Review of Primary Role of Electron Microscopy in Diagnoses in Selected Disease Entities

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Abstract

Electron microscopy provides a primary role in diagnosis of a variety of diseases. This technic is often overlooked in surgical, autopsy and cytologic pathology. It is not unusual for the pathologist to engage excessive use of immunohistochemical techniques in an attempt to render a diagnosis. However, artifactual and aberrant immunostaining can lead to confusion in providing a definitive diagnosis. Also, this may result in misinterpretation of immunohistochemical findings, resulting in an incorrect diagnosis. Electron microscopic features may provide for a definitive diagnosis, with disease-defining ultrastructural features that allow for a definitive diagnosis. Also, the lack of disease-defining features at an ultrastructural level also is important in eliminating certain diseases from consideration. In the current practice of pathology, it is not unusual for the pathologist to enlist the use of molecular pathology to provide a definitive diagnosis in difficult to diagnosis cases. The turnaround time for molecular pathology is usually several weeks from ordering the panel to acquiring the results. Electron microscopy is a technique that can be performed in "real-time" with turnaround time from tissue submission to reporting of ultrastructural findings within 2 to 3 days.

This presentation will highlight the utilization of electron microscopy in providing definitive diagnosis in a wide range of disease entities and neoplasms.