

Chemoradiation of Nasopharynx Leading to Hundreds ED Visits and Countless Admissions Over Two Years

Jorge Robiedo, MD, Umair M Nasir DO, Shaza Khalid MBBS, Tilly Varughese MD

Abstract

Introduction

Nasopharyngeal carcinoma is typically treated with radiation therapy as tumors are radiosensitive and their anatomic location limits surgical intervention. Radiation is integral to improved outcomes although can present its own challenges. Radiotherapy to any region of the body can present with side effects, however radiation to the head and neck presents with unique complications. Acute toxicity commonly includes neuropathy, ototoxicity, mucositis and xerostomia. Late complication toxicities commonly include cognitive deficits, skull base osteoradionecrosis, bulbar palsy, hypothalamic-pituitary endocrinopathies and hypothyroidism.

We present the unique case of a patient with nasopharyngeal carcinoma treated with radiation resulting in concurrent skull base osteomyelitis, chronic mastoiditis, skull osteoradionecrosis and pituitary insufficiency.

Case History

Patient is a 33-year-old female with history of stage IVa nasopharyngeal carcinoma treated with chemoradiation and surgical decompression and chronic mastoiditis who with complaints of nausea, vomiting, and headaches. She had been a frequent visitor to the ED, almost weekly for over two years, presenting with similar complaints and each time her symptoms were attributed to her chronic mastoiditis. Detailed history revealed her symptoms were noted to worsened over the past year as she complained of generalized fatigue, anovulation and decreased libido and was noted to be persistently hypoglycemic. Workup revealed that AM cortisol, estrogen and adrenocorticotropic hormone were all severely decreased, while prolactin was elevated. ACTH stimulation test resulted in an elevation in cortisol, consistent with a secondary hypo-cortisolism. Gallium scan revealed active infection in the right mastoid and external auditory canal along with right mandibular body extending to the bilateral mandibular symphyses. MRI revealed enhancing lesions in both anterior temporal lobes with associated FLAIR signal abnormality significant for radiation necrosis. Patient was started on a dexamethasone taper, followed by maintenance dose steroids, resulting in significant improvement in symptoms and was later treated with levofloxacin for her osteomyelitis.

Discussion

Radiotherapy in treatment of head and neck carcinoma is known to have potential complications of osteoradionecrosis, endocrine and neurological deficiencies. Endocrine deficiencies are thought to be due to radiation injury to the hypothalamic-pituitary axis, whereas neurological deficiencies are most commonly due to radiation damage to temporal lobes. Independently, skull base osteomyelitis, chronic mastoiditis, osteoradionecrosis and pituitary insufficiency are not uncommon complications of radiation therapy. However, concurrent presentation is rare and presents a diagnosing dilemma because of vague symptomology. Complicated cases such as this can lead to a misdiagnosis or missed diagnosis. Maintaining a strong index of suspicion, recognizing that hypopituitarism and osteoradionecrosis are complications after radiotherapy and actively ruling them out is advised as both conditions are very amendable to therapy.