Short Communications

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Dental Oncology: A Pressing Necessity for Comprehensive Cancer Care

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Abstract

Dental oncology is an emerging interdisciplinary field at the intersection of dentistry and oncology, addressing the unique oral health challenges faced by cancer patients. As cancer incidence continues to rise globally, the need for specialized dental care before, during, and after cancer treatment has become increasingly critical. Chemotherapy, radiotherapy, and immunotherapy often result in debilitating oral complications such as mucositis, xerostomia, osteoradionecrosis, infections, and altered dental development in pediatric patients. These complications not only compromise a patient's quality of life but can also disrupt cancer therapy itself. Despite this, oral health is frequently overlooked in oncology care protocols, underscoring a significant gap in the continuum of care. Dental oncologists play a vital role in the prevention, early diagnosis, and management of these complications, as well as in rehabilitative and palliative care. Integrating dental professionals into oncology teams can improve patient outcomes, reduce treatment interruptions, and support comprehensive cancer care. Raising awareness, enhancing dental oncology training, and developing standardized clinical guidelines are essential to address this growing need. As we move toward more patient-centered models in healthcare, establishing dental oncology as a recognized and essential discipline is not just beneficial-it is a pressing necessity.

Keywords: Oral cancer- supportive care- chemotherapy- radiotherapy- multidisciplinary care

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Introduction

The rising global burden of cancer has catalyzed the need for a more holistic and patient-centered approach to oncologic care. Among the overlooked components of this paradigm is oral health a domain critically affected by cancer treatments but insufficiently integrated into oncology protocols. This underscores the urgent need to recognize and institutionalize dental oncology as a distinct specialty [1, 2].

Dental oncology is an emerging interdisciplinary field addressing the unique oral health challenges faced by cancer patients. Chemotherapy, radiotherapy, and immunotherapy often result in debilitating oral complications such as mucositis, xerostomia, trismus, osteoradionecrosis, and opportunistic infections [3–5, 6, 7]. These not only compromise patients' quality of life but also pose risks to treatment continuity and overall prognosis [4, 5, 8]. Children undergoing cancer therapy may also experience altered craniofacial development [8]. Despite these far-reaching implications, oral care is frequently underprioritized in cancer care pathways [2, 9].

Globally, the movement toward formalizing dental oncology is gaining traction. Centers like MD Anderson Cancer Center (USA) and Tata Memorial Hospital (India) have integrated dental professionals into multidisciplinary tumor boards and oncology care pathways. The International Society of Oral Oncology (ISOO) and other networks advocate for structured training, research, and policy support in this field [2]. These examples demonstrate that dedicated dental care in oncology is not aspirational it is already underway and needs broader support.

The role of dental professionals spans pre-treatment, treatment, and post-treatment phases

Pre-treatment dental evaluations, including infection control, restoration of dentition, and patient education, significantly reduce the incidence of complications such as osteoradionecrosis and severe mucositis [5, 7, 8]. Brennan et al. highlighted that pre-treatment dental clearance results in fewer therapy interruptions and hospitalizations [5]. During treatment, dental professionals assist in managing acute complications. Over 80% of patients undergoing head and neck radiotherapy experience mucositis [3, 4, 10, 11, 12]. Evidence-based interventions

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such as low-level laser therapy and cryotherapy require specialized knowledge [3, 4, 11]. Dental professionals also contribute to nutritional counseling, pain relief, and psychosocial support, ensuring continuity of care [7, 8].

Post-treatment, dental oncologists play a critical role in long-term rehabilitation. From fluoride regimens and salivary substitutes for radiation-induced xerostomia [6, 13] to maxillofacial prosthetics for surgical defects, their contribution is indispensable to restoring function and dignity [8]. Beyond clinical care, dental oncologists contribute meaningfully to public health through early detection of potentially malignant disorders, tobacco cessation initiatives, and preventive education particularly in underserved populations [2, 9]. These efforts are central to reducing the cancer burden and promoting health equity [1, 9].

However, despite these contributions, dental oncology remains underrepresented in dental education and training. In most regions, it is limited to electives or subspecialty interest, leaving general dentists unprepared to manage oncology patients confidently [2, 8]. We propose a structured curriculum encompassing oncology pathology, treatment planning, pharmacology, palliative care, patient communication, and hands-on training through clinical rotations in cancer centers [2]. This will equip future practitioners with the competence to work within multidisciplinary teams [2].

There is also a pressing need for policy-level changes. Multidisciplinary cancer care must formally include dental experts, especially for head and neck cancers [1,2]. Insurance coverage should account for dental interventions before, during, and after cancer treatment [5, 7]. Additionally, dedicated funding for dental oncology infrastructure and training must be prioritized [2, 9].

The field is equally ripe for research and innovation. From novel mucositis therapies [10, 11] to AI-assisted diagnostics, 3D-printed prosthetics, and teledentistry platforms [14], dental oncology can drive innovation in personalized, accessible, and technologically empowered care. It is crucial to acknowledge global inequities. In low- and middle-income countries, many cancer patients lack access to even basic oral care [1, 9]. Integrating dental services into national cancer control programs and deploying mobile dental units could help bridge this disparity [9].

In conclusion, the integration of dental professionals into the oncology care continuum is not optional it is essential. Dental oncology enhances treatment outcomes, prevents avoidable complications, and supports the patient's overall well-being. As healthcare moves toward patient-centered, interdisciplinary models, establishing dental oncology as a recognized specialty is not merely beneficial it is a pressing necessity [1, 2].

Author Contribution Statement

All authors contributed equally in this study.

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Any conflict of interest

No conflict of interest.

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