Published in final edited form as:

Am J Surg Pathol. 2011 November ; 35(11): 1749–1750. doi:10.1097/PAS.0b013e31822bb546.

Paranuclear dot-like Immunostaining for CD99: Presence in colonic adenomas and adenocarcinomas

Rami Makhoul, MD, Arnold M Schwartz, M.D., Ph.D., Russell Williams, PhD, and Norman H Lee, PhD

Keywords

CD99; adenoma; adenocarcinoma

We read with great interest the article entitled, “Paranuclear dot-like immunostaining for CD99: A unique staining pattern for diagnosing solid-pseudopapillary neoplasm of the pancreas” authored by Dr. Xiao and colleagues. The authors describe a unique paranuclear dot-like immunoreactivity for CD99 in neoplastic epithelial cells of solid-pseudopapillary neoplasms of the pancreas, different from the expected cellular immuno-localization along the cell membrane, indicative of intercellular cohesive signaling. The authors utilize this unique immunostaining pattern to distinguish solid-pseudopapillary neoplasms from other pancreatic solid tumors.

The authors state that this staining pattern has not been recognized in other tumor types. We wish to report that, in a study of colon cancer carcinogenesis and progression, we have identified the identical dot-like intracellular paranuclear immunoreactivity in both colonic adenomas and their adjacent colonic adenocarcinomas in thirty cases of invasive adenocarcinomas assayed for CD99 (polyclonal, Abcam, ab27271) immunoreactivity. Similar to their findings, the granular dot-like immunoreactivity in our cases appears intracytoplasmic, adjacent to the nucleus, and supranuclear (between the nucleus and the apical membrane) cellular immuno-localization within columnar tumor cells. A minority of cases also demonstrated expected cytoplasmic membrane staining in addition to the dot-like paranuclear expression. We have not, as yet, assayed the cellular immunoreactive localization of CD99 in other adenocarcinomas.

The granular pattern of immunoreactivity may represent localization to Golgi apparatus, rough endoplasmic reticulum, or amorphous intracellular deposition of CD99 immunoreactive peptide. Demonstrating CD99 dot-like immunoreactivity in adenomas and adenocarcinomas suggests that the anomalous immunocellular localization is an early event in colonic carcinogenesis. The molecular event of granular dot-like paranuclear immunoreactivity may indicate a defective CD99 protein incapable membrane localization, absent or abnormal signal polypeptide, or a unique protein with shared CD99 epitopes or antigenic sites.

We agree with Dr. Xiao and colleagues that intracellular paranuclear dot-like CD99 immunoreactivity may serve as an immunohistochemical feature in the differential diagnosis of pancreatic solid tumors, but, in addition, may provide insight into cellular mechanisms of tumor initiation and progression in colonic adenocarcinomas.

Acknowledgments

This research was supported in part by NCI grant R01CA120316 to NHL.

References

1. Guo Y, Yuan F, Deng H, et al. Paranuclear dot-like immunostaining for CD99: A unique staining pattern for diagnosing solid-papillary neoplasm of the pancreas. *Am J Surg Pathol*. 2011; 35:799–806. [PubMed: 21566515]

Figure 1.
CD99 immunohistochemical reactivity in paranuclear dot-like pattern within colonic adenoma. Note the membrane immunostaining with the normal adjacent colonic mucosa.

Figure 2.
CD99 immunohistochemical reactivity in paranuclear dot-like pattern within colonic adenocarcinoma.