

## Case Report

# Radical radiotherapy in epidermoid cancer in the orbitary region: ideal scheme of hypo-fractionation in times of COVID-19: a case report

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## ABSTRACT

There are adverse events in the patient's environment that impact on therapeutic decisions and become a medical challenge, as is currently the management of cancer patients with radiotherapy, particularly the elderly in times of a COVID-19 pandemic, due the high risk of infection and fatal complications from non-cancer causes. Here we present the case of an 84-year-old woman with voluminous squamous cell cancer in the left orbital region, which caused intense pain, stench, and persistent bleeding. And due to persistence and time, it impacted with deterioration in the patient's quality of life. In the end, of hypo fractionated radiotherapy management as the only modality, it evolves with a complete clinical response and total palliation of initial symptoms. The reasons for the decision to manage radiotherapy and the excellent clinical results that reinforce the idea of personalized medicine and the importance of evaluating the biopsychosocial environment of the cancer patient will be discussed.

**Keywords:** SARS, Corona virus, Radiotherapy, Cancer, Epidermoid

## INTRODUCTION

Therapeutic decision-making in cancer patients is based on multiple factors that can influence the successful completion of the planned medical management.

Although the importance of the biopsychosocial approach in making therapeutic decisions is already known, we are currently facing an alarming local scenario due to the high number of cases and fatal outcomes of patients infected by the COVID-19 virus, it is a vulnerable group towards the elderly patients.

Yucatán is a state of the Mexican Republic, that until July of this year, exceeded 7000 confirmed cases of COVID-19, with an approximate number of deaths that exceeded 660 cases, of where more than 60% of individuals older

than 65 years, were considered high risk for fatal complications.<sup>1</sup>

The treatment of epidermoid skin cancer with the external radiation therapy modality has been addressed in retrospective institutional studies and small phase 2 trials; there are several regimens of radiotherapy treatment as the only modality that can be used with good results, among them are some hypo fractionated schemes (decreasing in the number of treatment fractions and increasing in the daily dose above that considered as conventional fractionation) which they decrease total treatment time, and with it the risk of hospital exposure to the SARS CoV-2 virus and its consequences.<sup>2-7</sup>

To date, there are no case reports of studies evaluating the clinical response to hypo fractionated radiotherapy in

times of COVID-19, in squamous cell cancer in the face region in patients from the Yucatan Peninsula, Mexico.

## CASE REPORT

An 84-year-old female, with a significant pathological history of high blood pressure and long-standing diabetes under pharmacological control, cataract in the left eye that required placement of an intraocular lens 5 years ago.

The current oncological condition began 6 months ago with the appearance of an ulcer lesion in the region of the left eyebrow, with progressive growth until causing loss of vision in the left eye due to the ipsilateral palpebral invasion. Two months later there was a haemorrhage, stench, and pain in moderate intensity that irradiated the left eye and zygomatic region, and partially improved oral analgesics.

She was admitted to the hospital due to the poor analgesic clinical response and increased tumor haemorrhage, then subjected to evaluation by the surgical oncology service, not considering herself a candidate for radical surgical intervention, and undergoing a biopsy with a pathology report of grade 4 keratinizing squamous cell carcinoma.

The first evaluation by radiation oncology was carried out on May 8, 2020, finding a patient with a tumor lesion on the face in the region superior to the left eyebrow that extended to the ipsilateral eyelid, presenting a foul odour, cold to the touch, significant bleeding, an ocular globe not visible due to tumor activity in the upper eyelid, and the neck without lymph-bearing areas, as seen in Figure 1.



**Figure 1: A patient was observe with a friable tumor in the left eyelid region with a tumor size of approximately 12 cm, before the start of treatment with hypo fractionated single modality 54 Gy radiotherapy in 18 fractions.**

Treatment began 3 days after the initial assessment. The management determined the best therapeutic option for this patient was external radiation therapy in an intensity-modulated arc radiation therapy with volumetric therapy, a hypo fractionated scheme 54 Gy in 18 fractions.

The Patient presents adequate pain control at fraction 10 of radiotherapy treatment, initiating withdrawal of oral analgesics and buprenorphine in patches. Observed 4 weeks later is complete palliation of bleeding and pain, as well as complete clinical response, as observed in Figure 2.



**Figure 2: Patient at a follow-up appointment 4 weeks after completing radiotherapy treatment, with no evidence of bleeding at the previous tumor site. The patient presents restriction to the lid opening, with adequate movements of the eyeball, not painful on palpation.**

## DISCUSSION

The non-melanoma malignant skin tumor is the most common cancer worldwide, with basal cell carcinoma representing the first place in frequency followed by squamous cell or squamous cell carcinoma. The risk factors most related to the tumor genesis of squamous cell cancer are age and appearance of lesions in areas exposed to sunlight, such as the face. Recent studies show that the incidence of squamous cell carcinoma of the skin has increased more rapidly than basal cell carcinoma.<sup>8</sup>

The 5-year survival of squamous cell carcinoma of the skin is greater than 90% in early stages, and after receiving treatment, the same does not happen with patients in advanced stages who present continuous organ invasion, loss of significant anatomy, affectionation of cosmesis, or alterations that condition a physical or functional impact.<sup>9</sup>

Radiation therapy has the possibility of playing a radical vs. palliative role fundamentally in elderly patients, in

which the presence of comorbidities and more advanced tumors restricts the possibility of initial surgical management, or that it is very extensive with important anatomical repercussions and subsequent need for adjuvant treatment.

Radical radiotherapy treatment schemes for squamous skin cancer consist of daily fractions for seven weeks, without it being the best option in patients in where factors such as daily transfer, lack of socioeconomic support, comorbidities, such as senile dementia or cognitive impairment in the elderly, physical and language limitations that are potentiated at a point against the reproducibility and compliance with radiotherapy treatment, coupled with this constant exposure to pathogens, such as the SARS CoV-2 virus of great social importance today, it constant risk management in all patients who go to a referral hospital for COVID-19 patients to receive their radiotherapy treatment, including the elderly.

However, these patients need therapeutic measures that include options for bleeding palliation of, pain, or aesthetic improvement of visible bulky tumor lesions in a site exposed on the face, along with the possibility of obtaining toxicity acceptable and manageable.

We show here the acute clinical evolution of an 84-year-old patient who received hypo fractionated radiotherapy for a voluminous tumor that caused the loss of anatomy of their face, stench, and pain, impacting on the total loss of vision in the left eye.

Although short-term radiotherapy treatment regimens (20-30 Gy in 5-10 fractions) for cancer in the head and neck region can be used, they demonstrated only a moderate palliation rate of symptoms (50-60%) with the presence of mucositis (62%) and dermatitis (56%) grade 2-3.<sup>10,11</sup>

The advantage of using radiotherapy regimens such as 54 Gy in 18 fractions is the opportunity to reach equivalent biological doses of 70 Gy that increase the possibility of achieving greater tumor control, along with adequate management of toxicities acute and chronic. In this case, it was impossible to achieve adequate restrictions on the left visual pathway, due to the proximity of the eyeball to the tumor activity at practical mm.

## CONCLUSION

At present, the treatment of squamous cell cancer in some regions of the face in the elderly is a challenge that must be approached in an interdisciplinary way to provide the best medical care to the cancer patient. Important characteristics that may make it difficult to adequately conclude radiation oncological treatment should be considered, as in this case were: being an elderly patient with mild cognitive impairment, belonging to the Mayan ethnic group, and speaking a greater proportion of the

native language, which creates difficulties in 100% effective communication between the patient, the medical team and the reproducibility to provide treatment with ionizing radiation, urgent need for pain palliation, haemorrhage, and the stench from tumor activity, large distance between the house-room and the radiation center generating difficulties in attending treatments with normal-fractionated radiotherapy lasting approximately 2 months, the patient belonging to the group at high risk of infection and complications of COVID-19 that affected the population of the Yucatan Peninsula at the time of treatment, and one of the most important reasons to consider the patient as a candidate to receive treatment with hypo fractionated radiotherapy is to minimize the number of radiotherapy fractions. But with biologically effective doses as close to a radical treatment and thus reduce the probability of infection by the SARS CoV-2 virus and in turn, reduce the probability of fatal results due to non-oncological causes.

In conclusion, in elderly patients with squamous cell skin cancer who cannot comply with several weeks of daily trips to the hospital or whose risk outweighs the benefit, the regimen of 54 Gy in 18 fractions is a practical radiotherapy regimen, such as the case of this patient, where a complete clinical response was obtained and with-it palliation of initial symptoms.

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