Overview of Head and Neck cancer

Introduction

- Head and neck cancers can arise in the oral cavity, pharynx, larynx, nasal cavity, paranasal sinuses, thyroid, and salivary glands
- Squamous cell carcinoma, which arises from the oral mucosal lining, accounts for over 90 percent of these tumors.

Etiology

- There are large geographic differences in the incidence and primary site of head and neck cancers.

- These likely reflect the prevalence of risk factors, such as tobacco and alcohol consumption, as well as ethnic and genetic differences among populations.

- Oral cancer most commonly occurs in middle-aged and older individuals, although a disturbing number of these malignancies is also being documented in younger adults in recent year

Etiology


MESON
JIM BEAM
BOURBON
KENTUCKY STRAIGHT
BOURBON WHISKEY
Red Label
JACK DANIEL'S
Tennessee
WHISKEY
J&B
WILD TURKEY
81
TULLAMORE DEW

Etiology

酗酒	嚼檳榔	抽菸	罹患口腔癌危險機率倍數
無	無	無	假定不抽菸，不酗酒，不嚼檳榔危險率為　1
有	**有**	**有**	**123**
	有	有	89
有	有		54
	有		**28**
有		有	22
		有	18
有			10

Etiology

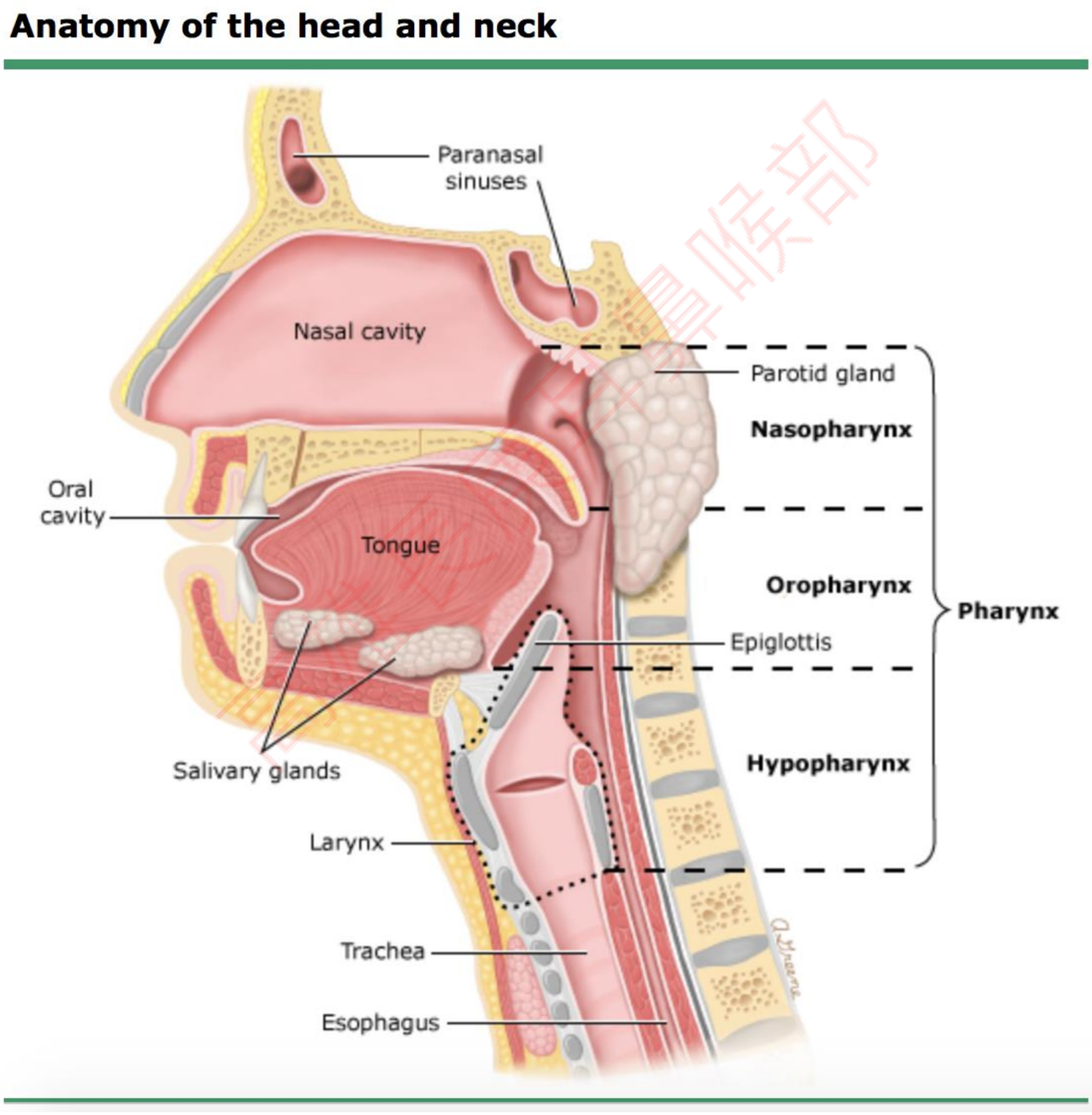
- Head and neck cancer encompasses a variety of cancers, mostly squamous cell carcinoma

- oral cavity includes the lips, buccal mucosa, anterior tongue, floor of the mouth, hard palate, and upper and lower gingiva.

- The anterior border of the oral cavity is defined by the vermillion of the lips. The posterior border is defined by the circumvallate papillae of the tongue

- The pharynx is divided into the nasopharynx, oropharynx, and hypopharynx.

Anatomy of Head and Neck



Precancerous Lesions

- Leukoplakia
  - is characterized by hyperparakeratosis and is usually associated with underlying epithelial hyperplasia. the probability of malignant change is less than 5 percent

- Erythroplakia
  - is characterized by red superficial patches adjacent to normal mucosa. It is commonly associated with epithelial dysplasia and is associated with carcinoma in situ or invasive tumor in up to 40 percent of cases

- Dysplasia is defined histopathologically by the presence of mitoses and prominent nucleoli. Involvement of the entire mucosal thickness is usually referred to as carcinoma in situ. Dysplasia is associated with progression to invasive cancer in 15 to 30 percent of cases.

Leukoplakia

Figure 9 Speckled leukoplakia. This mixed white and red lesion of the buccal mucosa showed moderate epithelial dysplasia.

Figure 10 Leukoplakia. A diffuse leukoplakia of the left lateral border of the tongue. A biopsy of the thick, rough zone at the anterior aspect of the lesion showed early invasive squamous cell carcinoma.

Figure 11 Erythroplakia. This small, subtle red lesion on the right lateral border of the tongue showed carcinoma in situ on biopsy. Adjacent slight leukoplakic changes are also evident (erythro-leukoplakia). (Courtesy of Neville BW, Damm DD, Allen CM, et al. Oral & Maxillofacial Pathology, ed 2, Philadelphia, WB Saunders, 2002.)

Figure 12 Nicotine stomatitis. Rough, white, fissured appearance of the hard and soft palate in a heavy pipe smoker. The red, punctate areas represent the inflamed openings of the minor salivary gland ducts.

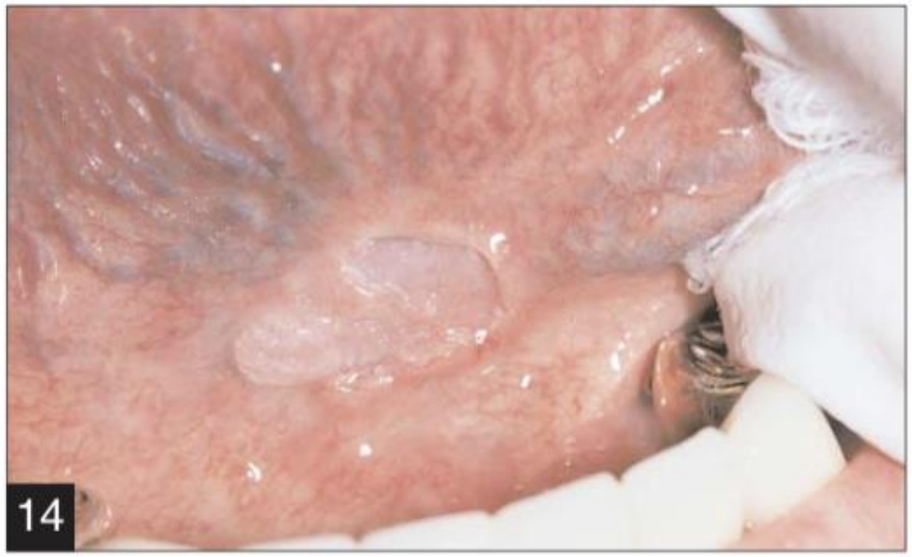
Figure 13 Tobacco pouch keratosis. A white, wrinkled change of the mucosa in the mandibular buccal vestibule secondary to the use of chewing tobacco.

Precancerous Lesions

- Early oral cancers and precancerous lesions are often subtle and asymptomatic

- As the cancer develops, the patient may notice the presence of a nonhealing ulcer.

- Later-stage symptoms include bleeding, loosening of teeth, difficulty wearing dentures, dysphagia, dysarthria, odynophagia, and development of a neck mass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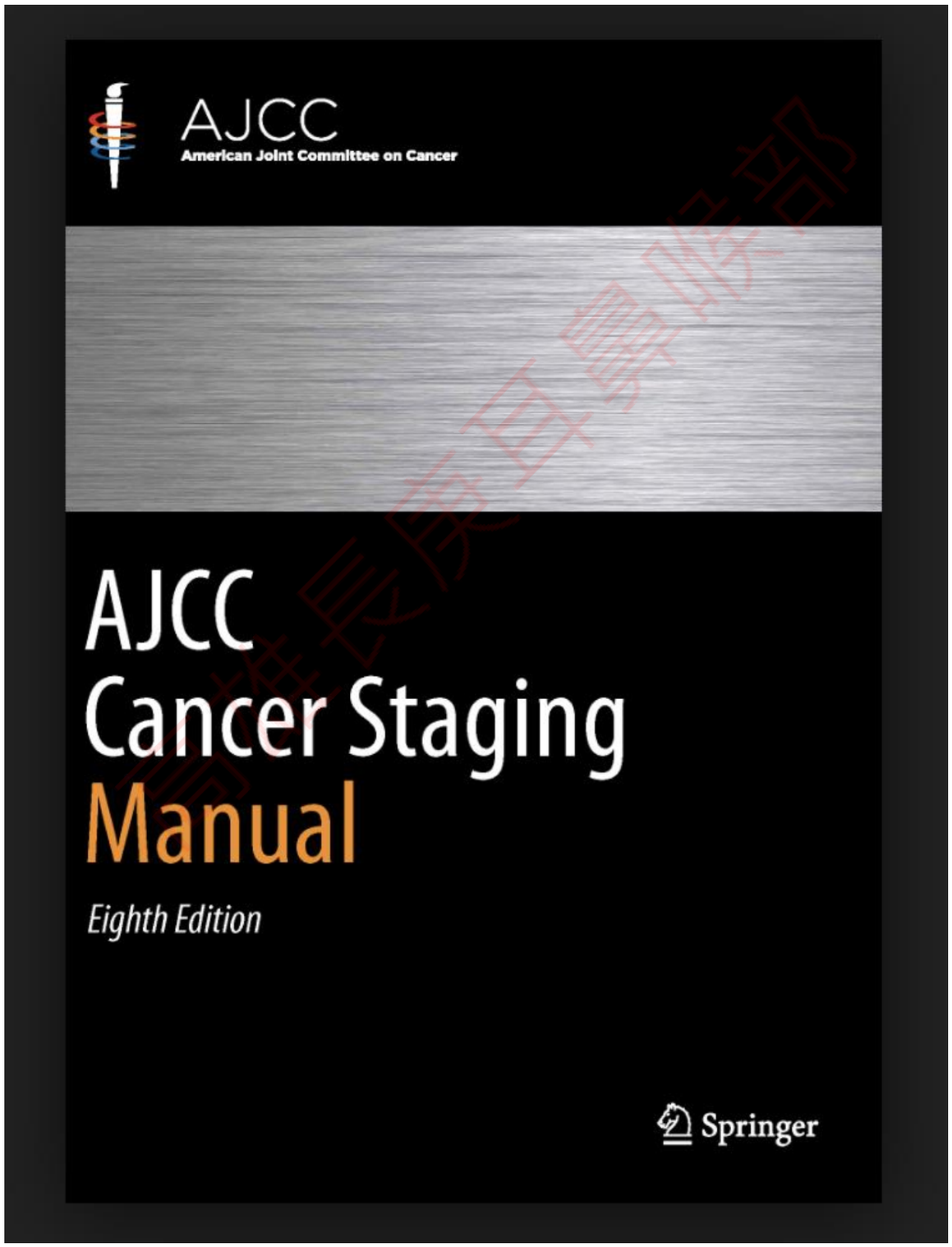
Staging


AJCC
American Joint Committee on Cancer
AJCC
Cancer Staging
Manual
Eighth Edition
Springer

Staging

- Every primary site of malignancy had its own staging system, ex:

Table 4. AJCC T Categories and Candidate Models for Primary Tumor Staging of Oral Squamous Cell Carcinoma[a]

T Staging System	Description
AJCC T categories	
T1	Tumor ≤2 cm in greatest dimension
T2	Tumor >2 cm but ≤4 cm in greatest dimension
T3	Tumor >4 cm in greatest dimension
T4a	Tumor invades through cortical bone, deep extrinsic tongue musculature, maxillary sinus, or facial skin
T4b	Tumor invades masticator space, pterygoid plates, skull base, or encases internal carotid artery
Model 1	
T1	Maximum DOI <5 mm
T2	Maximum DOI ≥5 mm but <10 mm
T3	Maximum DOI ≥10 mm
T4	AJCC T4, any DOI
Model 2	
T1	AJCC T1-2, maximum DOI <5 mm
T2	AJCC T1, maximum DOI ≥5 mm *or* AJCC T2, maximum DOI ≥5 mm but <10 mm
T3	AJCC T2, maximum DOI ≥10 mm *or* AJCC T3-4, maximum DOI <10 mm
T4	AJCC T3-4, maximum DOI ≥10 mm
Model 3	
T1a	AJCC T1, maximum DOI <5 mm
T1b	AJCC T1, maximum DOI ≥5 mm
T2	AJCC T2, maximum DOI <10 mm
T3	AJCC T2, maximum DOI ≥10 mm *or* AJCC T3-4, maximum DOI <10 mm
T4	AJCC T3-4, maximum DOI ≥10 mm
Model 4	
T1	AJCC T1, maximum DOI <5 mm
T2	AJCC T1, maximum DOI ≥5 mm *or* AJCC T2, maximum DOI <10 mm
T3	AJCC T2, maximum DOI ≥10 mm *or* AJCC T3-4, maximum DOI <10 mm
T4	AJCC T3-4, maximum DOI ≥10 mm
Model 5	
T1a	AJCC T1, maximum DOI <5 mm
T1b	AJCC T1, maximum DOI ≥5 mm
T2	AJCC T2, maximum DOI <10 mm
T3	AJCC T2, maximum DOI ≥10 mm *or* AJCC T3, maximum DOI <10 mm
T4	AJCC T3, maximum DOI ≥10 mm *or* AJCC T4
T stages proposed by Howaldt et al[10]	
T1	Tumor ≤20 mm in greatest dimension, DOI ≤5 mm
T2	Tumor ≤20 mm in greatest dimension, DOI >5 mm but ≤20 mm *or* Tumor >20 mm in greatest dimension, DOI ≤5 mm
T3	Tumor ≤20 mm in greatest dimension, DOI >20 mm *or* tumor >20 mm but ≤40 mm in greatest dimension, DOI >5 mm but ≤20 mm *or* tumor >40 mm in greatest dimension, DOI >5 mm but ≤10 mm
T4	Tumor >20 mm in greatest dimension, DOI >20 mm *or* tumor >40 mm in greatest dimension, DOI >10 mm
T stages proposed by Yuen et al[9]	
T1	DOI ≤3 mm
T2	DOI >3 mm and ≤9 mm
T3	DOI >9 mm
T4	AJCC T4

Treatment

- Approximately 30 to 40 percent of patients with head and neck squamous cell carcinomas present with stage I or II (early stage) disease.

- In general, these patients are treated with either primary surgery or definitive radiation therapy (RT)

- Five-year overall survival in patients with stage I or II disease is typically from 70 to 90 percent.

Treatment

- Locoregionally advanced (stage III/IV) squamous cell carcinoma of the head and neck is associated with a high risk of both local recurrence and distant metastases
- Combined modality approaches (surgery, RT, and/or chemotherapy) are generally required to optimize the chances for long-term disease control

Treatment

- Oral cavity – Surgery is generally preferred for locoregionally advanced oral cavity squamous cell carcinomas since most cases are easily accessible

- Oropharynx, hypopharynx, and larynx – Organ-sparing and, more importantly, function-sparing approaches (TORS, TOLM, chemoradiotherapy) rather than large ablative primary surgery are preferred for most patients

- Definitive RT alone, often using an altered fractionation schedule, remains a treatment option for older adult patients and those with a poor performance status

Treatment

- A multidisciplinary approach is required for optimal decision making, treatment planning, and posttreatment response assessment.
- This should include surgeons, medical oncologists, and radiation oncologists, as well as dentists, speech/swallowing pathologists, dieticians, psychosocial oncology, prosthodontists, and rehabilitation therapists

Conclusion

- Beetle nuts is the most important risk fact of oral cancer
- Treatment for head and neck squamous cell carcinoma requires consideration of tumor site and stage, the functional outcomes and morbidity associated with various treatment approaches
- A multidisciplinary approach including surgeons, medical oncologists, and radiation oncologists, as well as dentists, speech/swallowing pathologists, dieticians, and rehabilitation therapists