Controversies in Oral and Maxillofacial Oncology

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KEYWORDS

• Oral and maxillofacial • Oncology • Controversy • Cancer

KEY POINTS

- Imaging studies are essential components of tumor diagnosis, staging, assessing tumor response to neoadjuvant and adjuvant therapies, and postoperative surveillance on completion of definitive treatment.
- Contrast-enhanced computed tomography (CT), MRI, ultrasonography, and ^{18}F-fluorodeoxyglucose PET/CT represent the most commonly used imaging modalities in the diagnosis and management of head and neck malignancies.
- Historically, the treatment of early stage (T1/T2) clinically node negative (cN0) oral cavity squamous cell carcinoma has remained a controversial topic in oncologic head and neck surgery.
- Approximately 3% of all head and neck tumors arise within the parotid gland and most often within the superficial lobe, lateral to the facial nerve; among these neoplasms about 80% are benign entities and most are pleomorphic adenoma.
- Although submandibular gland transplant is not an undertaking intended for every patient with dry eyes, in those failing multiple other treatment modalities and facing ongoing pain and loss of vision, microvascular transplant of the gland does remain a viable option.

INTRODUCTION

The world of oral and maxillofacial surgery is full of controversy spanning a broad range of topics. Nowhere is this truer than the area of oncology. Incomplete or insufficient evidence and conflicting opinions often leave surgeons in a state of indecision. It may not be possible at any given time to come to clear consensus, but well-educated surgeons are at least capable of recognizing and evaluating the merits of each side of the controversy and making a decision based on their experience. This article selects 4 controversial topics: imaging modalities in head and neck cancer, sentinel lymph node biopsy (SNB) for oral squamous cell carcinoma, surgical management of parotid masses, and autologous salivary gland transplant for severe dry eye. Differing views regarding each of these topics are discussed with regard to the best supporting evidence.

IMAGING MODALITIES IN HEAD AND NECK SQUAMOUS CELL CARCINOMA

The use of various imaging modalities plays a critical role in the management of head and neck malignancies. Imaging studies are essential components of tumor diagnosis, staging, assessing tumor response to neoadjuvant and adjuvant therapies, and postoperative surveillance on completion of definitive treatment. Contrast-enhanced computed tomography (CT), MRI, ultrasonography (US), and ^{18}F-fluorodeoxyglucose PET/CT represent the most commonly used imaging modalities in the diagnosis and management of head and neck malignancies.[1] Each of these different imaging studies is used to varying degrees depending on the type of malignancy, as well as the anatomic location of the tumor within the head and neck. It remains incumbent on maxillofacial surgeons to understand how and when to use these various imaging modalities

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during the various phases of treatment of head and neck cancer.

Imaging Guidelines

Although there are aspects of imaging for head and neck squamous cell carcinoma (HNSCC) that remain well accepted among surgeons, there continues to be variability among providers in terms of how and when various imaging studies are used. International bodies, such as the European Head and Neck Society/European Society of Medical Oncology/European Society for Radiotherapy & Oncology (EHNS-ESMO-ESTRO) and National Comprehensive Cancer Network (NCCN), have established guidelines for how different imaging studies should be used during the various phases of HNSCC treatment.[2,3] However, each of the guidelines is not entirely rigid, nor do they comprehensively agree with one another in terms of which imaging modality should be selected and for what purpose.[1] There continues to be inherent allowances built into the recommendations from both NCCN and EHNS-ESMO-ESTRO that allow individualized selection of various imaging modalities to be made by providers. At present, there is no universally accepted algorithm for selection of diagnostic, staging, or surveillance imaging as it pertains to HNSCC. Nevertheless, it remains important for surgeons to maintain an understanding of the various imaging modalities at their disposal in order to ensure that patients with HNSCC are being managed and surveilled appropriately within the generally accepted standards of care.

Staging

According to the most recently updated NCCN guidelines (version 1.2016) the appropriate clinical staging of HNSCC should be composed of a complete head and neck examination (including mirror and fiberoptic endoscopy when indicated), a diagnostic biopsy, a contrast-enhanced CT scan of the head and neck and/or MRI with contrast to assess the primary tumor and regional nodal basins, chest imaging as clinically indicated, and consideration of PET/CT for advanced stage (III–IV) disease.[2] The rationale for the inclusion of PET/CT for advanced stage disease is the potential for diagnostically upstaging patients if distant metastatic disease is identified, because this would alter the overall management strategy.[4] The NCCN guidelines do not make explicit recommendations on the specific type of chest imaging that should be pursued. Thus the potential imaging modalities implemented for chest interrogation (chest radiograph, chest CT, or PET/CT) are left at the discretion of the provider.

The European guidelines (EHNS-ESMO-ESTRO) are similar to those of the NCCN as they pertain to clinical staging of HNSCC; however, there are subtle differences in the recommendations. The European guidelines also recommend that routine staging be based on physical examination, diagnostic biopsy, chest radiograph, head and neck endoscopy, and a head and neck CT scan and/or MRI.[3] The European guidelines state that contrast-enhanced MRI of the head and neck is the preferred imaging modality for every head and neck tumor subsite with the exception of laryngeal and hypopharyngeal cancers.[3] The European guidelines also specifically recommend chest CT as a method for ruling out distant metastatic disease and/or second lung primaries; however, they do not delineate specific clinical scenarios in which this should be explicitly used rather than chest radiograph.[3] In addition, the European stance on the use of PET/CT for routine HNSCC staging remains more equivocal, citing PET/CT's lower specificity and higher sensitivity for detecting metastatic disease, but that, for the purposes of HNSCC staging, PET/CT is still currently under investigation.[1,3]

The primary differences between the NCCN and European guidelines as they pertain to diagnostic staging of HNSCC primarily come down to the role of PET/CT, minor variation in the preferred imaging modality (CT vs MRI) for staging, and subtle differences in the recommendations on chest interrogation. Clearly, with as high as 90% of the distant metastatic disease of HNSCC occurring within the lungs,[5–8] it remains of critical importance to use some form of interrogative imaging of the chest. Distant metastases isolated to other organ systems such as the liver and bone are exceedingly rare in the absence of a concomitant pulmonary malignancy,[7] and this highlights why some clinicians think that full-body imaging in the form of PET/CT is unwarranted in the routine work-up of HNSCC. Even in the current oncologic paradigm, chest radiograph continues to remain a favored method of lung screening among surgeons treating HNSCC[9] owing to its wide availability, low cost, ease of interpretation, and low radiation dose. Although some studies have suggested that chest radiography is becoming an outdated imaging method for HNSCC,[10–12] there remains inadequate evidence to currently recommend a specific chest imaging modality as a standard of care in assessing the lung fields for the presence of distant metastases.

Although the European guidelines have suggested that contrast-enhanced MRI is the preferred imaging modality of HNSCC staging, the NCCN guidelines consider CT and MRI to be