish a statistically significant correlation between the extent of intracranial extension and young age [4]. However, there is no established link between young age and the severity of optic nerve meningioma.

Saeed P *et al.* [4], in a series including 88 patients including 6 children, report a mean age of 40.3 years, and less than the age of our patient and establish a statistically significant correlation between the extent of intracranial extension and young age. However, there is no established link between young age and the severity of optic nerve meningioma [4].

Some authors believe that meningioma preferentially affects middle-aged women around 45 years old with a female/male ratio of around 3/1 [1] [4] [5].

The role of sex hormones has been evoked from a few reported cases of patients who presented a rapid evolution of symptoms related to a meningioma during their pregnancy [5]. Our patient was not pregnant.

Also it has been noted that the association between oral contraception, hormone replacement therapy (HRT) in the context of menopause and increased risk of meningioma. This was confirmed in a large prospective study conducted in over 275,000 women [6]. However, we did not find any notion of taking oral contraceptives or any other notion of hormonal treatment in our patient.

Visual disturbances are the major symptoms leading patients to consult. They are found in 65% of cases in the series by Mouton *et al.* [5]. It is most often a unilateral decrease in visual acuity of variable depth. In our case, the discovery was made during the renewal of his optical prescription.

The diagnosis was suggested in the face of the unilateral progressive decrease in visual acuity and its absence of improvement of 2/10, Parinaud 8 in the right eye. This gradual decline in visual acuity is known to be part of the classic picture described by Dandy in 1922 [7]. This is a progressive unilateral decrease in visual acuity over a few weeks or several months, isolated, sometimes preceded by transient amaurosis [8]. To this decrease in visual acuity was added for our patient a temporal hemianopsia, without macular sparing in the visual field of Goldmann in the left eye.

In addition, a case of meningioma of the optic nerve with a sudden drop in visual acuity was reported by R. Berete and al, in Paris in 2006 [2]. In the majority of cases, the patient recently experienced visual blurring, followed by a decrease in contrasts and finally the progressive installation of a central scotoma which invaded the visual field. This mode exists in 80% of cases.

However, some authors have reported the existence of a triad, which they considered pathognomonic in the discovery of the disease. These are visual loss, optic atrophy and optociliary vessel shunts [1]. On the other hand in 1991, Mil-

ler and all, found, that it was not specific in certain cases of compression of the optic nerve. It is believed that the simultaneous appearance of these three signs in an individual is rare [8].

Certain clinical and paraclinical elements are not always decisive for the diagnosis, namely, the papillary pallor which is found in many conditions, the visual field is of limited contribution because the signs found are those of any optic neuropathy [9] [10] [11].

Currently, Magnetic Resonance Imaging (IRM) has supplanted the scanner and allows in most cases to make the diagnosis of meningioma of the optic nerve and to search for an intracranial extension as well as other tumor localizations [12].

The surgical abstention was motivated by the stable nature of the vision in our patient. According to R. Berete *et al.* [2], simple monitoring should be offered to patients with stable meningiomas with preservation of visual acuity. It covers the clinical examination, scanner, IRM, with the performance of an annual or biannual examination in young patients with a posterior orbital tumour.

4. Conclusion

The optic nerve meningiomas are histologically benign tumors. The circumstances of discoveries are multiple. They must be mentioned in the face of any loss of visual acuity. Their diagnosis is based on imaging; their treatment is difficult, but surgical abstention remains the choice in the majority of cases.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

[1] Dutton, J.J. (1992) Optic Nerve Sheath Meningiomas. *Survey of Ophthalmology*, **37**, 167-183. https://doi.org/10.1016/0039-6257(92)90135-G

[2] Berete, R., Vignal-Clermont, C., Boissonnet, H., Héran, F. and Morax, S. (2006) Meningiomas of the Optic Nerve, Diagnostic Questions and New Therapeutic Answers. *Journal Francais d' Ophtalmologie*, **29**, 426-431. https://doi.org/10.1016/S0181-5512(06)77704-X

[3] Bouyon, M., *et al.* (2013) Meningioma and Optic Neuropathy: A Diagnostic Trap. *Journal Francais d' Ophtalmologie*, **36**, 221-229.

[4] Saeed, P., Rootman, J., Nugent, R.A., White, V.A., Mackenzie, I.R. and Koornneef, L. (2003) Optic Nerve Sheath Meningiomas. *Ophthalmology*, **110**, 2019-2030. https://doi.org/10.1016/S0161-6420(03)00787-5

[5] Mouton, S., Tilikete, C., Bernard, M., Krolak-Salmon, P. and Vighetto, A. (2007) Meningioma of the Optic Nerve. The Lyon Experience. *Revue Neurologique* (*Paris*), **163**, 549-559. https://doi.org/10.1016/S0035-3787(07)90461-0

[6] Michaud, D.S., *et al.* (2010) Reproductive Factors and Exogenous Hormone Use in Relation to Risk of Glioma and Meningioma in a Large European Cohort Study. *Cancer Epidemiology, Biomarkers & Prevention*, **19**, 2562-2569.

https://doi.org/10.1158/1055-9965.EPI-10-0447

[7] Dandy, W.E. (1922) Prechiasmal Intracranial Tumors of the Optic Nerves. *American Journal of Ophthalmology*, **5**, 169-188. https://doi.org/10.1016/S0002-9394(22)90261-2

[8] Miller, N., Newman, N., Hoyt, W. and Walsh, F. (1998) Walsh and Hoyt's Clinical Neuroophthalmology. 5th Edition, Williams and Wilkins, Philadelphia, Pennsylvania, 2044-2051.

[9] Jackson, A., Patankar, T. and Laitt, R.D. (2003) Intracanalicular Optic Nerve Meningioma: A Serious Diagnostic Pitfall. *American Journal of Neuroradiology*, **24**, 1167-1170.

[10] Rossazza, C., Larmande, A. and Tarle, P. (1986) Bilateral Meningioma of the Optic Nerve Sheath. *Bulletin des Societes d' Ophtalmologie de France*, **86**, 1527-1529.

[11] Bazin, A., *et al.* (1988) Meningioma of the Optic Canal. Diagnostic Aspects Apropos of 3 Surgically Treated Cases. *Neurochirurgie*, **34**, 164-172.

[12] Xiao, L. and Lu, X. (2004) The Value and Importance of CT and MRI for Diagnosing Optic Nerve Sheath Meningiomas. *Chinese Journal of Ophthalmology*, **40**, 30-33.