Head & Neck Oncology

Oral presentation

Interrogation of skin pathology using elastic scattering spectroscopy

Yan Jiao[1], Tahwinder Upile[2], Waseem Jerjes[1,2], Hani Rhadi[2], Sandy Mosse[1], Stephen G Bown[1] and Colin Hopper*[1,2]

Address: [1]National Medical Laser Centre, London, UK and [2]UCLH Head and Neck Centre, London, UK

* Corresponding author

This abstract is available from: http://www.headandneckoncology.org/content/1/S1/O19

Introduction

Optical biopsies have been shown to be very effective in providing real time, in situ and non-invasive diagnosis of various tissue pathologies. In the head and neck various tissues have been interrogated using this modality including suspicious oral lesions, tumour resection margins and metastatic lymph nodes.

Elastic scattering spectroscopy (ESS) is one of the optical modalities used to identify inflammatory, ischaemic, premalignant and malignant malformation through changes on the cellular and subcellular level.

The aim of this study was to see if ESS could be used to identify benign and malignant skin lesions.

Materials and methods

Elastic scattering spectroscopy involves firing a xenon-arc lamp light into tissues using a fibre-optic probe. Light undergoes single or multiple scattering events and is then collected by the same probe. The resultant generated spectra are then compared to gold standard histopathology.

In this study, facial skin lesions acquired from 73 patients were subjected to in vivo elastic scattering spectroscopy. Lesions were then surgically resected. The majority of the lesions were classified into four categories: basal cell carcinoma, seborrhic keratosis, fibroepithelial polyp and intradermal nevi.

Results

Results showed that ESS can differentiate between normal and pathological skin conditions as well as benign and malignant skin conditions.

Conclusion

This technology holds great promise. A larger body of data is required to achieve higher sensitivity and specificity. Future data will be acquired from malignant melanoma lesions to enable comparison with benign pigmented skin conditions.