Head & Neck Oncology

ORAL PRESENTATION

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Assessment of suspicious oral lesions using optical coherence tomography

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Introduction/aims

Optical biopsy systems have been investigated for various clinical applications; however the main interest remains in the diagnosis and monitoring of premalignant and malignant conditions. In this study, we compared findings of optical coherence tomography (OCT) with histopathology results of suspicious oral lesions to assess the feasibility of OCT in identifying pathological tissue.

Material/methods

Suspicious oral lesions acquired from 120 patients were subjected to immediate ex-vivo Swept-Source Frequency-Domain OCT. Five OCT parameters were assessed (keratin, epithelial, sub-epithelial layers changes, basement membrane and microanatomical structures). Two clinicians and two pathologists, who were blind to clinical and histopathological diagnosis, examined the OCT images autonomously, provided deferential diagnosis, the most probable diagnosis and provided judgment on the need for surgical biopsy. Inter, Intra-observer differences, sensitivity and specificity was calculated.

Results/statistics

Basic microanatomical tissue structures were identified on the mainstream of the OCT images. Recognition of the basement membrane was achieved in the majority of the lesions. Identification of changes in the parameters ruled areas of architectural changes. There was a high inter and intra-observer agreement among the two clinicians and two pathologists, who recommended a surgical biopsy when examined all the histologically proven dysplasia and cancer OCT images. Sensitivity and specificity were calculated and proved to be encouraging.

Conclusions/clinical relevance

At this phase, OCT can definitely aide clinical examination and monitoring and can be invaluable tool for inexperienced clinicians.

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