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Oral Health Centre of Western Australia

Oral cancer

MAGDALEN FOO
DISCIPLINE LEAD ORAL MAXILLOFACIAL SURGERY

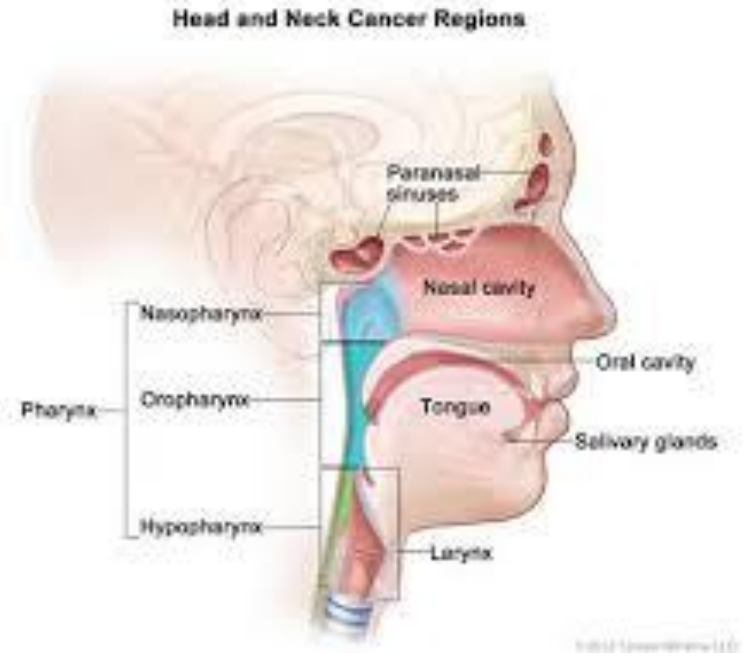
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Learning outcomes

- Describe the clinical aspect, diagnosis and management of oral cancer



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Head and neck cancer statistics in Australia

- > 5000 **new cases** of head and neck cancer diagnosed in 2020 (¾ = males, ¼ = females)
- 3.6% of all new cancer cases diagnosed in 2020
- Head and neck cancers (including lip) - 7th most commonly diagnosed cancers in Australia
- 65.1 is the average age of diagnosis

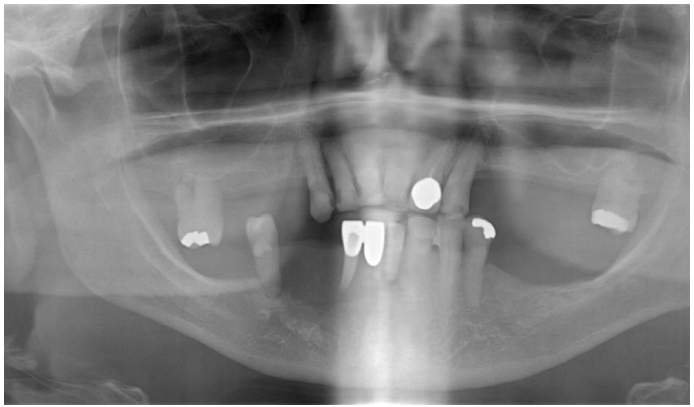
- > 1000 **deaths** from head and neck cancer (including lip) in 2020
- 2.4% of all deaths from cancer in 2020
- 70% surviving at least 5 years (2012–2016)

Oral cancer

- Lips
- Anterior 2/3 of the tongue
- Floor of the mouth and ventral tongue
- Hard palate and soft palate
- Gingiva
- Buccal mucosa
- Metastasis from another location in the body
- Direct spread from surrounding areas e.g. nasal cavity
- The majority of oral cancers are Squamous Cell Carcinomas
- Rarer types of oral cancer start in the salivary glands
- Lymphomas and Melanomas might also be diagnosed around the oral cavity - approached differently in terms of treatment

Squamous cell carcinoma (SCC)

- **Squamous cell carcinoma** represents **90%** of all oral cancers









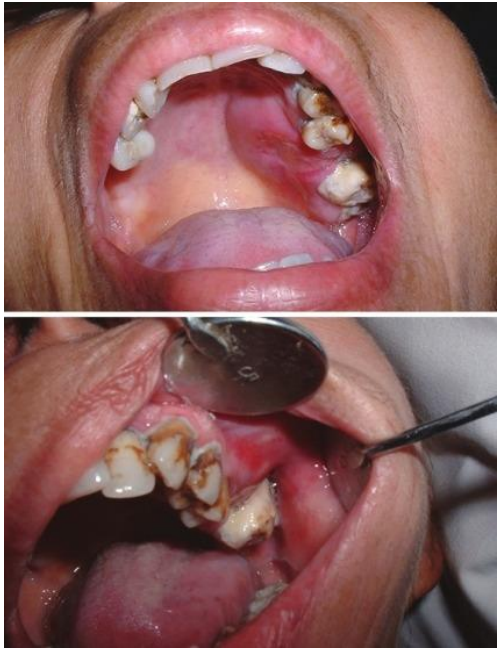
SCC lateral tongue





SCC floor of mouth

Salivary gland carcinoma



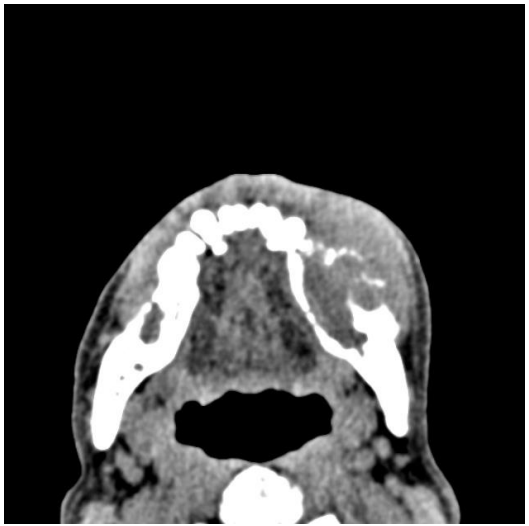


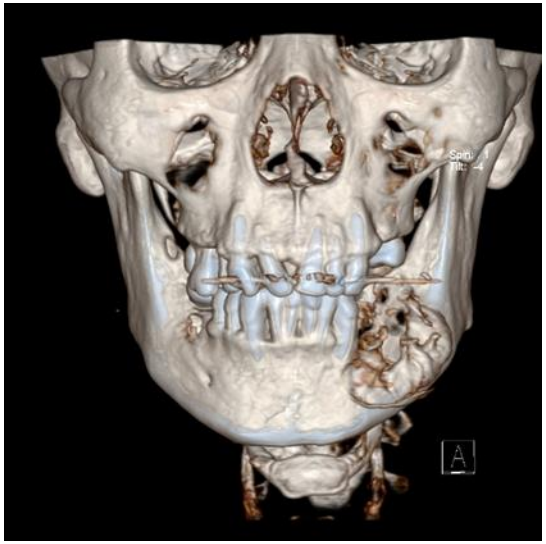
Metastasis to the jaws

- Uncommon (<1% of cancer in the oral cavity)
- Metastasize to the mandible, less so to the maxilla
- Majority of tumours are adenocarcinomas
- Origins of primary tumour – breast(30%), lungs(20%), kidney(15%), thyroid(5%), prostate(5%), colon(5%), stomach(5%), cutaneous melanoma(5%)
- Radiographic appearance at site of metastatic tumour deposit – ill defined radiolucency / radiopacity or mixed radiolucent and radiopaque lesions
- Can be asymptomatic, or patient may experience pain, loosening of teeth, or unilateral paraesthesia of the lower lip/chin

Metastasis to the jaws







Other cancers around the oral cavity





Oral Squamous Cell Carcinoma

- The main risk factors are **tobacco** and **alcohol** consumption (Note synergistic)



“Synergistic consumption of alcohol and tobacco (both smoked and smokeless) significantly increased the odds for the occurrence of Oral Squamous Cell Carcinoma”

Clin Oral Investig. 2019 Jul;23(7):2849-2859

The synergistic effect of tobacco and alcohol consumption on oral squamous cell carcinoma: a systematic review and meta-analysis

Fernanda Weber Mello, Gilberto Melo , Júlia Jacoby Pasetto , Carolina Amália Barcellos Silva , Saman Warnakulasuriya , Elena Riet Correa Rivero

Oral cancer

Other risk factors :

- Human papilloma virus (HPV)
- chewing pan (areca or betel nut)
- Epstein-Barr virus (EBV) – for nasopharyngeal carcinoma
- exposure to the sun
- family history of mouth cancers / inherited conditions e.g. Fanconi anaemia
- post transplant / immunosuppressed
- Oral premalignant conditions



DRINKING GUIDELINES AROUND THE WORLD

Country	Limit per week (units)* Men	Women
Spain	35	21.3
Canada	25.5	17
USA	24.5	12.3
China	21.9	13
Philippines	21	10.5
New Zealand	18.8	12.5
Sweden	17.5	8.8
Vietnam	17.5	8.75
Germany	15	7.5
UK	14	14
Australia	12.5	12.5
France	12.5	12.5
Japan	12.5	6.3
Netherlands	8.8	8.8
Guyana	7	7

*Note, measurements and guidelines vary globally; comparisons are based on one unit containing 8g of alcohol.

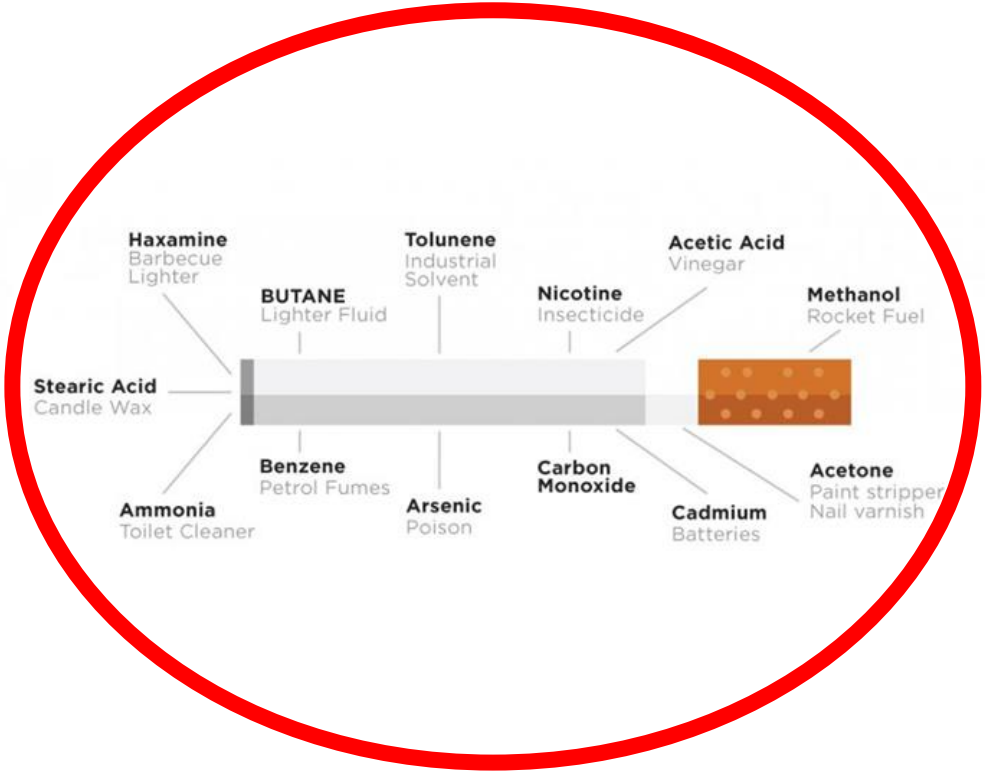
RACGP | *Supporting smoking cessation*

Royal Australian College of General Practitioners

A guide for health professionals

Second edition







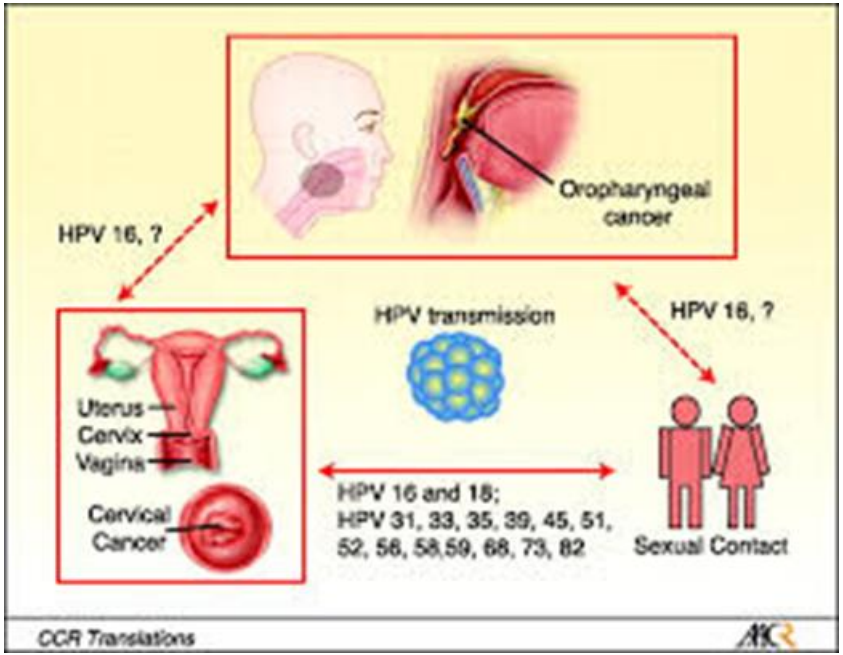

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Oropharyngeal SCC

Oral HPV 16 is a strong risk factor



> This study corroborates and extends Australian data demonstrating that patients with HPV-positive OPSCC represent a distinct subgroup associated with a significantly better survival

Australian Journal of Otolaryngology, Vol 2 (2019)

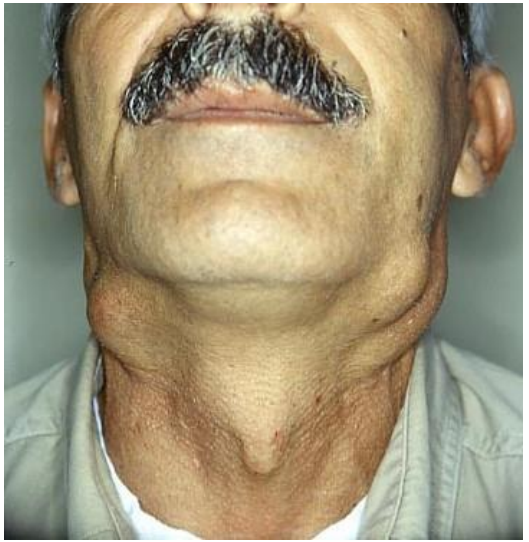
Human papillomavirus and oropharyngeal squamous cell carcinoma: a 12-year retrospective review in a New South Wales tertiary referral centre

Alon Taylor, Thomas Eade, David Veivers, Anthony J. Gill, Leo Pang

Oral cancer

Symptoms can include:

- a lump in the neck
- mobile teeth
- swelling or a sore on the lip that won't heal
- difficult or painful swallowing
- changes in speech
- bleeding or numbness in the mouth
- white or red patches on the mouth, tongue or gums
- unexplained weight loss



Sites and incidence of oral carcinoma

Incidence of SCC differs between anatomical sites :

- Lower lip is most susceptible – 35%
- Lateral or ventral tongue – 25%
- Floor of mouth – 20%
- Soft palate - 15%
- Other sites - gingiva/alveolar ridge and buccal mucosa (1-4%)



Intraoral areas prone to development of SCC

Anterior floor of mouth



Lateral border of tongue



Intraoral areas prone to development of SCC

Tonsillar pillars



lateral soft palate



Other intraoral sites

Gingiva/alveolar ridge

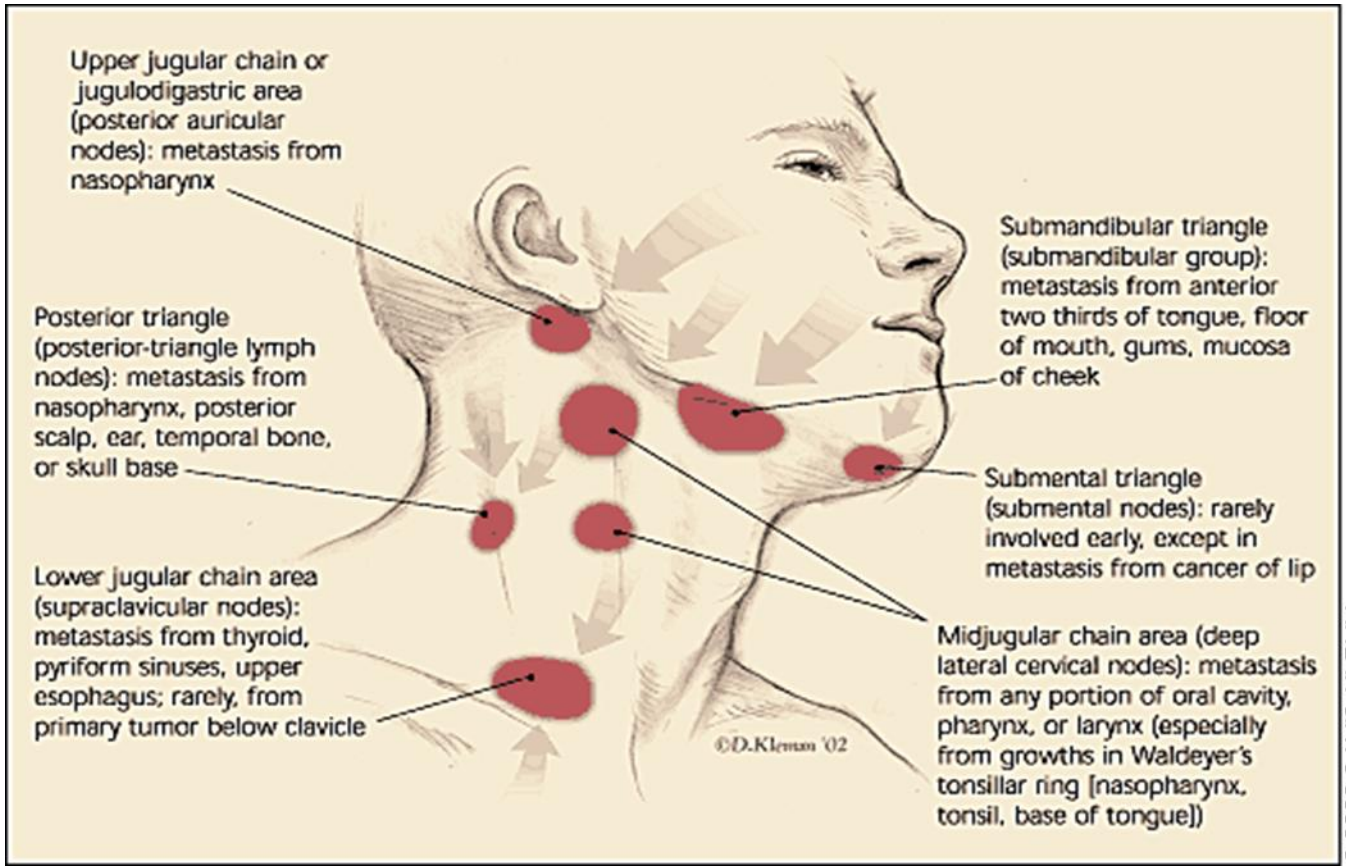


Buccal mucosa



Metastasis

- Lymphatic spread
- Tumour cells in lymph nodes extend into surrounding tissue (extra-capsular spread) or invade overlying skin
- Enlarged, hard, fixed lymph nodes – ominous clinical signs
- Oral cavity SCC metastasize to submandibular, superficial and deep cervical nodes
- Beyond the regional lymph nodes, metastasize to the lungs


Upper jugular chain or jugulodigastric area (posterior auricular nodes): metastasis from nasopharynx
Posterior triangle (posterior-triangle lymph nodes): metastasis from nasopharynx, posterior scalp, ear, temporal bone, or skull base
Lower jugular chain area (supraclavicular nodes): metastasis from thyroid, pyriform sinuses, upper esophagus; rarely, from primary tumor below clavicle
Submandibular triangle (submandibular group): metastasis from anterior two thirds of tongue, floor of mouth, gums, mucosa of cheek
Submental triangle (submental nodes): rarely involved early, except in metastasis from cancer of lip
Midjugular chain area (deep lateral cervical nodes): metastasis from any portion of oral cavity, pharynx, or larynx (especially from growths in Waldeyer's tonsillar ring [nasopharynx, tonsil, base of tongue])
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Investigation

- Biopsy - removal of a small amount of tissue which is sent to a pathologist to determine if cancer cells are present
- Radiographs – OPG and chest x-ray
- Imaging - PET, CT and MRI scans to determine the location, stage and spread of cancer
- An flexible nasal endoscope is used to examine the nose, sinuses, larynx and pharynx

Clinical Staging of Carcinomas of Head and Neck (TNM)

- Clinical staging is used to designate the extent of disease and to determine the most appropriate treatment for patient
- Uniform staging system provides comparisons of results of types of treatment
- T – primary tumour
- N – regional lymph node
- M – distant metastasis
- Clinical staging helps predict treatment response and outcomes (prognosis)

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TNM staging

T refers to maximum radial dimension of the tumour

N refers to the lymph node

M refers to metastasis

Primary tumor (T)		Regional lymph nodes (N)	
TX	Primary tumor cannot be assessed	NX	Regional nodes cannot be assessed
T0	No evidence of primary tumor	N0	No regional lymph node metastasis
Tis	Carcinoma in situ	N1	Metastasis in a single ipsilateral lymph node, ≤ 3cm in greatest dimension
T1	Tumor ≤ 2cm in greatest dimension	N2	Metastasis in a single ipsilateral lymph node, > 3cm ≤ 6cm in greatest dimension; or in multiple ipsilateral lymph nodes, none > 6cm in greatest dimension or in bilateral or contralateral lymph nodes, none >6cm in greatest dimension
T2	Tumor > 2cm but ≤ 4cm in greatest dimension	N2a	Metastasis in a single ipsilateral lymph node > 3cm but ≤ 6 cm in greatest dimension
T3	Tumor > 4cm in greatest dimension	N2b	Metastases in multiple ipsilateral lymph nodes, none > 6cm in greatest dimension
T4	(lip) Tumor invades through cortical bone, inferior alveolar nerve, floor of mouth, or skin of the face, i.e, chin or nose*	N2c	Metastases in bilateral or contralateral lymph nodes, none > 6 cm in greatest dimension
T4a	Moderately advanced local disease* (lip) Tumor invades through the cortical bone, mouth, or skin of the face (i.e, chin or nose) (oral cavity) Tumor invades adjacent structures (eg. through the cortical bone [mandible or maxilla] into the deep [extrinsic] muscle of the tongue [genioglossus, hyoglossus, palatoglossus, and styloglossus], maxillary sinus, or skin of the face)	N3	Metastasis in a lymph node, > 6cm in greatest dimension
T4b	Very advanced local disease Tumor infiltrates masticator space, pterygoid plates, or skull base and/or encases internal carotid artery	Distant metastases (M)	
		M0	No distant metastases
		M1	Distant metastasis

*Superficial erosion alone of bone/tooth socket by gingival primary tumor is not sufficient to classify a tumor as T4.

Management

- Every patient with oral cancer should be presented at a Multidisciplinary Team Meeting (MDT)
- This integrated team approach to healthcare in which medical and allied health professionals consider all relevant treatment options and collaboratively develop an individual treatment and care plan for each patient
- The benefits of adopting a multidisciplinary approach include:

• improving patient care through developing an agreed treatment plan

• providing best practice through adopting evidence-based guidelines

• improving patient satisfaction with treatment

• improving the mental wellbeing of patients

• improving access to possible clinical trials of new therapies

• increasing the timeliness of appropriate consultations and surgery and a shorter timeframe from diagnosis to treatment

• increasing the access to timely supportive and palliative care

• streamlining pathways

• reducing duplication of services

Treatment team

- GP (General Practitioner)- looks after patient's general health and works with specialists to coordinate treatment
- Head and neck surgeon- diagnoses and treats cancers of the head and neck
- **Dentist- evaluates and treats the mouth and teeth (before, during and after treatment)**
- Radiation oncologist- prescribes and coordinates radiation therapy treatment
- Medical oncologist- prescribes and coordinates the course of chemotherapy
- Cancer nurses- assist with treatment and provide information and support throughout treatment
- Dietitian- recommends an eating plan to follow during treatment and recovery
- Speech pathologist- helps with swallowing and communication difficulties during and after treatment
- Other allied health professionals- such as social workers, pharmacists and counsellors.

Pre radiotherapy dental assessment

Referral to Oral Health Centre of WA

Department of Oral Medicine and Oral Pathology

Pre-Chemotherapy / **Pre-Radiation Therapy Dental Evaluation**

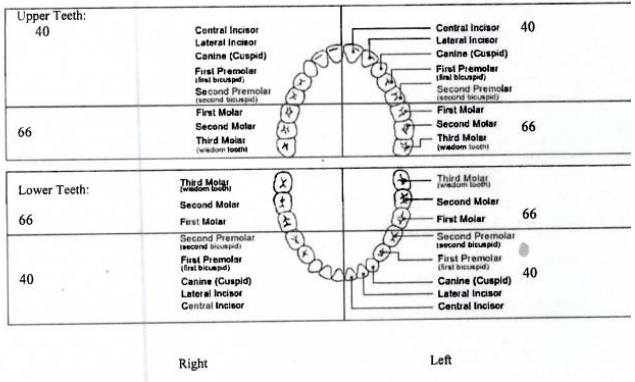
Patient Details C[redacted]

Diagnosis Hypopharyngeal SCC, has had surgery

Proposed treatment Post- operative radiotherapy (66Gy/33#)

Please advise of extent of radiation therapy field *(please also mark teeth to be included on the chart below*

Dose of radiation to be administered (Gy) 66Gy/33#



Pre-treatment dental assessment

Cancer	**Diagnosis, prognosis** **Treatment modality** **Radiation fields** **Start dates**
Patient	Treatment goals Socio-economic factors Quality of life Motivation
Oral Health	Dental history Oral hygiene Maintenance ability
Dentition	State of dentition Existing oral health Future rehabilitation potential and considerations

During radiotherapy and chemotherapy

- Changes in taste
- Oral hygiene maintenance-mucositis
- Systemic considerations-pancytopenia, opportunistic infections

Post treatment dental management



Regular review and maintenance



Motivation

Initially 3 monthly review for caries and periodontal management

Once oral condition stabilize, 6 monthly recalls – look out for mucosal changes, xerostomia, candidiasis, changes in occlusion

Fluoride at each recall – Neutrafluor 5000 toothpaste and fluoride varnish

Treatment

- Intent of treatment - Curative versus palliative

- Surgery – primary modality of treatment for oral cancer - removes the tumour (ablation) and lymph nodes (neck dissection)

Adjuvant radiotherapy after surgery depends on the pathological staging of the tumour, surgical margins and nodal status for patients at high risk of locoregional recurrence)

- Radiotherapy- used on its own to treat for organ presercation e.g. oropharyngeal cancers. Usually concurrently with chemotherapy

- Chemotherapy – Concurrent or adjuvant chemoradiation has now become the standard of care in locally advanced head and neck squamous cell carcinoma

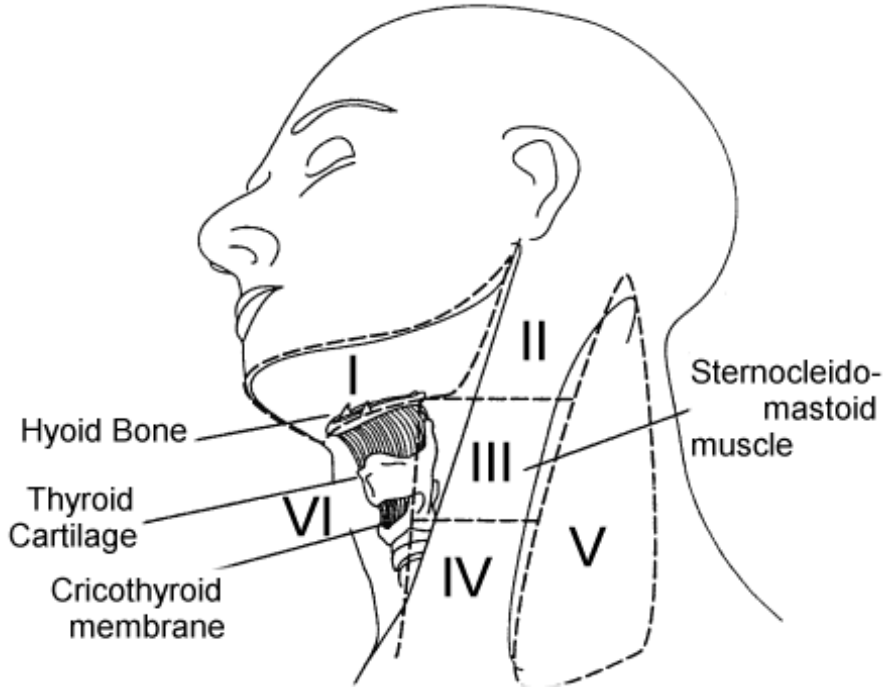
Surgery for oral cancer

- Surgery to remove the tumour (ablation) and lymph nodes (neck dissection)
- Adjuvant radiotherapy after surgery depends on the pathological staging of the tumour, surgical margins and nodal status
- The goal of the surgery is :
- to remove the tumour with a 5mm microscopic margin of normal tissue around the tumour
- Plus management of the cervical nodes (neck dissection)
- Plus reconstructive surgery to restore speech, swallow and mastication

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Cervical lymph nodes levels I - VI

Neck dissection refers to removal of cervical lymph nodes at different levels

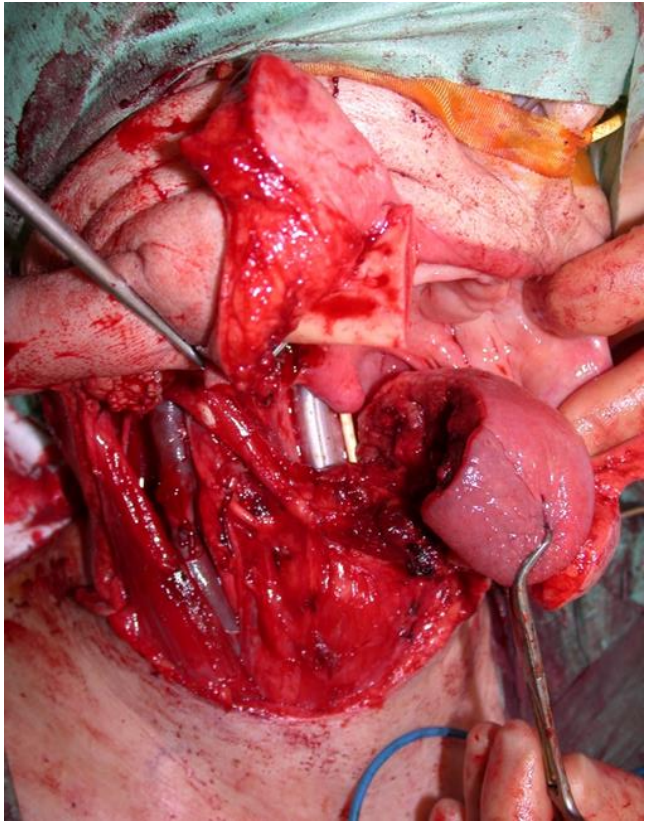


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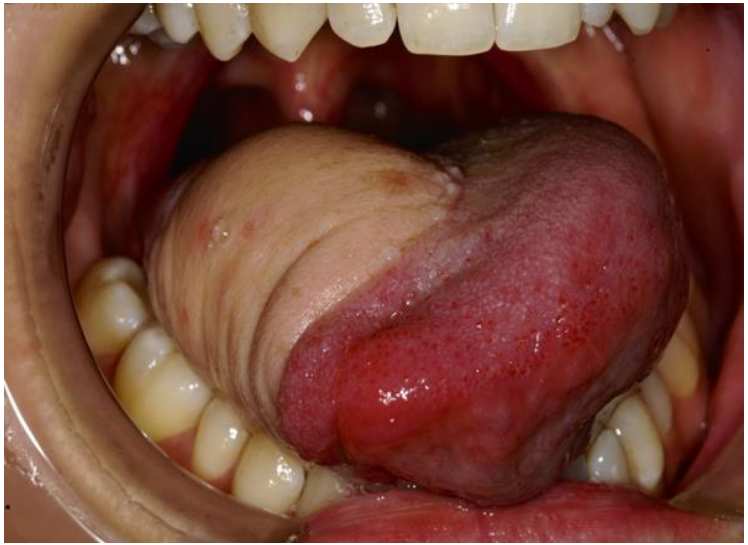
Surgery for oral cancer

Partial resection of tongue and neck dissection



Reconstruction with free tissue transfer



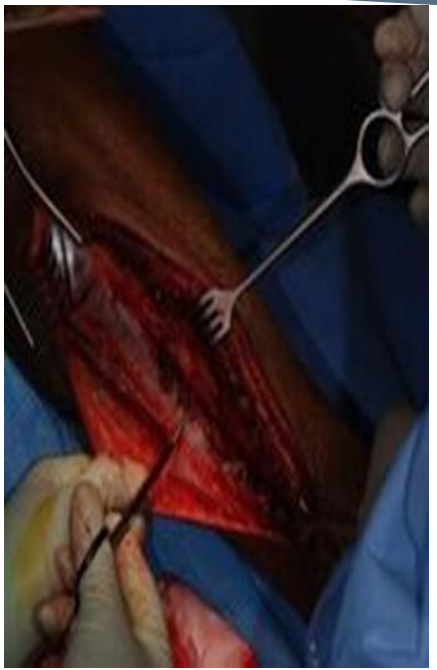


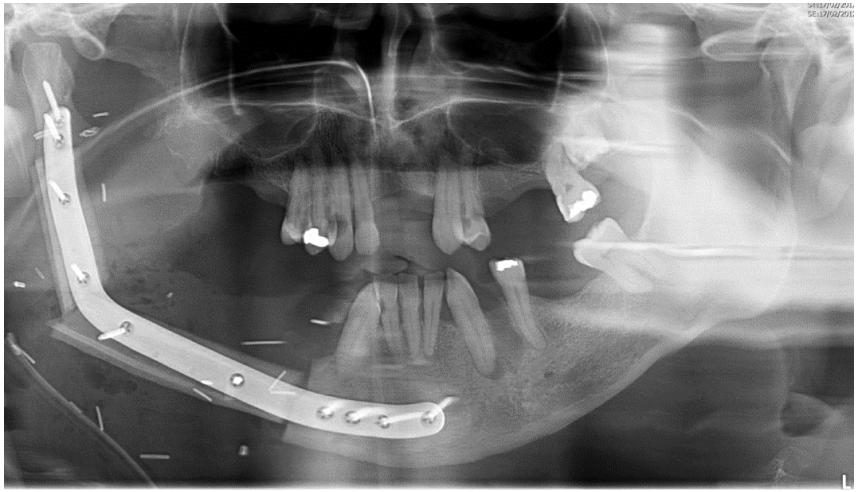
SCC right mandible





Resection and reconstruction with free tissue transfer





Oral cancer

- There is currently no national screening program for mouth cancer available in Australia
- Dentists routinely use visual examination to check for signs for mouth cancer and early detection
- Dentists play a role in prevention and counselling patients

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“Early identification of oral cancers leads to improved treatment options for patients”

SYMPTOMS OF ORAL CANCER

- White or red or speckled lesions
- Lesions or ulcers on the gingiva, palate, tongue, oral mucosa or lip that do not heal in 14 days
- Cervical lymphadenopathy
- Difficulty swallowing
- Unusual bleeding or pain or numbness in the mouth
- Mobile teeth or swelling of the jaw
- Changes in speech
- Unexplained weight loss

Visual examination

- **Lips**
- **Anterior 2/3 of the tongue**
- **Gingiva**
- **Buccal mucosa**
- **Floor of the mouth and ventral tongue**
- **Hard palate and soft palate**



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Prevention

- Around 2/3 of mouth cancers in Australia are caused by smoking
- Around 1/3 are caused by excess alcohol consumption
- Synergistic effect of smoking and alcohol consumption
- Quitting smoking and moderating alcohol consumption will significantly reduce risk of developing mouth cancer
- Cancers of the lip are commonly associated with UV exposure, so sun protection is important





