HUMAN PAPILLOMA VIRUS (HPV)
RELATED THROAT CANCER

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Epidemiology

Over the past 10 years it has become evident that there are two distinctly different types of Squamous Cell Carcinoma (SCC) of the Oropharynx (throat). The first is the traditional type induced by chemical carcinogens such as tobacco smoke and alcohol. Fortunately this type of Oropharyngeal cancer is becoming much less common as a direct result of education and public policy by reducing particularly tobacco consumption. Far more common and now making up approximately 80% of the oropharyngeal cancer seen in Auckland is HPV-related oropharyngeal SCC.

A recent study in the USA showed that over the past 20 years, the rate of HPV detection in oropharyngeal tumour specimens increased from 16% to 70%,(1) and this trend is seen worldwide. The most affected population are Caucasian males aged 40–50 with men four times more likely to get this disease than women. The responsible virus is HPV type 16, one of the human papilloma viruses best known for causing uterine cervical cancer. The increasing association of the same virus with throat cancer is thought to be due to an increase in oral sexual practices.(1)

Exposure to the virus occurs in late teenage years or early 20's and in a small percentage the virus can persist for an extended period as demonstrated by salivary analysis. Such people have around a 25% risk of developing HPV related oropharyngeal cancer.(2)

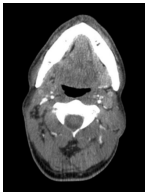
Presentation

Afflicted individuals are generally younger, educated and non-smokers. Half of the patients present with pharyngeal symptoms such as a persistent sore throat often with pain radiating to the ipsilateral ear or with expectoration of blood. The remaining 50% present with one or more lumps laterally in the neck, usually in level 2 in the region of the jugulodigastric node but also in mid-neck (see diagram 1). The lumps represent metastatic involvement of lymph nodes and can be bilateral. Such patients frequently present without pharyngeal symptoms and often have very small primary lesions that are seen only after careful evaluation of the oropharynx or after histological examination of a biopsy specimen. Some have no identifiable primary lesion and are classified as "unknown primary."

Diag 1. Patient with right level 2 neck mass

Investigations

Fine needle aspiration biopsy (FNA) of an abnormal node will frequently demonstrate malignant cells but, as many of these nodes can be cystic and therefore not yield viable cells, a non-diagnostic aspirate should be viewed suspiciously. Biospies should also be taken from an identified primary or from the tongue base and tonsil in a patient who presents with nodes and no obvious primary. The tissue is stained for a immunohistochemical marker called P16 which is a surrogate marker for HPV. CT Scans are then performed of the primary site, neck and chest to give information about the volume of the primary, extent of the nodes and any evidence of distant metastases. (see diagram 2)



Diag 2

Treatment

Most patients with oropharyngeal SCC are treated with combined therapy – either chemoradiation or a combination of surgery and radiation. The decision of treatment modality is made at a multidisciplinary clinic. The different treatments seem to have similar outcomes with respect to disease control and the decision often rests on treatment morbidity for any particular patent.

Prognosis

There is conclusive evidence that patients with HPV-related oropharyngeal SCC have a much better prognosis than those with chemical carcinogen induced HPV. The respective 2 yr disease free progression survival rates are 95% vs 65% for HPV vs non-HPV SCC oropharynx.(3) This also has an impact on the treatment chosen as long term side effects need to be carefully considered.

Prevention

There is now evidence that the bivalent vaccines prescribed for prevention of cervical HPV induced cancer are approximately 95% effective at reducing oral/oropharyngeal infection with the HPV type 16 virus. Therefore they will be effective in reducing HPV-related Oropharyngeal SCC and should be prescribed not only for girls and young women but also for boys and young men as recommended in Australia, Canada, and the USA.

1. J Clin Oncol. 2011 Nov 10;29(32):4294-301. doi: 10.1200/JCO.2011.36.4596.
2. J Clin Oncol. 2013 June 17.doi: JCO.2012.47.2738.
3. *Radiation Oncology 2013*, 8:174 doi:10.1186/1748-717X-8-174
4. Reduced Prevalence of Oral Human Papillomavirus (HPV) 4 Years after Bivalent HPV Vaccination in a Randomized Clinical Trial in Costa Rica info:doi/10.1371/journal.pone.0068329