

Orbital metastasis associated with primary breast carcinoma in a man detected during peribulbar anesthesia for cataract surgery

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PURPOSE. *A case of orbital infiltration by breast carcinoma in a male patient causing mild enophthalmos and subcutaneous mass detected accidentally during peribulbar anesthesia for cataract surgery is discussed.*

METHODS. *The authors report a case of a 65-year-old man who came to the Ophthalmology Department for cataract surgery. During the presurgery peribulbar injection, a hard palpable mass located under the inferior left eyelid was noted, together with mild enophthalmos. A historical clinical screening revealed that 5 years previously the patient had undergone a right radical mastectomy to treat a ductal carcinoma of the breast.*

RESULTS. *The patient underwent an incisional biopsy of the orbital mass that confirmed the clinical hypothesis of a metastasis.*

DISCUSSION. *This case highlights the importance of the collection and screening of detailed clinical information on the patient before every ophthalmic operation including cataract surgery. The occurrence of progressive enophthalmos can represent an unusual symptom of orbital metastasis, commonly presenting with proptosis and diplopia. (Eur J Ophthalmol 2008; 18: 1031-3)*

KEY WORDS. *Breast carcinoma, Enophthalmos, Metastatic tumor, Orbit, Peribulbar anesthesia, Cataract surgery*

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INTRODUCTION

Breast carcinoma is the most common tumor metastasizing to the orbit (1). The orbital disease most often appears 3 to 6 years after the diagnosis of the primary tumor, even if up to 25% of orbital metastases represent the first manifestation of the neoplastic disease (2, 3). Breast cancer is rare in men, representing approximately 1% of all cases of this tumor (4).

The main clinical signs of orbital metastasis are proptosis (up to 67.9%) with ocular motility disturbances and the presence of an orbital mass (2). Occasionally, enophthalmos can result from fibrosis associated with desmoplastic reaction induced by the breast carcinoma cells (2-5).

In the following report, we discuss a case of orbital infiltration by breast carcinoma in a male patient causing mild enophthalmos and subcutaneous mass detected accidentally during peribulbar anesthesia for cataract surgery.

Case report

A 65-year-old man came to our Ophthalmic Department for cataract surgery to the left eye. The right eye (RE) was blind and phthisic because of a penetrating trauma in childhood. During the peribulbar anesthetic injection before the cataract surgery, a hard palpable mass under the inferior left eyelid was noted (Fig. 1A). The surgery was postponed in order to perform further diagnostic tests. An

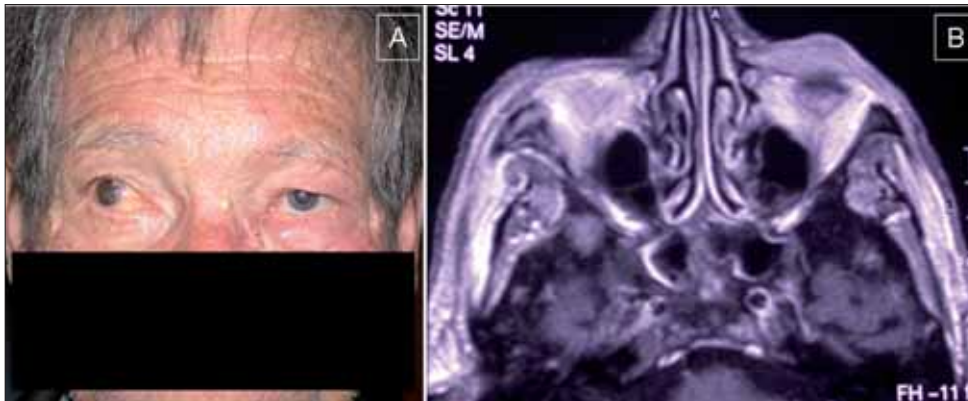


Fig. 1 - Subcutaneous mass under the inferior left eyelid. Post-traumatic microphthalmos in right eye and enophthalmos in left eye (A). MRI scan shows a subcutaneous mass (20 x10 mm) in correspondence of the left inferior eyelid and an initial infiltration of the adipose tissue of the inferolateral sector, with mild enophthalmos (B).

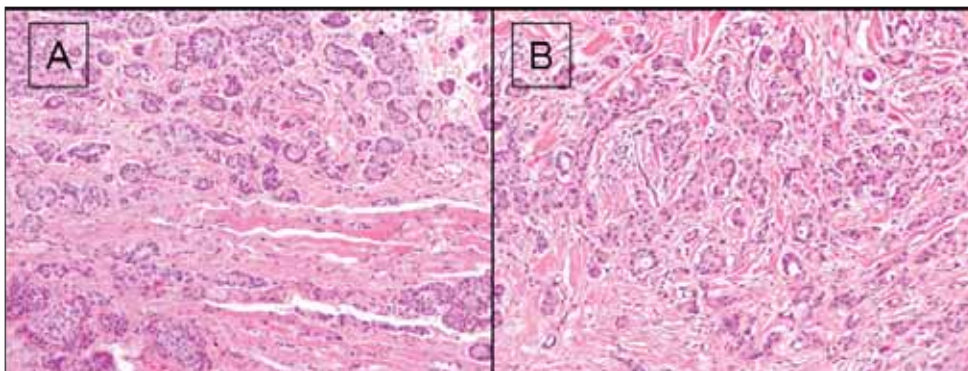


Fig. 2 - In the orbital tissue, a proliferation of neoplastic cells is present, organized in solid nests and tubules in a dense fibrous stroma. The morphologic features are suggestive of ductal breast carcinoma metastasis (A, original magnification 120x), and resemble the morphology of the primary ductal cell carcinoma in the breast (B, original magnification 120x).

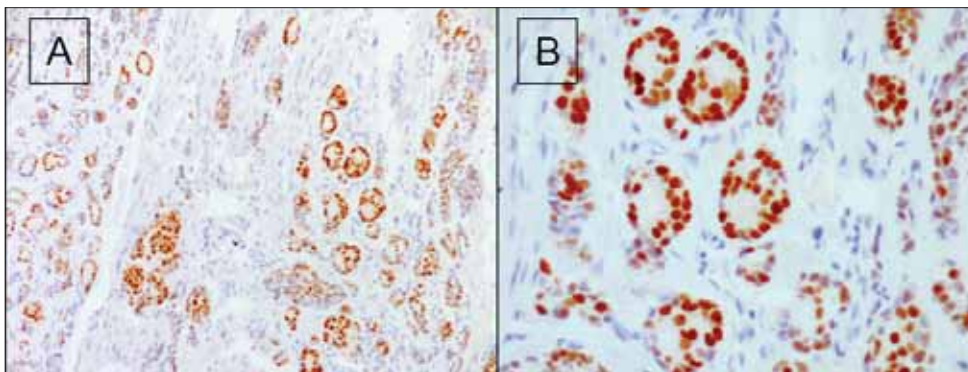


Fig. 3 - The immunohistochemical study shows an intense and diffuse nuclear positivity for estrogen antibody in orbital metastasis (A, original magnification 120x), as well as in the primary tumor (B, original magnification 200x), confirming the breast origin.

exophthalmometry revealed a mild enophthalmos (13 mm) of the left eye, while the measurement of the RE was not accurate due to the phthisis. There was no limitation of ductions. Magnetic resonance imaging (MRI) scan showed microphthalmos in the RE, and an orbital subcutaneous mass (20 x 10 mm) near the left inferior eyelid. The mass showed an enhancement with contrast and involved the adipose tissue of the inferolateral orbital sector, causing mild enophthalmos (Fig. 1B). The extraocular muscles, orbital bones, and optic nerve were not affected by the proliferating tissue. An accurate clinical history revealed that the patient had undergone a right

radical mastectomy 5 years before, to treat a ductal breast carcinoma.

On the basis of clinical and radiologic data, the patient underwent a biopsy of the mass. Histologic diagnosis of metastatic breast carcinoma was performed on the basis of morphologic grounds (tubules and solid cords of neoplastic cells in a dense connective tissue, strictly resembling the primary breast tumor) (Fig. 2, A and B) and the immunohistochemical positivity for estrogens receptor in the nuclei of the neoplastic cells (Fig. 3, A and B). A dense fibrous reaction was also evident at histologic examination.

The proliferation index was around 10% of the neoplastic cells, and was determined by Ki67 immunohistochemistry in the primary tumor.

The patient received external beam radiation of 3,000 cGy in 15 fractions to the left orbit, but he died 16 months after, due to diffuse bone and skin metastasis.

DISCUSSION

Orbital metastasis is a relatively common finding associated with breast cancer (1, 6).

Orbital metastasis may represent the first manifestation of the malignant tumor in a fraction of patients (3). It usually occurs in women between 40 and 60 years old (1).

Breast carcinoma metastasis to the orbit usually involves orbital fat and extraocular muscles. The main symptoms and signs are diplopia, restricted ocular motility, ptosis, and a mass effect with proptosis and a palpable mass (2, 3).

Enophthalmos is a rare condition associated with breast cancer, as we have previously reported (5). It is probably due to the contraction of the desmoplastic tissue rich in myofibroblasts, which is associated with breast cancer epithelial cells both in the primary site and in the orbital tissue. This leads to posterior traction and tethering of the globe (4). In our case, histologic examination revealed the presence of tubules and cords of neoplastic cells within a dense fibrous stroma, thus confirming the pathogenesis of the enophthalmos mentioned above.

The clinical and radiologic picture, along with an accurate anamnesis revealing a history of breast cancer surgically treated with apparent success years before, as is often the case for this type of metastases, suggested a precise

diagnostic hypothesis (5). The open biopsy of the pathologic tissue confirmed this diagnosis.

Our case highlights the importance of the collection and screening of detailed clinical information on the patient, including examination of old photographs and the history of possible previous neoplasms. In most cases, as in the present one, patients tend to be reticent about cancer history, causing delays in diagnosis.

A careful anamnesis could also help in the differential diagnosis of enophthalmos, by excluding other possibilities such as orbital fat atrophy, trauma, scleroderma, and orbital varix (5).

The present case report is aimed at highlighting the occurrence of progressive enophthalmos associated with a subcutaneous palpable mass as clinical signs of metastases of breast carcinoma, a very rare primary malignancy in men, accounting for less than 1% of malignancies in men and approximately 1% of all cases of breast cancer (4). To our knowledge, only one case of enophthalmos caused by breast carcinoma metastasis to the orbit in a man has been reported. In that case, the clinical suspicion was not confirmed by histologic examination, since a biopsy of the mass was not performed (4).

None of the authors has proprietary or financial interest in any material or device mentioned.

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