Introduction

Radiation-induced tumors of the tongue, secondary to radiation therapy for Hodgkin's disease are rare. Some authors reported a recent increase in the incidence of this rare complication, especially because of the improved prognosis and survival of patients after radiotherapy. Precise pathogenic mechanisms of radiation-induced carcinomas are poorly understood. However diagnosis criteria are well established. Treatment options must be discussed and adapted to the patient profile. Surgery in irradiated tissue is challenging, with limited treatment options with chemotherapy and radiotherapy.

Case Presentation

We report the case of a 65-year-old Arabic male, diagnosed with squamous cell carcinoma of the base of the tongue that was irradiated 13 years ago for Hodgkin's disease of Waldeiyer's ring. This case was managed by a complete resection of the tumor with good functional and oncological outcomes.

Conclusion

Radiation-induced carcinoma of the tongue is rare situation, which must be actively researched, to have access to an optimal therapeutic approach.

Keywords: Post Radiation; Radiotherapy; carcinomas; Tongue; Hodgkin Disease.

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staged T1N0M0. After a multidisciplinary staff surgical resection was performed with safe margins without lymphadenectomy as long as it was a small and well-lateralized tumor and considering the difficulty of this procedure in an irradiated tissue. After a follow-up of 18 months the patient is free of recurrence at local or distant site, without significant morbidity.

Discussion

Epidemiology and Pathogenesis

The carcinogenic effects of ionizing radiation have been described in several publications. The exact mechanisms in tumor genesis remain poorly known [6]. Secondary tumors occurring in irradiated tissues are rare [6]. In published series, their frequency varies between 0.15 and 0.75% [5,6]. All tissue types can be processed by irradiation, although the radio sensitivity varies with the type of irradiated organ [7]. In the upper aero digestive tract, oral cavity and oropharynx are the most affected, with a high incidence of carcinoma of the base of the tongue [5]. There is no histological evidence to confirm the origin of the radiation-induced tumors [7]. Ionizing radiation causes damage to healthy tissue included in the radiation field. Some authors identified the specific stem cells in the lingual epithelium that maintain keratinized epithelial cells long-term and that can regenerate them on injury [8]. On irradiation-induced injury, the stem cells rapidly start proliferating and can regenerate injured epithelial tissue [8].

Several risk factors appear to influence the occurrence of these secondary tumors. In particular the radiation dose which is a variable parameter depending on the irradiated organs, the type of chemotherapy that appears to potentiate the effect of radiation therapy, young age (children are especially sensitive to radiation oncogenesis), and a genetic predisposition to multiple tumors [9]. An inverse relationship between the radiation dose and solid cancers latency period is about to be established for secondary cancers of the tongue [9].

Diagnosis

The diagnosis is established by criteria established by Cahan et al. In 1948 [10] and revised by Murray et al. in 1999 [11]. A history of radiotherapy for cancer, an asymptomatic latency period of several years, the occurrence of tumor in the irradiation field, and histological evidence of the secondary tumor [12]. Complete remission of the primary tumor is also necessary to establish this diagnosis [9]. All of these items are found in our patient.

Management

Therapeutic approaches are often limited. Surgery is the only curative method, when it is possible. The difficulty of surgery in irradiated areas is known, but doable if the tumor is diagnosed at an early stage and also if the surgeon is experienced. In advanced stages, chemotherapy may have a place, although the tumor responses in irradiated areas remain poor [13]. In these cases the prognosis is also poor, and the median survival doesn't exceed a few months.

Conclusion

Herein we presented the case of a patient presented with radiation-induced carcinoma of the tongue. This event is very uncommon making almost impossible to perform prospective clinical trials specifically designed to compare different treatment approaches. Surgery is the mainstay of treatment. A close follow up of irradiated patients is the only way for an early diagnosis of this serious complication.

Consent

"Written informed consent was obtained from the patient for
publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.”

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References


