Oral and Oropharyngeal Cancer

GDC Recommended Subject

**Aims:** To give an overview of mouth cancer and thyroid gland, oesophageal, laryngeal and nasopharyngeal cancers

**Objectives:** On completion of this verifiable CPD article the participant will be able to demonstrate, through completion of a questionnaire, the ability to:

- Recognise the role of the dental team in detecting the early signs of cancer or pre-cancer.
- Identify some of the statistics relating to oral cancer.
- Identify patients that may be considered to be at an increased risk of oral cancer.
- Identify the potential signs and symptoms of oral cancer and thyroid gland, oesophageal, laryngeal and nasopharyngeal cancers.
- Know the criteria for referral following the new (2015) National Institute of Clinical Excellence (NICE) guidelines.

**Introduction**

Over 6000 people are diagnosed with oral cancer each year which accounts for over 2% of new cases of cancer in males and for over 1% of all new cancers in women.\(^1\) By 2030 it is predicted there will be 9,200 cases of oral cancer in the UK every year compared to 6,240 in 2009 and 3,030 in 1984.\(^2\)

Rising rates of mouth cancer mean that it is more important than ever that members of the dental team can promote prevention, detect warning signs and refer patients appropriately.\(^2\) Early detection and treatment can improve survival rates.\(^3\) It has been reported that 82% of patients with oral cancer may reach the five year survival rate if their oral cancer is detected early, compared with only 27% for those whose cancer has spread to the rest of the body.\(^4\) However, although there has been some improvement in the five year survival rates for oral cancer, research shows that the improvement is not significant amongst the most deprived patients.\(^5\)

This article will discuss the risk factors associated with oral cancer, the importance of checking the oral cavity for potential malignancies, and when to refer a patient for further investigation following the NICE guidelines and recommendations from Cancer Research UK.
Signs and Symptoms of Mouth Cancer

A common sign of a potential malignancy that a patient may report is an ulcer that is not healing. The most common sites for oral cancer are the tongue, lip and floor of the mouth. Early oral cancers most typically present as a white patches (leukoplakia), red patches (erythroplakia) and/or ulcerated areas in the mouth. However, it is also important to realise that there are many other non-cancerous conditions that can also cause these changes.

Carcinomas account for about 96% of oral cancers. The most common type of oral malignancy, which accounts for approximately 9 out of 10 oral cancers, is the squamous cell carcinoma. The squamous cell carcinoma develops from the stratified squamous epithelium which lines the mouth (figure 1). Less common types of mouth cancer include:

• oral malignant melanoma – where the cancer starts in cells called melanocytes, which help give skin its colour
• adenocarcinomas – cancers that develop inside the salivary glands. (Adenomatous cells are gland cells that produce mucus)

**Leukoplakia**

Leukoplakia was first defined by the World Health Organisation as “a white patch or plaque that cannot be characterised clinically or pathologically as any other disease.” During an examination, a lesion may be considered to be leukoplakia (Figure 1) if it cannot be attributed to another condition such as lichen planus (Figure 3), candidiasis (Figure 4) or lichenoid reactions.

Figure 1. “When the leukoplakia is in response to constant exposure to noxious stimuli such as tobacco smoke, the presence of patches like the one above is considered pre-cancerous since squamous cell carcinoma often arises within them.”
Leukoplakia reflects a build up of excess epithelial keratin (proteins). Hyperkeratosis of the oral mucosa may occur due to friction such as may be seen on endentulous ridges when the ridge is being directly chewed on. These areas may be called frictional keratosis rather than leukoplakia. Changes in the oral mucosa may also occur as a response to cheek or tongue biting and these changes are not pre-malignant and are reversed if the irritation is stopped.10

Leukoplakia is also produced in response to noxious stimuli such as constant exposure to irritating chemicals and tobacco smoke (figure 1). When the leukoplakia is in response to constant exposure to noxious stimuli such as tobacco smoke, the presence of patches like the one above is considered pre-cancerous since squamous cell carcinoma often arises within them.9 Two such tobacco related lesions are nicotine stomatitis and tobacco pouch keratosis.

Initially, leukoplakia appears as an elevated grey/white plaque, but if it progresses it becomes thicker, fissured and has a leathery appearance. Some leukoplakias may become nodular or develop a papillary surface and are known as verrucous leukoplakia (figure 2). It has been reported that the frequency of dysplastic (alteration in cells) or malignant alterations in oral leukoplakia has ranged from 15.6-39.2%. It is also reported that thicker or verrucous leukoplakia are more likely to show dysplasia or malignancy than thin leukoplakia (figure 2).10

![Figure 2. Verrucous leukoplakia.](image)

**Lichen Planus**

Lichen Planus is “a relatively common, chronic dermatologic disease that often affects the oral mucosa.” A variety of medicines may cause lichenoid lesions which are almost identical in appearance to Lichen Planus. Lichen planus may be reticular, where the lines lesions present as white, interlacing lines. Erosive lichen planus still has the white, interlacing lines, but with erythematous areas and central ulceration and is usually symptomatic.12 There has been a lot of debate as to the possible malignant potential of oral lichen planus.13 However, it has been reported to fulfil the WHO criterion of a premalignant condition.14,15
Candida is a fungus found in normal oral flora; however, “it can proliferate in immunocompromised, malnourished, or debilitated persons.” Pseudomembranous candidiasis (thrush) presents as white plaques but these can be wiped away to leave red patches on the mucosa so in this way it can be distinguished from leukoplakia.12

Erythroplakia

Erythroplakia (figure 5) is defined by the World Health Organisation as “A red patch that cannot be defined clinically or pathologically as any other condition.”8
Erythroplakia may also have white areas within it (erythroleukoplakia). Although it is not as common and leukoplakia, erythroplakia is much more likely to show dysplastic changes or malignancy.

**Examining the Patient**

The British Dental Association State that “Early detection of oral cancer needs more than just understanding of the signs and symptoms of disease. The process must be managed effectively and handled sensitively. Every member of the dental team has a part to play and protocols should be developed for effective delivery of:

1. Regular examination of the oral cavity of patients attending the practice
2. Management of patients with lifestyles that contribute to an increased risk of oral cancer.
3. Management of detected mucosal lesions with appropriate referral”

At every examination the patient should be thoroughly examined for potential malignancy.

The following table briefly shows the components of an oral cancer examination:

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<thead>
<tr>
<th>1. Extra oral examination: Examine the head and neck and palpate the lymph nodes.</th>
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<tr>
<td>2. Examine the lips: Note colour, texture and any surface abnormalities.</td>
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<tr>
<td>3. Labial and Buccal Mucosa: Note colour, texture, swellings or other abnormalities.</td>
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<td>4. Alveolar ridge and gingiva.</td>
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<td>5. Tongue: Inspect the ventral and dorsal surfaces of the tongue and the lateral borders. Palpate the tongue.</td>
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<td>6. Floor of the mouth: With the tongue elevated, examine the floor of the mouth for changes in texture, swelling, colour or other abnormalities.</td>
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<td>8. Soft palate and oropharynx.</td>
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<td>9. Salivary glands- parotid/sublingual/submandibular</td>
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The examination appointment also gives the dental team the opportunity to question the patient about their lifestyle to ascertain whether they are at a higher risk of developing oral cancer and to give advice accordingly. Details of the examination, lifestyle and advice should be recorded clearly in the dental records.
Cancer Research UK advise that a high level of suspicion is required when assessing patients for oral cancer, but that many other conditions may present with similar changes. Early oral cancers and precancerous lesions are often subtle and asymptomatic. The level of suspicion of should be higher if a patient has been identified as being at higher risk. The following are considered to be risk factors:

- **Age**- The incidence of oral cancer is strongly correlated to age. Oral cancer in men increases sharply at aged 45 and peaks around ages 60-69 before falling in the over 70's. Women experience a more gradual increase from age 45 before peaking in the over 80's. The cancer research UK statistics demonstrated that, between 2007 and 2009, 44% of oral cancer cases diagnosed were in individuals aged 65 and over. However, there is evidence emerging that oral cancers are occurring more frequently in the younger age group (under 40).

- **Gender and Ethnicity**- The incidence of oral cancer is highest in men. In the 55-59 year age group, oral cancer incidence rates are almost three times higher in men than women. Ethnic background is also known to influence many types of cancer.

- **Tobacco/Alcohol use**- The use alcohol and tobacco (including smoking, snuff and chewing tobacco) are regarded as major risk factors for oral cancer. The World Health Organisation state that "the population attributable risks of smoking and alcohol consumption have been estimated at 80% for males, 61% for females, and 74% overall."

- **Human Papillomavirus (HPV)**- Evidence suggests that infection with high-risk HPV increases the risk of oral cancer. HPV is the leading cause of oropharyngeal cancers and a very small number of front of the mouth, oral cavity cancers. The overwhelming majority of HPV-associated head and neck cancers arise in the oropharynx, most commonly from the tonsils and base of the tongue. HPV16 is the version most responsible, and affects both males and females. It has been reported, that of an estimated 85,000 cases of Oropharyngeal cancer that occurred worldwide in 2008, around 22,000 were likely to be attributed to HPV infection.

- **Weakened Immune System** Oral cancer has been shown to increase in individuals who have undergone organ transplants. In addition, HIV/AIDS related cancers such as Kaposi Sarcoma and Lymphoma may indicate an association between immune suppression and oral cancer.

- **Past history of cancer**- Individuals with previous oral and pharyngeal cancer have a much greater risk of a second diagnosis and this risk remains high several years after the first diagnosis.

- **Sun or UV light exposure (lip cancer)**- It has been reported that there is limited evidence available for the association between sun or UV light exposure and the incidence of lip cancer. The association may be indicated
due to the higher incidence of external lip cancer on the lower lip, rather than the inner lip (which may be tobacco related).  

- **Poor diet** - It has been reported that a diet low in fruit and vegetables may play a role in oral cancer development.

**Mouth cancer** is a type of cancer that comes under the umbrella term 'cancers of the head and neck'. Some other types of head and neck cancers include:

- cancer of the oesophagus (gullet)
- cancer of the larynx (voice box)
- cancer of the nasopharynx (the area where the nose and throat connect)
- cancer of the thyroid gland (a gland located on either side of the windpipe)

Further information on each of the cancers outlined below and the additional risk factors for them can be found in the non verifiable CPD section of the website

**Oesophageal Cancer**

Cancer of the oesophagus, also known as oesophageal cancer, is an uncommon but serious type of cancer that affects the oesophagus.

The oesophagus is the part of the digestive system that carries food from the throat to the stomach and is about 26cm (10.5 inches) long in adults. The top part of the oesophagus lies behind the windpipe (trachea). The bottom part runs down through
the chest between the spine and the heart. The oesophagus has 3 main sections - the upper, middle and lower. Cancer can develop anywhere along the length of the oesophagus. Squamous cell cancers occur more commonly in the upper and middle regions. Adenocarcinomas tend to be more common at the lower end, including the junction where the oesophagus joins the stomach. Over 95% of oesophageal cancers are squamous cell carcinomas or adenocarcinomas. There are other rarer types of cancer of the oesophagus. These include soft tissue sarcomas such as gastrointestinal stromal tumours.

Oesophageal cancer does not usually cause any symptoms in the early stages when the tumour is small. It is only when the tumour gets bigger that symptoms tend to develop.

Symptoms include:

- Difficulty swallowing
- Weight loss
- Pain or discomfort in the throat or behind the breastbone
- Acid indigestion
- A hoarse voice
- A persistent cough
- Vomiting
- Coughing up blood
- Darker stools

**Laryngeal cancer**

The larynx is part of the throat found at the entrance of the. It is a tube about 2 inches (5cm) long in adults.
The larynx:

- Protects your windpipe during swallowing
- Allows the air you breathe in to reach the lungs
- Produces sound for speaking

The larynx is made of several pieces of a smooth, shiny tissue called cartilage. The cartilage is surrounded by fibrous tissue. The largest cartilage of the larynx is the Adam’s apple (thyroid cartilage).

There are 3 main parts to the larynx. These parts are:

- The supraglottis - the area above the vocal cords that contains the epiglottis cartilage
- The glottis - the area of the vocal cords
- The subglottis - the part below the vocal cords, containing the cricoid cartilage that continues down into the windpipe.\(^{27,28}\)

In the UK, there are about 2,400 new cases of laryngeal cancer each year. More than 90% of laryngeal cancer are squamous cell carcinomas. The cancer develops in the flat, skin like, squamous cells that cover the surface of the epiglottis, vocal cords and other parts of the larynx. Adenocarcinoma is uncommon compared to squamous cell laryngeal cancer. Sarcomas of the larynx and lymphoma or plasmacytoma of the larynx are extremely rare.

The main symptoms of laryngeal cancer include:

- a change in the voice, such as sounding hoarse
- pain when swallowing or difficulty swallowing
- a lump or swelling in the neck
- a persistent cough
- a persistent sore throat or earache
- in severe cases, difficulty breathing

There are also several types of rare benign tumours of the larynx that can cause similar symptoms to laryngeal cancer, including

- Giant cell tumours
- Granular cell tumours
- Benign tumours of muscle (rhabdomyomas and leiomyomas)
- Benign tumours of nerves (schwannomas)\(^{27}\)
Nasopharyngeal cancer is a rare type of cancer that affects the part of the throat connecting the back of the nose to the back of the mouth (the pharynx). In the UK, only about 240 people are diagnosed with nasopharyngeal cancer each year.

It is often difficult to recognise nasopharyngeal cancer because the symptoms are similar to other, less serious conditions. Also, many people with nasopharyngeal cancer don't have any symptoms until the cancer reaches an advanced stage. Symptoms of nasopharyngeal cancer can include:

- a lump in the neck
- hearing loss – usually only in one ear
- tinnitus a blocked or stuffy nose
- nosebleeds

Thyroid cancer
The thyroid is a gland that makes and releases hormones. It is found at the base of the neck, at the front, just behind the small hollow where the collar bones meet. The thyroid gland is in 2 halves, connected by a thinner bridge of thyroid tissue. Thyroid cancer is quite a rare cancer. Around 2,700 people are diagnosed in the UK each year. It is 2 to 3 times more common in women than in men.27

There are four main types of thyroid cancer. They are:

- **papillary carcinoma** – this is the most common type, accounting for about 6 out of 10 (60%) cases; it usually affects people under the age of 40, particularly women

- **follicular carcinoma** – accounts for around 3 out of 20 (15%) cases of thyroid cancer and tends to affect older adults

- **medullary thyroid carcinoma** – accounts for between 5 and 8 out of every 100 diagnosed cases (5-8%); unlike the other types of thyroid cancer, medullary thyroid carcinoma can run in families

- **anaplastic thyroid carcinoma** – this is the rarest and most aggressive type of thyroid cancer, accounting for less than 1 in 20 thyroid cancers; it usually affects older people over the age of 60

The symptoms of thyroid cancer can include

- A lump at the base of the neck
- A hoarse voice that lasts for more than a few weeks
- A persistent sore throat or difficulty swallowing
- A lump elsewhere in your neck

Thyroid lumps are very common. It is not unusual for older people to have small lumps in their thyroid glands called nodules. As many as 9 out of 10 women over the age of 70 will have these. Only about 1 in 20 thyroid lumps are cancer. An enlarged thyroid gland that is not cancer is sometimes called a goitre.29

**Recommended Referral Pathway as Detailed in the NICE Guidelines and Cancer Research Referral Guidelines**

**Referral Details**

It is important that certain details are recorded on a patient referral so that a waiting list can be prioritised. The following details are direct recommendations from Cancer Research UK.30
- Patient’s details. This includes the patient’s name, address and telephone number.
- Medical history: Including doctor’s name and contact details.
- Relevant social history: Including smoking and drinking status.
- Detailed description of the lesion including duration, site, size, colour, texture and findings upon palpitation.
- Clinical diagnosis in order to categorise the urgency of the referral.

Urgency of Referral (England, Northern Ireland and Wales)

The NICE Guidelines for suspected cancer referrals were updated in June 2015 and the details below are taken directly from the new referral guidelines. The full guidelines and an abbreviated version can be downloaded from the non verifiable CPD section of the website.

1.8 Head and neck cancers

Laryngeal cancer

1.8.1 Consider a suspected cancer pathway referral (for an appointment within 2 weeks) for laryngeal cancer in people aged 45 and over with:

- persistent unexplained hoarseness or

- an unexplained lump in the neck (new 2015)

Oral cancer

1.8.2 Consider a suspected cancer pathway referral (for an appointment within 2 weeks) for oral cancer in people with either:

- unexplained ulceration in the oral cavity lasting for more than 3 weeks or

- a persistent and unexplained lump in the neck. (new 2015)

1.8.3 Consider an urgent referral (for an appointment within 2 weeks) for assessment for possible oral cancer by a dentist in people who have either:

- a lump on the lip or in the oral cavity or

- a red or red and white patch in the oral cavity consistent with erythroplakia or erythroleukoplakia. (new 2015)

1.8.4 Consider a suspected cancer pathway referral by the dentist (for an appointment within 2 weeks) for oral cancer in people when assessed by a dentist as having either:

- a lump on the lip or in the oral cavity consistent with oral cancer or
a red or red and white patch in the oral cavity consistent with erythroplakia or erythroleukoplakia. (new 2015)

Thyroid cancer

1.8.5 Consider a suspected cancer pathway referral (for an appointment within 2 weeks) for thyroid cancer in people with an unexplained thyroid lump. (new 2015)

The Scottish Referral Guidelines for Suspected Cancer recommend urgent referral for patients meeting the following criteria:

- Persistent unexplained head and neck lumps for >3 weeks.
- An ulceration or unexplained swelling of the oral mucosa persisting for >3 weeks.
- All red or mixed red and white patches of the oral mucosa persisting for >3 weeks.
- Unexplained tooth mobility not associated with periodontal disease.
- Persistent, particularly unilateral, discomfort in the throat for >4 weeks.
- Ear pain without evidence of local ear abnormalities.32

Conclusion

Research suggests that early detection of oral cancer can increase survival rates. The dental team are in a position whereby they can identify potential risk factors and discuss these with patients during the course of preventative care. Each patient should be examined for oral cancer at each dental examination and a high level of suspicion used to identify early signs of oral cancer. NICE guidelines should be followed when referring patients for further investigation.

Portfolio Tip

The following documents can be accessed for non verifiable CPD

- A lesion recognition resource containing images of oral cancer to aid the clinician in early detection or oral cancer
- The full NICE 2015 referral guidelines for suspected oral cancer
- The abbreviated NICE 2015 referral guidelines for suspected oral cancer
- The Scottish referral guidelines for suspected cancer
- Cancer Research UK
- Further reading on Oesophageal, laryngeal, nasopharyngeal and thyroid cancers

Don't forget to log the hours you spend reading as non-verifiable CPD.
References


19. BDA


27. Cancer research UK (2016) Available at: www.cancerresearchuk.co.uk (accessed 12/01/2016)