Scholars Journal of Medical Case Reports
Abbreviated Key Title: Sch J Med Case Rep
ISSN 2347-9507 (Print) | ISSN 2347-6559 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Pathology

Ocular Metastasis from Breast Carcinoma: A Case Report

S. Sassi[1*], F. Hassouni[2], L. Benbella[1], R. El Mohtarim[1], L. Rouas[1], N. Lamalmi[1]

[1]Pathology Department, Ibn Sina Hospital, Faculty of Medicine and Pharmacy, Mohammed V University, Rabat, Morocco
[2]Gynecology Department, Maternity Hospital, Faculty of Medicine and Pharmacy, Mohammed V University, Rabat, Morocco

DOI: 10.36347/sjmcr.2023.v11i12.002 | **Received:** 11.10.2023 | **Accepted:** 17.11.2023 | **Published:** 02.12.2023

***Corresponding author:** Samia Sassi
Pathology Department, Ibn Sina Hospital, Faculty of Medicine and Pharmacy, Mohammed V University, Rabat, Morocco

Abstract **Case Report**

***Background*:** Eye metastases are a rare event in cancer, patients with breast cancer being the most common primary site (28.5%–58.8%). Patients with ocular metastatic disease can present with a variable clinical picture. Most often presents as a cutaneous or subcutaneous nodule simulating a chalazion but with rapid growth and possible superficial ulceration. The definitive diagnosis is based on the anatomopathological analysis of the lesion. The treatment remains palliative and the prognosis remains poor. ***Objectives*:** To further define the histopathologic features of breast carcinoma conducive to orbital metastasis. ***Methods*:** We report a case of ocular metastasis in a 46-year-old woman presenting with right eye pain. She had been treated for ductal carcinoma breast cancer with lymph node and bone metastases 5 years ago; a mastectomy with lymph node dissection was performed. The patient consults us for unilateral eyelid swellings evolving for 4 months. On examination, we find well-limited rounded tissue formation in the right upper eyelid ulcerated in places. Oculomotricity was preserved and the rest of the examination was unremarkable. A biopsy of the lesion was carried. ***Results & Conclusions*:** Microscopic examination revealed a fibrofatty tissue seat of a tumoral proliferation made of spans and cords, of carcinomatous cells with moderate atypia showing some mitosis figures. The stroma is fibrous. Immunohistochemical studies showed positive immunoreactivity to pancytokeratin, estrogen receptor, progesterone receptor and HER-2, the results were in favor of a metastatic breast carcinoma. In summary, In the case of a metastatic orbital tumor, breast cancer should be considered as a possible source, especially in elderly women. Integrating the clinical information with histopathological findings is warranted.

Keywords: Eye metastases, breast cancer, ocular metastatic disease, Oculomotricity.

INTRODUCTION

Eye metastases are a rare event in cancer, patients with breast cancer being the most common primary site (28.5%–58.8%). Most often presents as a cutaneous or subcutaneous nodule simulating a chalazion but with rapid growth and possible superficial ulceration. The definitive diagnosis is based on the anatomopathological analysis of the lesion.

CASE PRESENTATION

We report a case of ocular metastasis in a 46-year-old woman presenting with right eye pain. She had been treated for ductal carcinoma breast cancer with lymph node and bone metastases 5 years ago; a mastectomy with lymph node dissection was performed. The patient consults us for unilateral eyelid swellings evolving for 4 months with ptosis. On examination, we find well-limited rounded tissue formation in the right upper eyelid ulcerated in places. Oculomotricity was preserved and the rest of the examination was unremarkable. A magnetic resonance imaging (MRI) scan further revealed an abnormal infiltrating lesion, hypodense compared to the muscle, hyposignal in T1, heterogeneous in T2 (Fig 1).

The microscopic examination revealed a fibrofatty tissue seat of a tumoral proliferation made of spans and cords, of carcinomatous cells with moderate atypia showing some mitosis figures. The stroma is fibrous (Fig 2). Immunohistochemical studies showed positive immunoreactivity to pancytokeratin, estrogen receptor, progesterone receptor and HER-2 (Fig 2), the results were in favor of a metastatic breast carcinoma. For our patient, the treatment considered was palliative given the multiple metastases (chemotherapy).

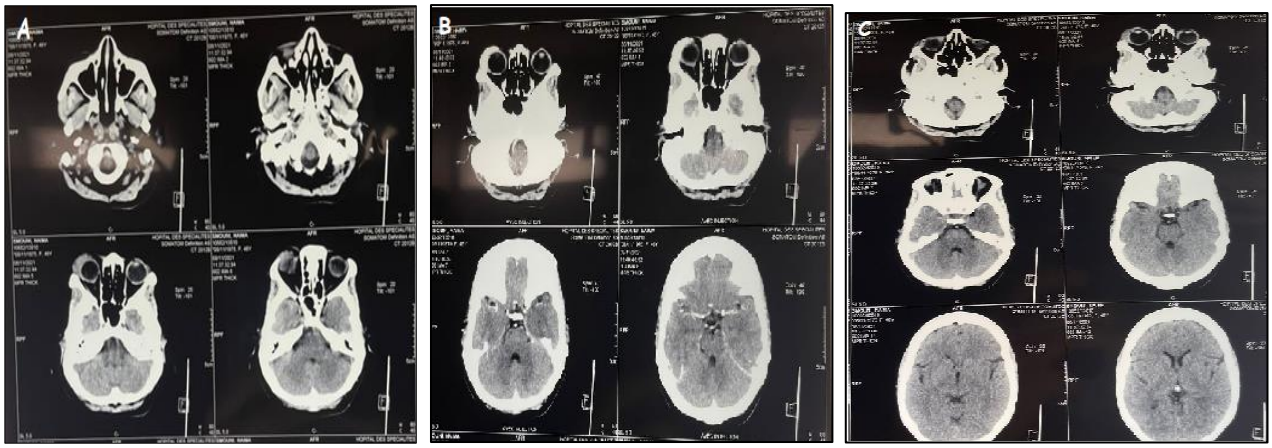

Figure 1 : Magnetic resonance imaging (MRI) scan further revealed an abnormal infiltrating lesion at the orbital apex encasing the optic nerve (A), hypodense compared to the muscle, hyposignal in T1, heterogeneous in T2 (B,C).

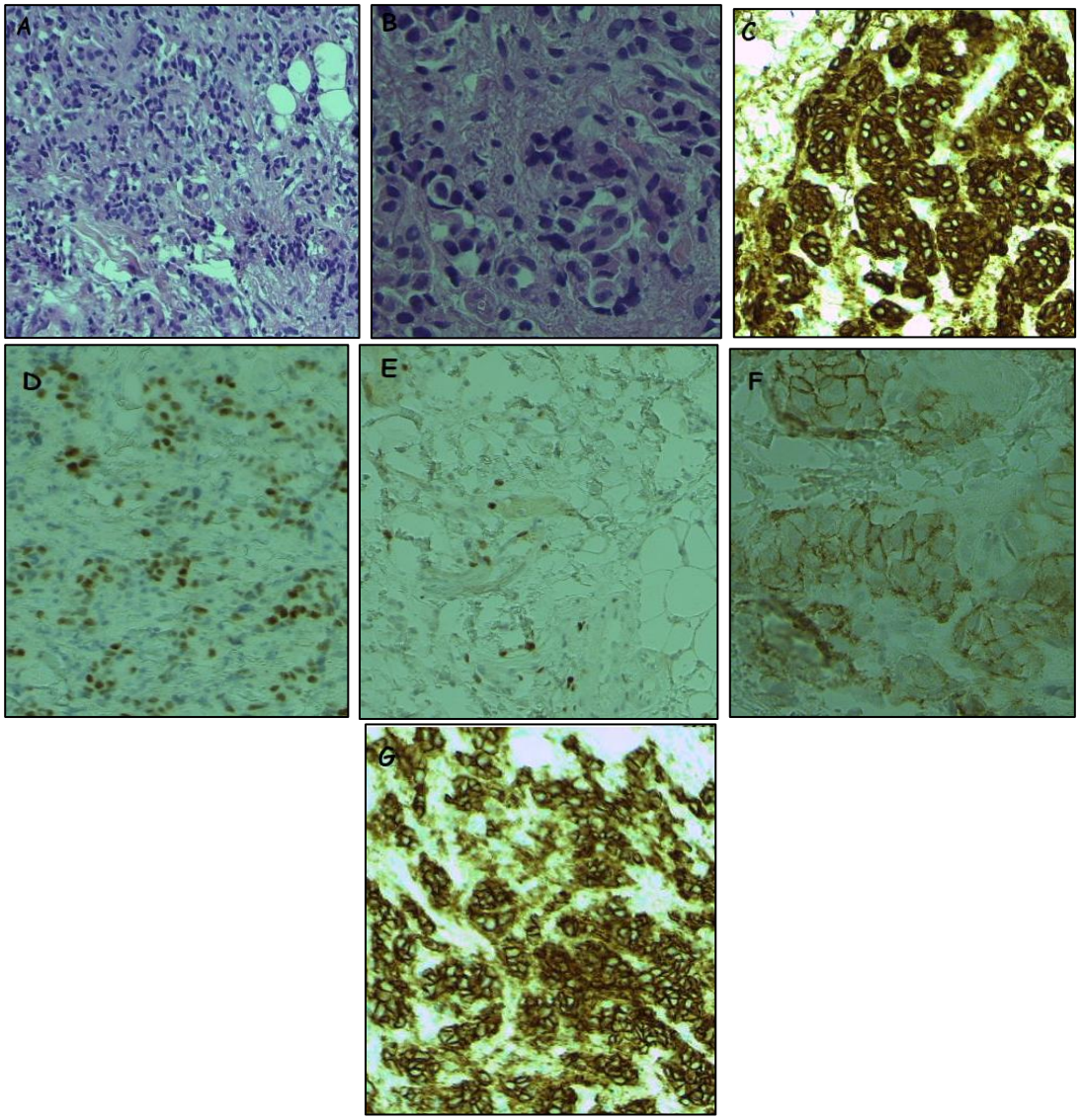

Figure 2: Morphological and immunohistochemical aspect: (A) HE staining of the excisional breast biopsy specimen. Fibrofatty tissue seat of a tumoral proliferation made of spans and cords (Gx20). (B) Carcinomatous cells with moderate atypia showing some mitosis figures. The stroma is fibrous (Gx40). (C) Immunohistochemical staining showing positive expression of AE1/AE3 in tumor cells (Gx20). (D) Estrogen receptor is strongly positive (×20). (E) Progesterone receptor is positive (×20). (F) HER2 is Positive (×20). (G) Positive expression of E-Cadherin (x40).

DISCUSSION

The orbit has long been described as a site of tumor proliferation. A large retrospective study reviewing over 1,200 patients referred for orbital mass reported lymphoid neoplasia (11%), idiopathic orbital inflammation (11%), and metastatic breast cancer (4%) as some of the common diagnoses. Regarding metastases, breast cancer is the most common primary source of solid organ malignancy [1]. Is most frequently found in the breast (47%), the lung (21%), and then the gastrointestinal tract (4%), the kidney (2%), the skin (2%) and the prostate (2%) [2]. Affects patients on average between 40 and 60 years old; When distinguishing between both sexes, up to 90% of female patients suffer from breast carcinoma in contrast to male patients where the underlying malignancy most often is found in the lung. Orbital metastasis from breast cancer is typically unilateral, in 85% of cases there is a known history of breast cancer, with an average delay of 4.5 to 6.5 years between the diagnosis of the primary and the orbital metastasis, for the remaining 15%, the metastasis is then revealing of the cancer. As in most cases there are also concomitant non-orbital metastases, it is essential to carry out a staging assessment in search of these [3]. Orbital metastasis tends to infiltrate extra ocular muscles, this location was first described by Horner in 1864 [4].

The diagnosis of metastasis ocular disease is based on clinical and radiological arguments, typical subjective symptoms include diplopia, pain, ptosis, and objective findings include impaired eye movement, exophthalmos, and eye deviation [5], other symptomatology may be observed including inflammation, swelling eyelids, bone damage, or chemosis.

A computed tomography scan (CT) is the best exam to study the lesions of the orbital walls or reports of an intra-orbital lesion, it can provide considerable information on size, location, infiltration of musculature as well as other structures including bone, and sometimes the nature of lesion [6].

Magnetic Resonance Imaging (MRI) provides better resolution of orbital metastases, which are usually hypointense to orbital fat on T1 and hyperintense on T2. This appearance may help to differentiate it from an orbital pseudotumor, which is usually isointense to fat on T2.

A definitive diagnosis is based of the biopsy lesion guided by imaging with an immunohistochemical study. However, there is no single specific marker that may reliably diagnose a breast cancer metastasis. The importance of establishing the correct diagnosis is important due to the varying treatment modalities of breast cancer metastases [7].

Diagnosis is confirmed by obtaining an open orbital incisional biopsy and examining the histopathology. Immunohistochemical evaluation of the orbital biopsy specimen for estrogen and progesterone receptor and HER2 and Ki67 is important not only for diagnostic purposes but also in guiding treatment plans. The hormone receptor status in metastatic lesions may vary from that seen in the primary malignancy [8]. Although intralobular carcinoma (ILC) is the second most common type of invasive breast cancer after invasive ductal carcinoma (IDC). Histopathologic characteristics of ductal carcinoma breast cancer are cords and strands of neoplastic cells in a single file arrangement and focal ductular differentiation surrounded by areas of fibrotic stroma.

Differential diagnosis of an orbital process should include inflammatory lesions, benign tumors (such as hemangiomas) and lymphoproliferative disorders. Idiopathic orbital inflammatory syndrome, sarcoidosis and Wegener granulomatosis are inflammatory conditions that may present in similar manners. Given that inflammatory signs are common in orbital metastases from breast cancer, they could be misdiagnosed as thyroid orbitopathy, cellulitis, myositis, scleritis or endophthalmitis [9, 10].

Once a diagnosis has been made, treatment is primarily palliative and is aimed at improving quality of life and preserving as much of the functional prognosis as possible; it may include radiotherapy, chemotherapy or surgery in some cases. Radiation therapy appears to be effective with an objective response rate of up to 79% [11].

Prognosis of patients with metastatic orbital tumors is rather poor, with a median survival ranging from 22 to 31 months for breast cancer. Nevertheless, rare cases of long-term survival after the diagnosis of breast cancer presenting as an orbital mass have been reported [12, 13].

CONCLUSION

Orbital metastases are rare and breast cancer is the primary neoplasia most often involved in women. The diagnosis of metastasis is evoked in the context of the patient's background, particularly if there is a known history of cancer, and on the appearance of the lesion on imaging. The diagnosis of certainty is based on anatomopathological analysis of the lesion. The treatment remains palliative and the prognosis remains poor.

ACKNOWLEDGEMENTS: Not applicable.

Conflict of Interest: No conf licts of interest.

Funding Statement: This study was not funded

Ethical Approval: Not applicable.

Consent for Publication

Written consent has been obtained from the patient and the patient's family for the publication of this case report

Guarantor: Sassi Samia.

REFERENCE

1. Weiss, R., Grisold, W., Jellinger, K., Mühlbauer, J., Scheiner, W., & Vesely, M. (1984). Metastasis of solid tumors in extraocular muscles. *Acta neuropathologica*, *65*, 168-171.
2. Wallace, D. K., Virata, S. R., & Mukherji, S. K. (2000). Strabismus surgery complicated by "pulled in two syndrome" in a case of breast carcinoma metastatic to the medial rectus muscle. *Journal of American Association for Pediatric Ophthalmology and Strabismus*, *4*(2), 117-119.
3. Cornelis, F., Mejdoubi, M., & Dousset, V. (2007). Bilateral orbital extension of breast cancer metastasis. *Journal de Radiologie*, *88*(5 Pt 1), 684-686.
4. Horner, F. (1864). Case report: *Klin Monatsbl Augenheilkd*, *2*, 186–92.
5. Ahmad, S. M., & Esmaeli, B. (2007). Metastatic tumors of the orbit and ocular adnexa. *Current opinion in ophthalmology*, *18*(5), 405-413.
6. Weiss, R., Grisold, W., Jellinger, K., Mühlbauer, J., Scheiner, W., & Vesely, M. (1984). Metastasis of solid tumors in extraocular muscles. *Acta neuropathologica*, *65*, 168-171.
7. Lewis, J. E., McKinney, B. C., Weiland, L. H., Ferreiro, J. A., & Olsen, K. D. (1996). Salivary duct carcinoma: clinicopathologic and immunohistochemical review of 26 cases. *Cancer: Interdisciplinary International Journal of the American Cancer Society*, *77*(2), 223-230.
8. Jensen, O. A. (1970). Metastatic tumours of the eye and orbit. A histopathological analysis of a Danish series. *Acta Pathologica et Microbiologica Scandinavica. Supplement*, *212*, Suppl-212.
9. González, F., & López-Couto, C. (2006). Orbital metastases. A report of four cases and a review of the literature. *Archivos de la Sociedad Espanola de Oftalmologia*, *81*(8), 451-462.
10. Shields, J. A., Shields, C. L., & Scartozzi, R. (2004). Survey of 1264 patients with orbital tumors and simulating lesions: The 2002 Montgomery Lecture, part 1. *Ophthalmology*, *111*(5), 997-1008.
11. Bellmann, C., Fuss, M., Holz, F. G., Debus, J., Rohrschneider, K., Völcker, H. E., & Wannenmacher, M. (2000). Stereotactic radiation therapy for malignant choroidal tumors: preliminary, short-term results. *Ophthalmology*, *107*(2), 358-365.
12. Mohadjer, Y., & Holds, J. B. (2005). Orbital metastasis as the initial finding of breast carcinoma: a ten-year survival. *Ophthal Plast Reconstr Surg*, *21*, 65 –79.
13. Reeves, D., Levine, M. R., & Lash, R. (2002). Nonpalpable breast carcinoma presenting as orbital infiltration: case presentation and literature review. *Ophthalmic Plastic & Reconstructive Surgery*, *18*(1), 84-88.