Plasmacytoid urothelial carcinoma: Radiologic features with pathologic correlation

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Purpose:
The purpose of this study is to describe the radiologic manifestations of plasmacytoid urothelial carcinoma (PUC), a rare and aggressive genitourinary (GU) malignancy, with pathological correlation.

Methods:
22 patients with PUC were identified over a 7-year period, confirmed by two GU pathologists. GU radiologist reviewed pre- and post-operative imaging for 19/22 patients and a radiology resident retrieved clinical information from patient medical records.

Results:
21/22 patients underwent surgical therapy. Diagnosis of PUC was confirmed in all patients with typical discohesive, single cell growth pattern, with eccentrically located nuclei and abundant eosinophilic cytoplasm. Pre-operative CT/MR was performed in 19/22 and 5/22 patients respectively. The tumor was visible on 18/19 CT. Detrusor muscle invasion was detected in 4/5 patients at MR and there was no local invasion in any patient. Of patients who underwent surgery, 76% had residual disease or locally recurrent tumor and 8 patients developed metastatic disease to: peritoneum (5/8), liver (2/8), bone (1/8) and lymph nodes (1/8).

Conclusions:
No specific imaging findings were found to suggest the diagnosis of PUC prospectively. Peritoneal metastases were common, with sheet-like tumor spread along fascial planes, which may allow the suggestion of PUC on follow-up MRI if not reported on initial histopathology.