Short communication

Orbital metastases in colorectal cancer: a case report

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A B S T R A C T

Clinical case: A 32-year-old male, with colon cancer stage IV, resistant to chemotherapy, was referred to our department due to palpebral edema, conjunctival chemosis, severe exophthalmos, complete ptosis in left eye, and limitation in eye movements, mainly in abduction and supraversion. In the orbital MR scan we observed two nodular lesions in the left orbital, with involvement of the superior rectus-elevator muscle of upper eyelid complex and external rectus muscle, suggestive of metastases. Generally, as the patient was not feeling well, radiotherapy was not considered, and an intravenous bolus of corticoids was given, without response, resulting in the death of the patient.

Discussion: Orbital metastases usually originate from breast and lung cancer, with those secondary to colon cancer being much less frequent. The treatment is palliative, based on intravenous corticoids, and, above all, radiotherapy, and, only in cases with a long-term survival, surgery.

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Palabras clave:
Metástasis en músculos extraoculares
Cáncer de colon

Metástasis orbitarias en carcinoma colorrectal: a propósito de un caso

Caso clínico: Varón, 32 años, con neoplasia de colon en estadio IV, resistente a tratamiento quimioterápico. Es referido a nuestro servicio por edema palpebral, quemosis conjuntival, exoftalmos severo no reductible y ptosis completa en el ojo izquierdo, así como limitación de la motilidad ocular en todas las posiciones de la mirada, de predominio en mirada lateral y supraversion. En RMN orbitaria observamos dos lesiones nodulares en la órbita izquierda, con afectación del complejo músculo recto superior-elevador del párpado y músculo recto externo, sugestivas de metástasis. Debido al mal estado general del paciente, que no permite radioterapia, se inician bolos de corticoides intravenosos, sin respuesta, falleciendo el paciente.

Discusión: Las metástasis orbitarias suelen proceder de tumores de mama y pulmón, siendo las secundarias a carcinoma de colon muy infrecuentes. El tratamiento es paliativo, basado

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**Introduction**

Orbital metastases are an infrequent disease, accounting for under 5% of all orbital involvements, with extraocular muscle metastases being even more infrequent. Although generally the primary tumor diagnostic precedes orbital metastases diagnostics, these can be the first expression of a primary tumor in up to 30% of cases. Therefore, early identification of orbital metastases is extremely important.1

In adults, said metastases can be derived from breast and lung cancer and melanoma, with those secondary to gastrointestinal, kidney, thyroid, pancreas and prostate cancer being more infrequent.2

**Case report**

Male, 32, with colon neoplasia and hepatic, retroperitoneal and mediastinic metastases, in rapid evolution over an ulcerative colitis fundus. One week after diagnostic, despite exhibiting an advanced stage, the patient was admitted for surgery with partial tumor resection, initiating post surgery chemotherapy treatment with various consecutive therapeutic lines: oxaliplatinum + folinic acid + fluoracyl, capecitabin + oxaliplatinum, and capecitabine + irinotecan, without response. The K-ras gene was determined for possible treatment with cetuximab or panitumumab, the result being negative. Therefore, this therapeutic option was discarded. In addition, treatment with bevacizumab was not advisable as the patient exhibited abdominal cavity drainage with production of pus-like material.

Fifteen days after surgery, the patient developed slight left ocular pain and was referred to our service. Upon ophthalmological exploration, the patient exhibited a slight palpebral edema, conjunctival chemosis, irreducible severe exophthalmos, complete ptosis in the left eye, and ocular motility limitation in all gaze positions but mainly in lateral gaze and supraversion.

Cranial and orbital nuclear magnetic resonance (NMR) was requested, with enhanced images in T1 and axial enhanced in diffusion and FLAIR. Two nodular lesions were observed in the left orbit, one measuring 2 cm × 1 cm, located in the upper region involving the superior rectus muscle and eyelid elevator. The second nodular lesion was located at the level of the apex, involving the external rectus (Figs. 1–3). All these findings were highly suggestive of extrinsic ocular muscle metastases.

Due to the generally poor condition of the patient palliative radiotherapy was discarded, initiating methylprednisolone bolus at a dosage of 1 g/day, which partially subdued pain. However, 48 h after the second corticoid therapy bolus, the patient experienced extreme abdominal and ocular pain and en corticoides intravenosos, y sobre todo, radioterapia, y, tan solo en casos de supervivencia más prolongada, cirugía.

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**Fig. 1** – Nuclear magnetic resonance (NMR) with contrast (enhanced T1). (A) Solid mass effect in the elevator and superior rectus complex. (B) At the inferior level, intraconal and retrobulbar extension. (C) At the equatorial level, involvement of the lateral rectus in the orbital apex. All enhanced with paramagnetic contrast (gadolinium).

**Discussion**

Contrary to other primary orbital expansive processes, metastases generally exhibit rapid growth with appearance of early symptoms, unilaterally in the vast majority of cases.

Presentation symptoms are generally diplopia, pain or proptosis, although we can also find diminished visual acuity,
motility alterations, palpable mass, periorbital inflammation or ptosis.3

Computerized axial tomography (CAT) and NMR are crucial and more useful than ultrasound to assess orbits with suspected metastatic lesions.4 Both assist in confirming diagnostic and, in cases with muscle involvement, exhibit unilateral focal or nodular muscle thickening without bone destruction2 (in 20% of cases), and which normally respect the tendon. These lesions are characterized by being heterogeneous, with an intensity similar to that of muscles and which typically capture contrast.3 Metastatic lesions involve more frequently the horizontal rectus muscles instead of the vertical or oblique muscles.2 Biopsy with puncture and fine needle aspiration (PANA) is an excellent option when metastasis is suspected because, if successful, it enables a quick anatomopathological diagnostic, assisting in the localization of the primary tumor.3 However, when the primary tumor location is known, as in this case, said procedure loses its relevance.

With muscular thickening, the first diagnostic is Graves’ ophthalmopathy which requires differential diagnostic and is characterized by fusiform muscular thickening, orbital septum prolapse, increased fatty content and involvement of other structures such as the lacrimal gland.

Orbital myositis is another frequent cause of muscular thickening, with tendon involvement and oribitary fat. In addition, the apparent improvement after establishing systemic corticoid therapy can occur in these as well as in metastatic lesions, which can hinder differential diagnostic.

Other entities with which it is necessary to establish a differential diagnostic are systemic diseases (acromegalia, dermatomyositis, sarcoidosis, rheumatoid arthritis), infectious diseases (bacterial myositis, orbital cellulitis), vascular diseases (carotid-cavernous fistula, arterIALIZED-venous malformations), primary extraocular muscle tumors (rhabdomyosarcoma, lymphosarcoma, granular cell tumor) and idiopathic diseases (orbital pseudotumor, orbital amyloidosis).2

As generally said metastases express in patients at highly advanced evolution stages, treatment is usually palliative with intravenous corticoids and mainly radiotherapy in order to diminish the size of the tumor and therefore the patient

Fig. 2 – Nuclear magnetic resonance (NMR) sagittal images. The SE sequences enhanced in T1 without contrast: metastatic involvement of the ocular extrinsic muscles with masses in the superior rectus in the orbital roof and in the external rectus in the apex region.

Fig. 3 – Axial images of the orbit roof. Nuclear magnetic resonance (NMR) FLAIR sequences enhanced in T2. (A) Image enhanced in diffusion. (B) Metastatic involvement of the superior rectus muscle with marked mass hyperintensity in diffusion, characteristic of metastatic processes.
pain. Generally, patients with orbital metastases are not candidates for orbit surgery for removing the tumoral mass as this does not involve the disappearance of the disease.\(^5\) However, in some cases in which the growth of the tumor is slow, extirpation of the metastases together with the primary tumor could improve the patient prognosis. Even so, prognosis of patients with orbital metastases is poor in the majority of cases and depends on the type and location of the primary tumor.

The mean survival since identification of orbital metastases is of 9.3 months.\(^4\)

By way of conclusion, this case constitutes the first description of orbital metastases proceeding from colorectal carcinoma. In these patients, the diagnostic of the orbital lesion is usually secondary to the detection of the primary tumor. However, this association must be taken into account in order to clinically recognize the appearance of the orbital metastases and therefore administer adequate and early palliative treatment in order to improve the quality of life of these patients.

Conflict of interests

No conflict of interests has been declared by the authors.

REFERENCES