HPV & Oropharyngeal cancer

Know the risks, spot the signs
Aims

• To understand the basic pathology and demographics of HPV infection and oropharyngeal cancer

• To be aware of the risk factors for each and to understand the relationship between HPV and oropharyngeal cancer

• To be able to recognise signs of HPV infection and warning signs of oropharyngeal cancer
What is HPV?

- Human papilloma virus (HPV) is a group of viruses that live and multiply in human skin and mucosal cells.
- HPV is transmitted during skin-to-skin or sexual contact - particularly oral, anal and vaginal sex.
- There are many subtypes, causing: skin warts, verrucas, genital warts and laryngeal papillomas (warts in voice box).
- Some HPV types (particularly HPV-16 and HPV-18) are associated with cervical, anal, genital and oropharyngeal cancers.
- A vaccine is offered to schoolgirls aged 12-13 – no vaccine is currently available for boys (this arrangement is under review by the Joint Committee on Vaccination and Immunisation).
Risk Factors for HPV-associated oropharyngeal cancer

Demographic:
• Male
• Caucasian
• Higher socioeconomic class

Behavioural:
• Many sex and oral sex partners
• History of sex without barrier protection
• Early age first intercourse

Perhaps the most famous case of HPV-associated oropharyngeal cancer is Michael Douglas, who has spoken publically about his diagnosis and treatment many times – although the actor matches the archetypal patient profile and had fairly typical complaint, he stated in an address to the American Head and Neck Society that he was misdiagnosed three times.
Healthy person

Sexual contact

HPV acquisition (may experience early lesions depending on subtype, or no symptoms at all)

Many years...

May develop oropharyngeal cancer
What is oropharyngeal cancer?

• The oropharynx is the space posterior to the oral cavity, including the tonsils and base of the tongue – food passes through the oropharynx when moving from the mouth the food pipe during swallowing

• Oropharyngeal cancer arises from the mucosal surface of this space

• Oropharyngeal cancers are caused by smoking and drinking or by HPV and, hence, can be divided into HPV-positive and HPV-negative cancers. These carry different prognoses.
Risk factors for oropharyngeal cancers

Reversible risk factors:

- HPV exposure
- Heavy alcohol consumption
- **Smoking** (20-a-day for more than 10 years or equivalent amount)
- Some chewing plants and drinks specific to certain countries and cultures
  - betel leaf (a chewing tobacco used in Asia)
  - maté (a stimulant drink from South America)

**Unconfirmed:** reversible risk factors include: diet, immunosuppression, poor oral hygiene, mouthwash, tooth whiteners, high body weight
Risk factors for oropharyngeal cancers

Non-reversible risk factors:

• Previous cancer:
  - oropharyngeal, oesophageal
  - anal, genital, cervical cancer
  - family history of oropharyngeal cancer

• Genetic conditions
  - *Fanconi anaemia* – patients with short stature with bone changes
  - *Dyskeratosis congentina* - anaemia, skin rashes, and abnormally shaped fingernails and toenails (particularly elevated risk when young)
Warning signs of oropharyngeal cancer

• Primary swellings and masses in the tongue, tonsils, soft palate, including symptoms like:
  - Ulcerated tonsils that don’t heal
  - White or red patches in the throat
  - Pain or difficulty swallowing and moving the jaw
  - Numbness, pain or discomfort in the throat or tongue
  - Bad breath
  - Earache (especially unilateral)
  - Can be asymptomatic

• (Multiple) secondary swellings or masses in neck which are painless, firm and mobile (neck metastases)
• Unexplained weight loss
Important HPV facts

• HPV is the most common STI in the UK, affecting 75% of sexually active females, often silently

• HPV is also the only STI which affects more men than women

• The risk of many HPV-associated cancers is higher in men who have sex with men
  - 80% of anal cancers and 40% of penile cancers are HPV-associated
Important HPV facts

• In developed countries, rates of oropharyngeal cancers have risen sharply - in some countries, more than 90% of oropharyngeal cancers are HPV-positive amongst younger age groups
  - This is thought to be a result of changing sexual behaviours

• In comparison to patients with HPV-negative oropharyngeal cancer, patients with HPV-positive oropharyngeal cancers are more likely to be:
  - Younger
  - Male

• There are treatment strategies available for HPV-positive oropharyngeal cancer that are not used in HPV-negative oropharyngeal cancer
References

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4. Gillison, “Human papillomavirus-associated head and neck cancer is a distinct epidemiologic, clinical, and molecular entity.”
8. Weaver, “Epidemiology and natural history of genital human papillomavirus infection.”
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