Non-invasive diagnostic techniques in the diagnosis of squamous cell carcinoma.


ABSTRACT

Squamous cell carcinoma is the second most common cutaneous malignancy after basal cell carcinoma. Although the gold standard of diagnosis for squamous cell carcinoma is biopsy followed by histopathology evaluation, optical non-invasive diagnostic tools have obtained increased attention. Dermoscopy has become one of the basic diagnostic methods in clinical practice. The most common dermoscopic features of squamous cell carcinoma include clustered vascular pattern, glomerular vessels and hyperkeratosis. Under reflectance confocal microscopy, squamous cell carcinoma shows an atypical honeycomb or disarranged pattern of the spinous-granular layer of the epidermis, round nucleated bright cells in the epidermis and round vessels in the dermis. High frequency ultrasound and optical coherence tomography may be helpful in predominantly in pre-surgical evaluation of tumor size. Emerging non-invasive or minimal invasive techniques with possible application in the diagnosis of squamous cell carcinoma of the skin, lip, oral mucosa, vulva or other tissues include high-definition optical coherence tomography, in vivo multiphoton tomography, direct oral microscopy, electrical impedance spectroscopy, fluorescence spectroscopy, Raman spectroscopy, elastic scattering spectroscopy, differential path-length spectroscopy, nuclear magnetic resonance spectroscopy, and angle-resolved low coherence interferometry. KEYWORDS: RCM; actinic keratosis; dermoscopy; diagnosis; oral mucous membrane; skin cancer; spectroscopy; squamous cell carcinoma; ultrasonography; vulva PMID: 26848316 [PubMed] PMCID: PMC4733351 Free PMC Article