

60 seconds to save a life?

CPD:
ONE HOUR



Nichola Tong on the role of auto fluorescence in mouth cancer screening.

Have you ever diagnosed a mouth, head or neck cancer? Any one of us could be responsible for identifying a head or neck cancer and play a role in getting early treatment for a patient and even helping to save a life.

Statistics from Cancer Research UK¹ show that there are around 11,700 new head and neck cancer cases in the UK every year, that's 32 every day, and head and neck cancer is the 8th most common cancer in the UK, accounting for 3% of all new cancer cases.

We know that early detection of head and neck cancer can significantly increase the survival rate of over three years. As with any serious diagnosis, living with the after effects of head and neck cancer therapy is traumatic and life changing. This is for the 'lucky' ones who survive beyond one year, but life for them will never be the same. Many

of the things we take for granted like speech, enjoying a nice meal, or a lovely glass of wine are forever denied to some of the people who do survive. Not to mention issues with depression, anxiety, and self-esteem.

In recent years the GDC has added early detection mouth cancer as a recommended CPD subject area.

Head and neck cancers fall in to several categories:

- Laryngeal and hypopharyngeal (most common type)
- Nasal cavity and paranasal sinus
- Nasopharyngeal
- Oral and oropharyngeal
- Salivary gland.

Most head and neck cancers are squamous cell carcinomas. If a cancer is only found in the squamous layer of cells, it is called carcinoma in situ but if it has spread beyond this cell layer and moved into the deeper

tissue, it is called invasive squamous cell carcinoma.

We know that early detection is difficult for various reasons and because these cancers can spread quickly, only 29% are diagnosed early. Therefore, most are not being diagnosed until stage iii (tumour is <3cm and present in one node/ or >4cm but has not metastasised) or stage iv (determined by tumour size in cm and pattern of invasion into surrounding nodes and tissues). According to Cancer Research UK the >3 year survival rate for stage i/ii tumours is around 80%, and almost 50% > 3 years survival rate at stage iii/iv for both men and women. The first signs that we as dental professionals might notice are red/ white patches, or metastatic lymph node involvement which fall into the stage iii/ iv categories. Gerstner² (2008) says that for optimal outcomes a tumour must be found at an early stage and be small in size, so

what if we could help with that? What if we could increase our early detection rates at the premalignant stage thereby saving lives and sparing many the difficulties of adjusting to life after cancer therapy? Some basic knowledge, simple equipment (part of which is present in nearly every dental surgery) and 60 seconds is all it takes.

A best practice 3 step approach could be:

1. Extra oral examination including sub mandibular and submental lymph nodes, the cervical chain and thyroid area
2. Intra oral examination
3. Auto fluorescence adjunctive screening technology.

There are over 30 different areas of the head and neck where cancer can develop so signs and symptoms vary. Some of the most common include:

- Hoarseness persisting for more than six weeks
- Ulceration of the mouth persisting for more than three weeks
- Oral swellings.

Early detection technology

Tissue auto fluorescence can help us to spot potentially pathologically altered tissues and is another weapon in our armoury to fight against mouth cancer. It's an adjunctive tool specifically for the purpose of early detection used alongside the traditional intra oral and extra oral examinations.

Author information

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Nichola qualified as a dental hygienist in 1991 whilst serving with the Royal Navy. Since then she has worked in multiple settings, both NHS and private, for periodontists and in specialist implant and cosmetic referral practices.

She presents to dentists and hygienist/therapists on topics such as the evidence which informs bisphosphonate therapy and dental implants and collaborative practice for dentists and hygienist/therapists.

Nichola is a clinical consultant with Dental Sky for GOCCLLES, the autofluorescence screening device.

Auto fluorescence first came into medicine in the 1920s for cervical cancer screening. The concept has good research to show that it can detect early, moderate and advanced dysplastic cells, carcinoma in situ & squamous cell carcinomas.^{3,4,5} It works on the principles of tissue fluorescence whereby healthy tissues when viewed through a narrowband green filter under blue light (dental curing light) will emit a green glow. The healthy cells literally do glow an apple green. Potentially

pre-malignant or malignant cells will absorb the blue light and will not glow, but appear as dark spots or patches. So looking at the tissues under an alternative light source gives us a different set of information about what's going on beyond what we can see with the naked eye alone.

A basic knowledge of oral anatomy and oral medicine is needed to differentiate dark spots from benign inflammatory conditions. If a malignancy is clear to see, tissue auto fluorescence can show the exact borders for biopsy and excision procedures. Of course, this isn't a tool for diagnosis, the gold standard still remains a biopsy.

I've been using various forms of this technology for 4 years and the easiest most user friendly by far is GOCCLLES (Glasses for Oral Cancer Curing Light Exposed Screening). There are no dyes, no replaceable parts, or clunky noisy batteries. At the end of my session with the patient I just whip off my loupes, don my early detection glasses and take a further 60 seconds to add that double layer of screening. It's also a great conversational tool to discuss cancer risk factors with patients. None of my patients have ever declined a screening with auto fluorescence. I think they are impressed that their dental clinician is going that extra mile to look after their health.

References

1. Cancer Research. Head and neck cancer statistics. Available at <https://www.cancerresearchuk.org/health-professional/cancer-statistics/statistics-by-cancer-type/head-and-neck-cancers> (accessed April 2019).
2. Gerstner A. Early detection in head

and neck cancer – current state and future perspective. *GMS Curr Top Otorhinolaryngol Head Neck Surg* 2008; 7: Doc6.

3. Nagi R, Reddy-Kantharaj Y B, Rakesh N, Janardhan-Reddy S, Sahu S. Efficacy of light based systems for early detection of oral cancer and oral potentially malignant disorders: Systematic review. *Med Oral Patol Oral Cir Bucal* 2016; 21: 447-455.
4. Moro A, De Waure C, Di Nardo F *et*

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5. Huang T T, Huang J S, Wang Y Y *et al.* Novel quantitative analysis of autofluorescence images for oral cancer screening. *Oral Oncol* 2017; 68: 20-26.

Further information

www.mouthcancerfoundation.org

www.cancerresearchuk.org

www.doctors.net.uk/eclientopen/cruk/oral_cancer_toolkit_2015_open/

Screening with GOCCLLES can be seen in practice in this short video:

<https://www.youtube.com/watch?v=8VZkH7y-WfE>

GOCCLLES are available through Dental Sky www.dentalsky.com



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