TELEThERAPY OCULAR COMPLICATIONS. A CLINICAL CASE

COMPLICACIONES OCULARES TRAS TELETERAPIA. CASO CLÍNICO

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ABSTRACT
Clinical case: An 82-year-old pseudophakic male patient developed several ocular complications after teletherapy for cavum carcinoma. Three years after receiving the radiotherapy, he presented with a right optic neuritis with some posterior improvement. Five years later he developed an ischemic retinopathy and a severe dry eye syndrome.

Discussion: Ocular complications due to radiotherapy used to treat nasopharyngeal carcinomas are not as common as those caused by epiescleral radiotherapy for choroidal melanoma, but must be taken into account due to their special severity. We present a single case of a patient who suffered several subsequent ocular complications after such radiotherapy (Arch Soc Esp Oftalmol 2007; 82: 361-364).

Key words: Dry eye, nasopharyngeal carcinoma, optic neuropathy, radiotherapy, radiation retinopathy.

RESUMEN
Caso clínico: Paciente varón de 82 años con pseudofaqia bilateral, que desarrolló sucesivamente distintas complicaciones oculares tras teleterapia por carcinoma de cavum. Tres años después de recibir la radioterapia presentó una neuritis óptica con recuperación posterior. A los 5 años, desarrolló una retinopatía isquémica con afectación predominantemente macular y un síndrome de ojo seco severo.

Discussion: Las complicaciones oculares tras teleterapia por carcinomas nasofaríngeos no son tan frecuentes como tras la braquiterapia epiescleral pero deben tenerse en cuenta por su especial gravedad. Este es un caso singular y demostrativo por la aparición sucesiva en un mismo paciente de múltiples complicaciones oculares.

Palabras clave: Carcinoma de cavum, neuropatía óptica, ojo seco, radioterapia, retinopatía por radiación.
INTRODUCTION

Ocular complications secondary to radiation result not only from direct radiation of intraocular tumors but also when the eye is in the path of radiation. In certain intracranial tumors of the nasal cavity, the paranasal sinuses, nasopharynx, orbit, eyelid tumors and periorbital skin, the radiation field includes irremediably the orbital content partially or fully (1).

Most nasopharyngeal carcinomas are considered to be radiosensitive and the typical radiation for these carcinomas entails the use of high doses in wide areas, including on some occasions the eye globe. Taking into account the frequency of such carcinomas and the relatively high survival rate in the long term, their serious visual complications should always be taken into account (2).

CASE REPORT

An 82-year-old male patient with the following history: appendectomy in the year 1980, surgery on an inguinal hernia in 1989, cataract surgery in both eyes in 1991 diagnosed as an undifferentiated cavum carcinoma in 1994. At the time, he was treated with teletherapy including Co 60 at 44, 20 and 50 Gy doses and 200 cGy/d/5v/sem fractioning.

Three years later, he presented a sudden reduction in visual acuity (VA) of the right eye (RE) (RE VA = 0.05) accompanied by relative afferent pupillary defect, blurred papillary rims with hemorrhages and cotton-like exudates in the RE retinal exploration and concentric retraction and central defects in its visual field. Complementary studies (biochemistry, hemogram and cranial Computed Axial Tomography (CAT)) were normal. Both the loss of vision and field alterations restored to normal after three months without treatment.

In the year 1999, the patient reported a loss of vision and a foreign body feeling in both eyes. At the time, he presented a 0.7 VA in the RE and 0.8 in the left eye (LE). The anterior pole revealed a more marked superficial punctate keratopathy in the lower third with a 4-second break-up time (BUT) and a 2.5 mm Schirmer test in both eyes. Retinal exploration revealed the presence of microaneurisms, telangiectasias and intraretinal hemorrhages in the macular area (fig. 1.) A fluorescein angiography revealed the tearing of the perifoveal capillary network with macular edema in later times (fig. 2). Subsequent reviews revealed a gradual worsening of the VA and a progression of retinal injuries with an expansion of perifoveal ischemic areas, pronounced vascular anomalies and increased exudation. The optic coherence tomography (OCT) revealed the unstructured retinal parenchyma with macular cystic changes without an increase of retinal thickness (fig. 3). Despite successive treatments with focal laser which attained a certain stabilization of vision for one year, visual acuity dropped to blindness levels in both eyes.

During follow-up, the patient presented significant symptoms for severe dry eye syndrome with hyposecretion that required continuous treatment with high-viscosity artificial tears.

Fig. 1: AO retinographies revealing significant vascular anomalies, hemorrhages and hard exudates.
DISCUSSION

This patient presented consecutive and multiple ocular complications caused by radiotherapy: optic neuritis due to radiation, dry eye and retinopathy due to radiation. The role of radiotherapy as a factor resulting in injuries to the different ocular structures has been clearly established: tear gland, eye lens, optic nerve and retina (1-4), although there are multiple variables hindering the assessment of the real frequency and severity of radiotherapy’s ocular toxicity (long latency time, scarce uniformity in the compilation of data for different studies, dosimetry calculated based on the CAT or Magnetic Nuclear Resonance (MNR) only in patients recently treated, etc. (1-5).

Katz et al assessed the role of radiotherapy in the treatment of malignant tumors in the nasal cavity and paranasal sinuses, finding on the one hand high survival rates (more than 80 percent 5 years in early stages) and on the other high ocular complication

Fig. 2: Fluorescein angiography. Premature times A and B reveal alterations across the perifoveal capillary network with ischemic areas and telangiectasias in BE. C and D: in later times, a coloring leak revealed the edema areas.

Fig. 3: 180° OCT line 5 mm LE. A cystic degeneration of the retina may be observed without a retinal thickening, hyperreflective images corresponding to hard exudates and, to the left, alteration of pigment epithelium presumably due to photocoagulation.
rates: up to 35 percent of blindness caused by retinopathy and/or neuropathy due to radiation (2).
This incidence seems to decrease significantly when using photon/proton fraction radiation (3).

Even though the incidence of retinopathy caused by radiation in nasopharyngeal carcinomas varies depending on the series [16 percent in Rosenblatt’s (4), 36 percent in Midena’s (5)], it seems clear that the latency period is greater than in the treatment of other periorbital tumors (5.) Both in Rosemblat’s and Weber’s series, retinopathy caused by radiation was more frequent in those patients subjected to higher doses, lower fractioning and above all whenever radiation involved the orbit’s posterior segment (3,4).

Although the treated areas have been slightly modified since 1998, attempting to exclude the orbit of the radiated volume (4), ocular complications will likely persist due to radiotherapy applied to patients suffering from nasopharyngeal carcinomas, especially if treatment has included chemotherapy or patients suffer from other diseases making them particularly susceptible to developing complications such as diabetes (5).

REFERENCES