



Chemotherapy induced first bite syndrome: a case report in a patient with Hodgkin's Lymphoma

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ABSTRACT

Sympathetic denervation is suspected to be the causative mechanism leading to First Bite Syndrome (FBS). This is typically seen in patients who have had mechanical compression or direct injury to the superior cervical ganglion or post-ganglionic sympathetic fibers. To date, it has not been reported in patients without the above risk factors. The objective of this study is to report FBS occurring in a patient being actively treated with primary chemotherapy for Hodgkin's lymphoma, with a clear correlation between chemotherapy and resolution of symptoms.

INTRODUCTION

- First bite syndrome (FBS) represents a rare, but known, symptom of prior surgery or tumor involving the deep parotid gland, parapharyngeal space, or infratemporal fossa.
- Etiology suspected to be hypersensitive response from denervated sympathetic fibers
- Objective of this study is to report FBS occurring in a patient without mechanical compression or injury to the superior cervical ganglion, as have previously been reported.

CASE REPORT

An 89 year-old male with a history of dilated cardiomyopathy status post implantable cardiac defibrillator, prostate cancer status post radiation, hypertension, and irritable bowel syndrome, was referred to our institution for anemia of unclear source with computerized tomography (CT) demonstrating mediastinal, hilar, and abdominal adenopathy. Clinical workup for the patient was consistent with classical Hodgkin's lymphoma. A PET-CT scan demonstrated diffuse cervical, supraclavicular, mediastinal, axillary, hilar, retroperitoneal, mesenteric, and bilateral inguinal adenopathy. His cervical adenopathy was not located near the superior cervical ganglion (Figure 1). He was subsequently diagnosed with Classical Hodgkin's lymphoma stage IIIa vs IVa and initiated chemotherapy the following week with plans for 6 cycles.

His chemotherapy regimen initially consisted of doxorubicin, bleomycin, vinblastine, and dacarbazine (ABVD); however due to his cardiac history, bleomycin was removed from his regimen after the first cycle. During the course of his chemotherapy regimen, the patient reported jaw pain while eating the first bite of a meal. He described an intense pain, located posterior to the left angle of the mandible that dissipated over subsequent bites. The overall quality of pain was closely timed to his chemotherapy treatments, which was rather intense immediately after treatment and would then gradually improve the next treatment.

CASE REPORT

Due to the location of pain lying posterior to the angle of the mandible, he underwent a panorex, which was negative for fractures or other pathologies. He was subsequently referred to otolaryngology, where, after further work-up, he was diagnosed with FBS. Given his symptoms he was treated with a trial of botulinum chemodenervation about one week prior to his next chemotherapy session. The initial trial failed to relieve symptoms; however, after the patient's subsequent chemotherapy infusion two weeks later, he felt like his symptoms were 50% less intense that they had previously been. After the completion of chemotherapy, the patient noted complete resolution of symptoms. Nearly one year later, the patient has not had any more further symptoms.

FIGURES

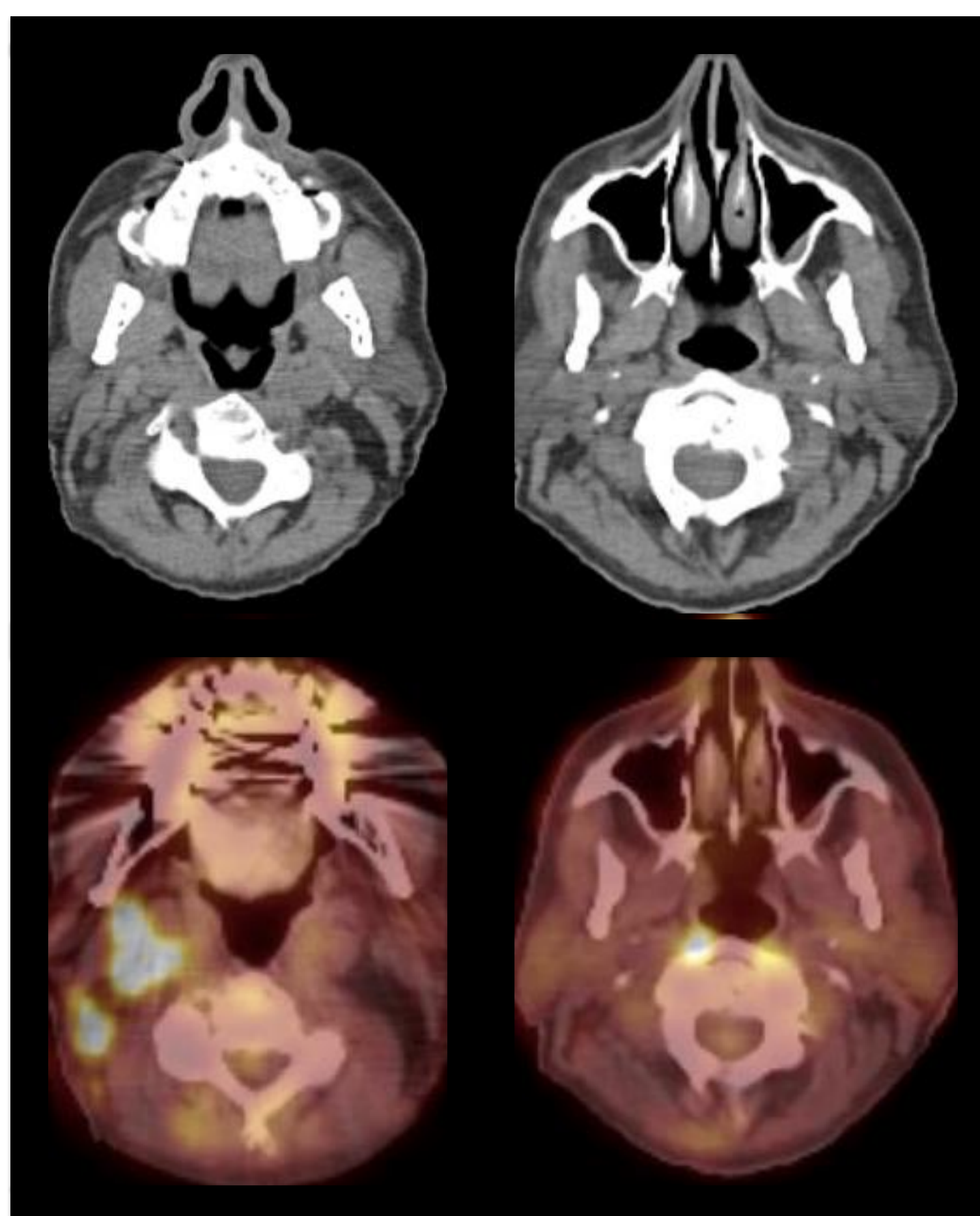


Figure 1. CT scan demonstrating deep parotid space and parapharyngeal space of the current patient described, with corresponding PET CT images below.

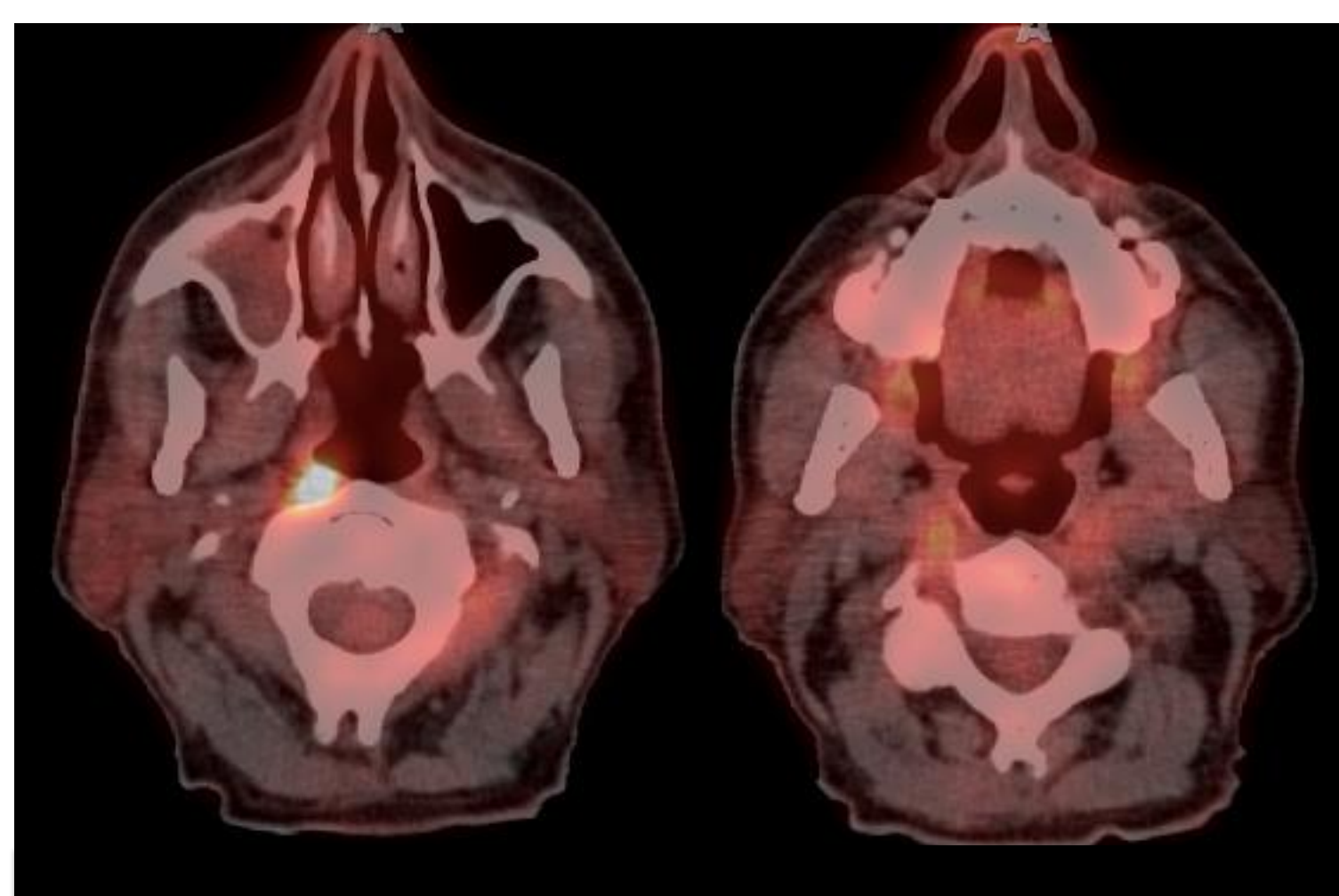


Figure 2. PET CT scan demonstrating deep parotid space and parapharyngeal space of the current patient described following chemotherapy treatment.

DISCUSSION

- To date, no published cases in the literature describing the symptoms of FBS in a patient without a pre-existing mass or surgery in the parapharyngeal or parotid space leading to damage to the superior cervical ganglion or sympathetic ganglionic fibers.
- It appears that our patient developed FBS as a result of chemotherapy induced adverse effects on the superior cervical ganglia.
- There are no published reports on vinblastine or dacarbazine affecting the parotid gland or sympathetic fibers in any way.
- There is one basic science study that was published in 1982 that demonstrates a possible relationship between doxorubicin and the superior cervical ganglia.⁸
 - Bigotte, Arvidson, and Olsson used cytofluorescence localization studies to identify where doxorubicin localized within the peripheral nervous system.
 - In this study, they utilized doses of doxorubicin that were comparable to those used to treat neoplastic diseases. Drug was found to localize in the superior cervical sympathetic ganglia.⁸
- Other studies demonstrate no effect of chemotherapy on salivary gland function.⁹
- This case highlights a clear association between the onset and duration of FBS with his chemotherapy regimen.
- It remains unclear why the patient had left-sided symptoms in spite of the fact that he had no underlying pathology in that region both on pre- and post-treatment CT (Figure 2).

CONCLUSIONS

- We report a case of FBS occurring in a subject with Hodgkin's lymphoma during chemotherapy, without classic risk factors.
- There appears to be a correlation between onset and duration of first bite symptoms, and presumed sympathetic hypersensitivity, with chemotherapy administration.

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