Maximizing The Power of Cytology with Electron Microscopy

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Abstract

The use of EM enhances cytology making it a diagnostic technique comparable to surgical pathology.

Today other reported therapeutic techniques have emerged that make treatment of neoplasms viable, though non-traditional options, such as histotripsy as well as other noninvasive procedures to destroy tumors. There are other procedures such as embolization and even destruction of neoplasms by radiowaves.

Unfortunately, these tumors are being ablated in most cases without diagnostic verification. These tumors should be sampled with cytologic verification of the diagnosis, Cytology by FNA and using IHC and ultrastructure should be required. Unless the nature of the tumor is verified it would be impossible to know if it recurs or if it is a new neoplasm.

The cytologic and EM features of different neoplasms will be discussed as they may be used in successful rapid interpretation. Although many cytologic features are diagnostic, the problem lies in what I refer to as the “Look-Alikes”. These are neoplastic cells that cannot be separated on the basis of their cytologic (light microscopic) appearance alone. This is why ancillary techniques are imperative. EM being one of them and perhaps the most powerful.