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Oral Mucositis in Patient Undergoing Immunotherapy: A Case Study

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Case Study

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ABSTRACT

Oral mucositis is a common complication of cancer therapy, characterised by inflammation and ulceration of the oral mucosa. Immunotherapy, while effective against cancer, can also lead to oral mucosal toxicities, impacting patients' quality of life and treatment outcomes. This case study presents a 65-year-old male with metastatic squamous cell carcinoma of the lung undergoing immunotherapy with Pembrolizumab who developed severe oral mucositis. Clinical examination revealed whitish pseudo membranes, erosions, and pus discharge, resulting in pain, dysphagia, and halitosis. Symptomatic treatment was provided, focusing on pain relief and oral hygiene maintenance. Management strategies included oral rinses, topical agents, hydration, and dietary modifications. The case highlights the importance of early detection and intervention in managing oral mucositis in patients undergoing immunotherapy, aiming to alleviate symptoms, maintain treatment adherence, and improve patient outcomes.

Keywords: Immunotherapy, Oral Hygiene, Oral Mucositis, Squamous Cell Carcinoma.

Introduction

Oral mucositis, which can arise from cancer therapy, refers to the acute inflammation of the oral mucosa in response to systemic oncology treatment and radiation involving the oral cavity. The clinical presentation may vary from a general erythematous oral mucosa to the development of erosive lesions and evident ulceration. These lesions often induce discomfort and pain, potentially impacting nutritional intake and oral hygiene maintenance, and may elevate the vulnerability to local and systemic infections. Furthermore, severe oral mucositis could lead to the need for adjustments in treatment dosage or temporary suspension of cancer therapy. Therefore, mucositis presents a significant complication in the context of cancer therapy, possibly affecting patient prognosis.[1]

Immunotherapy has emerged as a promising treatment option for various types of cancers, harnessing the patient's immune system to target and destroy cancer cells. While immunotherapy has shown remarkable efficacy, it is not without its challenges.

These oral mucosal toxicities associated with immunotherapy differ from those seen with conventional cancer therapies, but they can

significantly impact a patient's quality of life and treatment outcomes.[2]

Studies have mentioned that the oral mucosal changes associated with immunotherapy differ from classic oral injuries associated with chemotherapy/radiation therapy. There is a paucity of evidence and a need for further research to understand better and manage these oral toxicities, which can significantly affect patient's quality of life.[3]

The pathogenesis of oral mucositis in immunotherapy is not fully understood, but it is believed to involve immune dysregulation and inflammation of the oral mucosa. Various factors contribute to the development of oral mucositis in patients on immunotherapy, including the type of immunotherapy agent, treatment duration, and the patient's baseline oral health.

Patient Presentation

A 65-year-old male, with a known case of hypertension and chronic smoker, reported a chief complaint of change in voice. In terms of personal history, the patient has been a habitual cigarette smoker for the past 30 years, consuming approximately one packet of cigarettes per day.

The clinical examination involved fiberoptic laryngoscopy, in which no obvious growth was seen. While CT, the thorax showed multiple enlarged mediastinal lymph nodes, also seen in the prevascular, AP window, pre/paratracheal precarinal, and subcarinal region. In the CECT neck, the findings showed a few b/l tonsilloliths, nasal septum deviated towards the left, and b/l vocal cords medially deviated.

Mediastinal lymph node biopsy showed Metastatic Squamous cell Carcinoma. PET-CT showed metabolically active mediastinal LAP, and the slide review showed Metastatic Squamous cell Carcinoma.

Gastroduodenoscopy was found to be normal.THC from Mediastinal LN PDL-I was 60%, P40 positive, TTF-1 negative. PET-CT showed multiple large FDG avid mediastinal LNs in the right highest mediastinal, prevascular, right lower paratracheal, AP window, para-aortic, and left hilar regions. An FDG avid thickening in the lower thoracic esophagus about 6cm below the carina -this may be either a para oesophageal LN or an oesophageal mural thickening.

Gastroduodenoscopy showed oesophageal Candidiasis Kodsi grade I, and the patient was given five weekly doses of Inj NAB Paclitaxel + Inj Carboplatin, and after one month, PET-CT showed no significant interval change.

There was no symptomatic relief also; hence plan was changed to Inj Nivolumab [weekly] + Inj Gemcitabine. (Inj Nivolumab 180mg + Inj Gemcitabine 1000mg).

The plan was to give a total of four biweekly doses of Maintenance with Inj Nivolumab 180mg and 2nd biweekly dose of Inj Nivolumab 180mg. After that patient received ten doses of only Inj. Nivolumab.

Immunotherapy Details

The patient is a known case of metastatic squamous cell carcinoma of the Lung. The immunotherapy was planned for the patient who has undergone six cycles of immunotherapy with Pembrolizumab. (Inj. Pembrolizumab 100mg IV in 250ml NS over 60 mins).

After receiving the third immunotherapy session, the patient presented to the department with a primary complaint of persistent pain and a burning sensation in the oral cavity, which worsened with further sessions. The pain exacerbates upon consumption of both regular and spicy foods but is alleviated by drinking water. The patient also experienced dysphagia.

On clinical, a whitish pseudomembrane was evident on the inner side of the labial mucosa, right and left buccal mucosa, the floor of the mouth, the dorsal and ventral surface of the tongue, and the hard palate. This condition was accompanied by the discharge of pus from the gingival sulcus, resulting in severe halitosis. Additionally, there were erosions with red areas located on the back part of the soft palate, right and left buccal mucosa, extending from the corner of the mouth to the retromolar area. On physical examination, these lesions were extremely sensitive and can be scraped off, often leading to bleeding spots.

Treatment

Oral mucositis can cause significant pain and discomfort, leading to difficulties in eating, speaking, and maintaining oral hygiene. Management strategies for oral mucositis in patients on immunotherapy are still evolving, with current interventions primarily focused on symptomatic relief and prevention.

These strategies include oral hygiene measures, such as regular mouth rinses, gentle brushing, topical analgesics, and anti-inflammatory agents to alleviate pain and reduce inflammation.

In the current case, the focus was on providing palliative care. The patient was given supragingival oral prophylaxis.

The patient was given symptomatic treatment

The patient was advised to improve their routine oral hygiene habits by increasing the frequency of tooth brushing, opting for a soft-bristle toothbrush, regularly replacing their toothbrush, and ensuring thorough cleaning between teeth. It was advised to use non-medicated oral rinses, such as saline water rinse, sodium bicarbonate rinse, or a mixture of sodium bicarbonate and saline water, every four hours to rinse the oral cavity.[4] The patient was instructed to stay well-hydrated and avoid irritants like tobacco and alcoholic beverages or mouth rinses that contain alcohol.[5] Additionally, mousses and topical barrier gels can be applied to keep the oral mucosa surfaces lubricated.[4]

A tab of Betnesol 0.5mg was given; it was advised to dissolve one tab in 15ml of lukewarm water, swish for 2-3min, and spit. The patient was advised to take Tab Fluconazole DT 150 mg, dissolved in water, swish, and spit three times daily for two weeks. It was recommended to the patient to dissolve 1 teaspoon of salt and one teaspoon of baking soda in one liter of water and rinse multiple times throughout the day.

The patient was advised to avoid foods that might unintentionally harm the oral mucosa, such as spicy, sharp, or hard foods.[5]

The guidelines from MASCC/ISOO recommend the use of a 0.2% topical morphine mouth rinse for the management of pain in patients with head and neck cancer undergoing radiotherapy and chemotherapy.[6]

Conclusion

Oral mucositis can cause significant pain and discomfort, leading to difficulties in eating, speaking, and maintaining oral hygiene. It can also result in dose reductions or interruptions in therapy, which may compromise treatment efficacy. Contemporary approaches to treating oral mucositis primarily involve palliative and supportive care measures. In addition, the use of saliva substitutes and mouthwashes containing mucoprotective agents can help protect the oral mucosa and prevent further damage. Furthermore, dietary modifications and the use of oral nutritional supplements may be beneficial in managing oral mucositis-induced oral intake difficulties and weight loss. Moreover, it is important to regularly assess and monitor the patient's oral health and mucositis status, as early detection and intervention can prevent further complications and improve patient quality of life.

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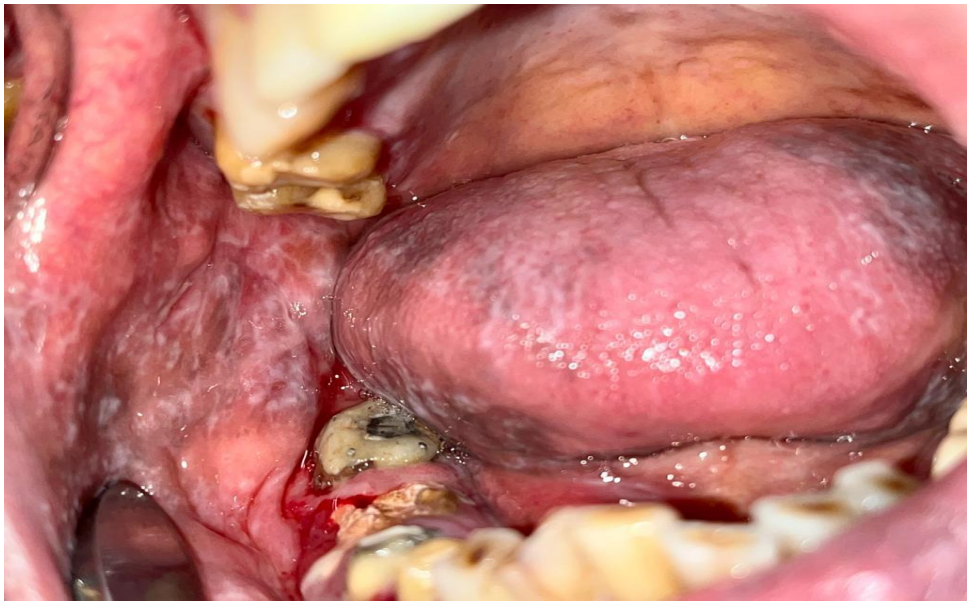

Figure 1: Oral Mucositis

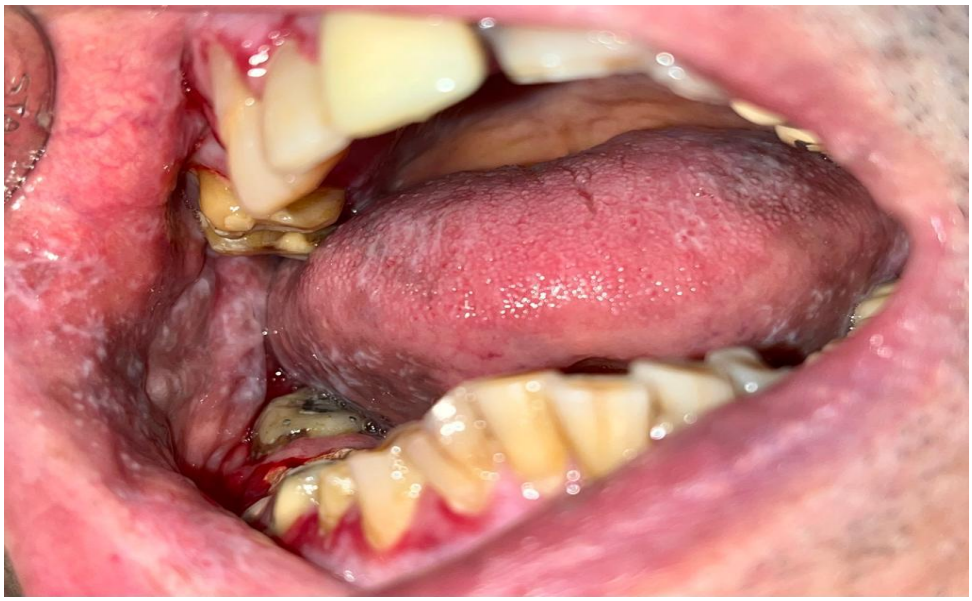

Figure 2: Oral Mucositis

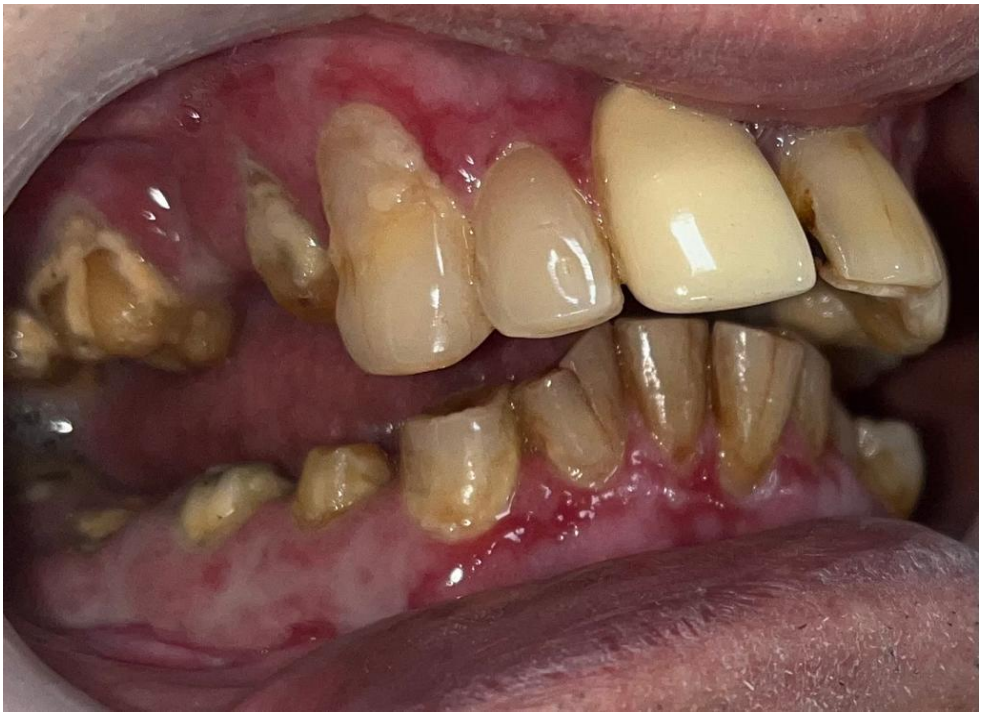

Figure 3: Oral Mucositis