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Raman spectroscopy as a diagnostic tool to detect head and neck squamous cell carcinoma in archived tissues SUNEETHA DEVPURA, Wayne State University, SEEMA SETHI, Pathology, Karmanos Cancer Institute, JAGDISH S. THAKUR, Wayne State University, VAMAN M. NAIK, U of Michigan-Dearborn, RATNA NAIK, Wayne State University — Recently, many spectroscopic techniques are being tried for diagnostic applications. Among them Raman spectroscopy is one of the powerful non-invasive techniques which can differentiate between different biomolecular compositions of tissues on the basis of their vibrational spectra and hence can become an efficient diagnostic tool for detection of cancers. This technique has not yet been explored to study the head and neck squamous cell carcinoma (HNSCC) for archived tissues; here we report its results on HNSCC. Raman spectra were collected from three regions; normal, carcinoma in situ, and carcinoma. The Raman data was analyzed with chemometric methods of principal component analysis (PCA) and discriminant function analysis (DFA). Our preliminary results show that PCA and DFA analysis of Raman spectra can successfully distinguish the pathological states in archived HNSCC tissues. However, large Raman data set from many tissue sections is needed to validate these findings.

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