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Letter to the Editors

Rethinking nutrition management in OSCC care: Beyond tube feeding

Dear editor,

Oral squamous cell carcinoma (OSCC) presents multifaceted challenges in its management, particularly regarding nutrition. As a malignancy primarily affecting the oral cavity, OSCC often leads to significant impairments in speech, mastication, and swallowing. These complications, compounded by the aggressive nature of the disease and the side effects of treatment modalities such as surgery, radiation, and chemotherapy, frequently result in malnutrition. Historically, tube feeding has been the cornerstone of nutritional support for OSCC patients, especially those with severe dysphagia or extensive surgical resections. However, while tube feeding is effective in maintaining caloric intake, it often fails to address the broader nutritional and psychological needs of patients, potentially impacting their overall quality of life and long-term outcomes (see Fig. 1).

The current paradigm of nutrition management in OSCC care tends to prioritize the prevention of weight loss and maintenance of energy balance. This approach, though vital, may inadvertently overlook other critical aspects of patient care, including the role of specific nutrients in modulating the immune response, enhancing tissue repair, and even influencing tumor biology. Additionally, the psychosocial dimensions of eating—such as the pleasure derived from food, social interactions during meals, and the sense of normalcy associated with oral intake—are often diminished or lost in patients reliant solely on tube feeding. These factors underscore the need to rethink and expand the scope of nutrition management in OSCC beyond mere caloric provision [1].

Emerging evidence suggests that a more nuanced approach, integrating targeted nutritional interventions, could offer significant benefits. For instance, the inclusion of specific amino acids, omega-3 fatty acids, and micronutrients such as zinc and selenium in the diet may support immune function and reduce treatment-related toxicities. Moreover, advances in texture-modified diets, oral nutritional supplements, and the use of functional foods offer the potential to cater to the individualized needs of OSCC patients, allowing for a more holistic approach to their care [1].

This shift in focus calls for a multidisciplinary approach, involving dietitians, oncologists, speech and swallowing therapists, and psychologists, to develop personalized nutrition plans that address the physical, psychological, and social dimensions of eating. By going beyond tube feeding, we can aim to enhance not only the nutritional status but also the overall well-being and quality of life of OSCC patients, ultimately leading to improved clinical outcomes.

1. The limitations of tube feeding in OSCC care

Tube feeding has long been a cornerstone in the nutritional management of patients with oral squamous cell carcinoma (OSCC), particularly for those who experience significant dysphagia or have undergone extensive surgical interventions that impair their ability to consume food orally. Administered primarily through nasogastric (NG) tubes or percutaneous endoscopic gastrostomy (PEG) tubes, this approach effectively ensures that patients receive the necessary calories and nutrients to maintain their nutritional status during and after treatment. However, despite its effectiveness in preventing malnutrition, tube feeding presents several limitations that can significantly impact both the short-term and long-term well-being of OSCC patients.

2. Short-term and long-term complications

The use of tube feeding in OSCC care is associated with a range of complications that can affect patient compliance and overall treatment outcomes. In the short term, patients may encounter issues such as infection at the tube insertion site, tube dislodgement, and discomfort or pain associated with the presence of the tube. These complications not only pose immediate risks to the patient's health but can also lead to interruptions in nutritional intake, thereby compromising the effectiveness of the nutritional support provided. Moreover, the physical discomfort and inconvenience of managing a feeding tube can contribute to increased levels of stress and anxiety, further complicating the patient's clinical condition.

In the long term, the implications of prolonged tube feeding extend beyond the immediate physical complications. One of the most significant concerns is the potential for atrophy of the oral and pharyngeal muscles, a condition that arises from disuse. This atrophy can severely impair the patient's ability to resume normal oral intake after the cessation of tube feeding, leading to prolonged or even permanent dependence on alternative feeding methods. Additionally, the long-term use of feeding tubes may limit the patient's exposure to the sensory experiences associated with eating, such as taste and texture, which are important for maintaining the desire and motivation to eat orally. The result can be a diminished ability to reintegrate into normal dietary patterns post-treatment, further complicating recovery and rehabilitation efforts [2].

3. The future of nutrition management in OSCC

Quality of life (QoL) is a critical aspect of managing oral squamous cell carcinoma (OSCC), as the disease and its treatment often impose significant physical, emotional, and psychological burdens on patients. While tube feeding is necessary for those unable to meet nutritional needs through oral intake, it can diminish QoL by depriving patients of

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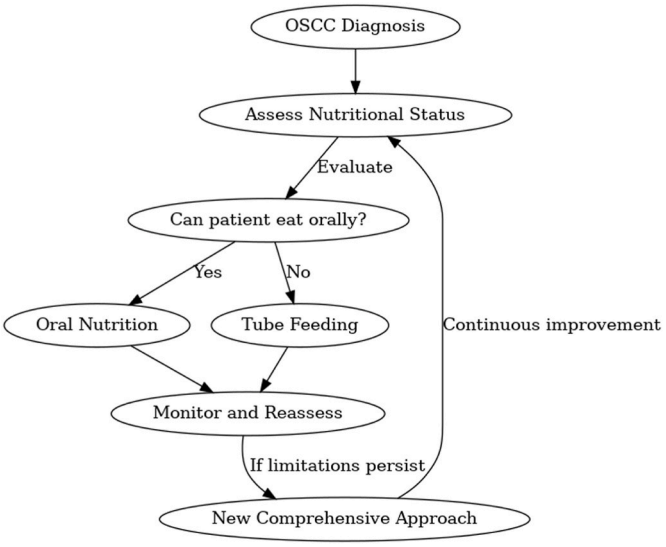

Fig. 1. Approach to nutrition management in OSCC care.

the pleasure and social connection associated with eating. This loss can lead to feelings of deprivation, frustration, and social isolation, as well as decreased self-esteem and body image due to the visible presence of the tube. These psychological impacts can exacerbate the overall burden of living with cancer, contributing to depression, anxiety, and reduced well-being [3].

To address these challenges, it is essential to explore alternative nutritional strategies that support both the physical and psychological needs of OSCC patients. A more holistic approach to nutrition management, considering the patient's QoL alongside their nutritional requirements, is necessary for improving long-term outcomes and enhancing overall well-being.

Nutrition management in OSCC involves more than just delivering calories and nutrients; it requires comprehensive patient education and empowerment. Through personalized nutritional counseling, patients gain a deeper understanding of their changing nutritional needs during treatment. Education should not only cover healthy diet principles but also explain how nutrition influences treatment outcomes, such as mitigating side effects of surgery, radiation, and chemotherapy. By equipping patients with practical advice on optimizing oral intake, even when limited, healthcare providers can foster a sense of independence and resilience, improving both nutritional status and psychological well-being [4].

Integrating psychosocial support into nutritional management is crucial for addressing the emotional and psychological burdens of cancer treatment, which can impact a patient's ability to maintain adequate nutrition. Counseling services, support groups, relaxation techniques, and stress management strategies can help patients cope with the emotional aspects of their illness, improving both mental health and nutritional status. A holistic approach that combines nutritional counseling with psychosocial support allows healthcare providers to address both the physical and emotional needs of OSCC patients, leading to more effective and compassionate care [4].

The future of OSCC nutrition management is evolving towards more sophisticated and personalized interventions. Advanced nutritional therapies, such as functional foods with anti-inflammatory, antioxidant, and immune-modulating properties, offer therapeutic benefits that could support immune function and potentially reduce cancer recurrence. The emerging field of nutrigenomics, which studies the interaction between nutrition and genes, offers possibilities for tailoring dietary recommendations based on genetic profiles, optimizing treatment response, and minimizing adverse effects. Additionally, research into the role of the microbiome in cancer treatment may lead to personalized nutrition plans that modulate the gut microbiota, enhancing treatment efficacy and improving QoL [5].

Technology is also playing an increasingly integral role in modern healthcare, including OSCC nutrition management. Mobile health (mHealth) applications and telemedicine platforms have revolutionized how nutritional care is delivered, offering patients greater access to personalized support and guidance. These tools empower patients to take an active role in managing their nutrition, even remotely. Telemedicine enables remote consultations with healthcare professionals, ensuring timely advice and interventions, while advances in artificial intelligence (AI) and machine learning promise to further transform nutrition management by predicting nutritional needs and identifying potential complications before they arise.

The future of nutrition management in OSCC is shifting towards more personalized, evidence-based, and technology-driven approaches. By embracing these innovations, healthcare providers can offer more comprehensive, effective, and patient-centered care, ultimately improving treatment outcomes and enhancing QoL for those affected by OSCC.

CRediT authorship contribution statement

Nitya Krishnasamy: Conceptualization, Data curation, Formal analysis, Writing – original draft. **Kochli Channapa Niranjan:** Software, Supervision, Writing – review & editing. **Vikram S. Amberkar:** Formal analysis, Project administration, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Nitya Krishnasamy*
Department of Oral Biology, Saveetha Dental College & Hospitals, India

Kochli Channapa Niranjan
Department of Oral and Maxillofacial Pathology, SDM College of Dental Sciences, Dharwad, India
E-mail address: niranjankc29@gmail.com.

Vikram S. Amberkar
Department of Oral and Maxillofacial Pathology, College of Dental Sciences, Davangere, India
E-mail address: drvickys@gmail.com.

* Corresponding author. Department of Oral Biology, Saveetha Dental College & Hospitals, India.
E-mail address: drknitya@gmail.com (N. Krishnasamy).