

Osteoradionecrosis: A Retrospective Study of Risk Factors and Clinical Characteristics

Presenter: Louis Madden

Co-author: Dylan Hodman

Dublin Dental University Hospital

Objective:

Osteoradionecrosis (ORN) is a serious complication of radiotherapy in head and neck cancer (HNC) patients that can result in significant morbidity, functional and aesthetic impairments. This study aimed to identify the various risk factors contributing to its development and to assess the clinical characteristics of ORN.

Methods:

A retrospective analysis of electronic dental records of ORN patients in the Dublin Dental University Hospital between 2016 and 2023 was performed. Data collection included medical and social history, HNC diagnosis and treatment, predisposing factors, and ORN stage and location.

Results:

26 ORN patients (21 males, 5 females; mean age 60.2 years, range 45–79 years) were identified. Medical comorbidities included hypertension (12/26), cardiovascular disease (9/26), thyroid disease (5/26) and diabetes (2/26). 20 patients had a history of tobacco smoking, while 15 had a history of alcohol consumption, including 11 who consumed over 10 units of alcohol weekly. Pharyngeal HNC was the most common diagnosis (15/26), with a majority of patients presenting advanced HNC stages (T3-T4) and nodal involvement. All patients received radiotherapy, predominantly IMRT, with 21 receiving doses of ≥ 70 Gy. ORN most commonly affected the posterior mandible, often associated with dental extractions. Onset occurred within 36 months of radiotherapy for most patients (22/26).

Conclusion:

This study highlights that high-dose radiotherapy (≥ 70 Gy) and dental extractions are key risk factors for ORN, particularly in patients with advanced head and neck cancer (T3-T4). Most cases occurred within 36 months post-radiotherapy, emphasising the need for vigilant long-term monitoring. Tobacco and alcohol use further elevate risk, underscoring the importance of pre-radiotherapy dental assessments and lifestyle modifications.