



DEPARTMENT OF PATHOLOGY

Case of the Week

Uropathology: Malakoplakia

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History

The patient is a 60-year-old female with end-stage kidney disease due to diabetes mellitus, status post renal transplant one year prior. She has been followed by urology since her transplant for recurrent *E. coli* UTI's. A CT scan for kidney stones performed 4 months prior noted a hyperdense 2.0 cm lesion in the upper pole of her left native kidney. An MRI demonstrated internal enhancement in the lesion, compatible with a neoplasm. A laparoscopic nephrectomy was performed. Gross examination revealed an atrophic kidney with three tan-yellow well circumscribed lesions in the renal medulla, measuring 1.2 cm, 0.6 cm, and 0.3 cm.

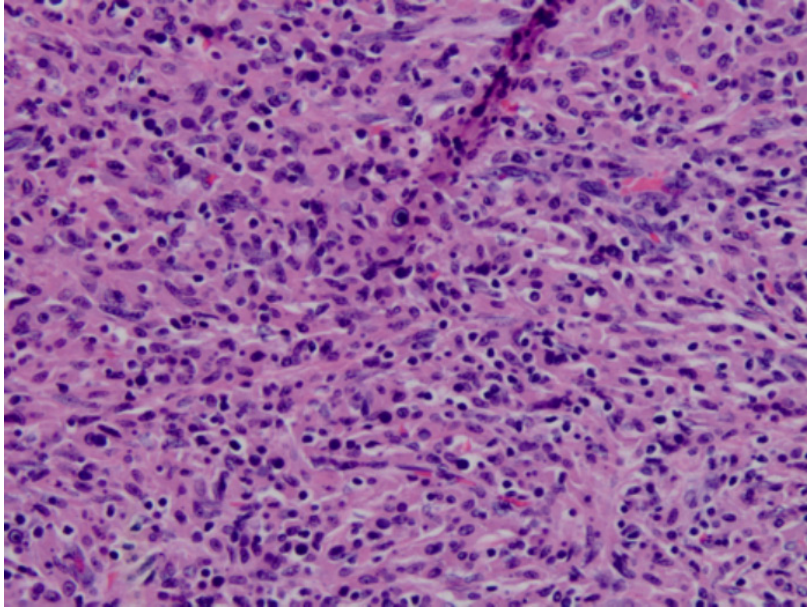


Figure 1: The renal parenchyma is replaced by an inflammatory reaction characterized by predominance of eosinophilic histiocytes (H&E, 200x)

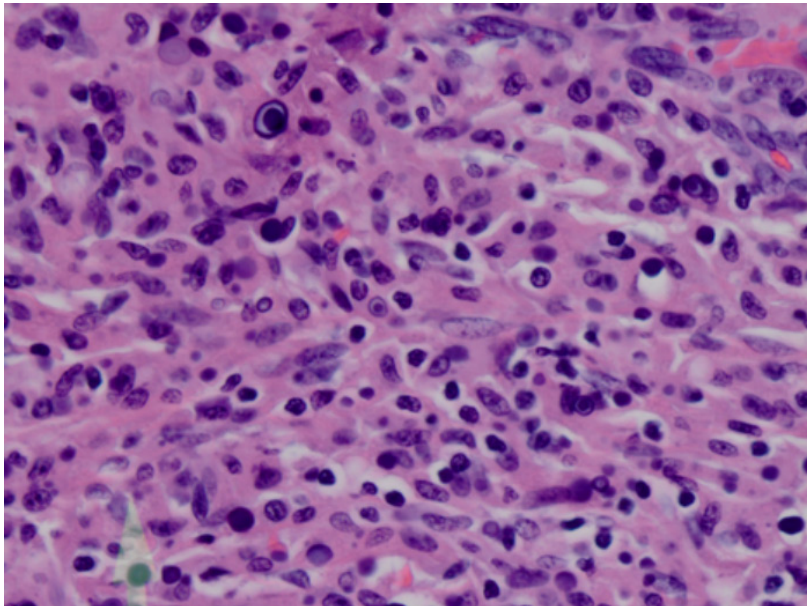


Figure 2: Histiocytes contain scattered basophilic, targetoid, cytoplasmic inclusions or bodies (H&E 400x)

Diagnosis

Malakoplakia

Discussion

Malakoplakia is an uncommon inflammatory disorder which occurs most commonly in the urinary tract, but has also been reported in the prostate, testis, vagina, GI tract, lung, bone, brain, and skin. It is more common in females (ratio 4:1) and is more frequently seen in immunocompromised patients. Renal involvement frequently simulates RCC clinically and radiologically.

Malakoplakia is associated with defective intracellular digestion of ingested microorganisms, typically Gram-negative bacteria, by macrophages. Pathognomonic targetoid intracellular inclusions known as Michaelis-Gutmann bodies form when calcium and iron are deposited on the accumulated bacterial glycolipids within phagolysosomes.

Grossly, the lesions can be diffuse, segmental, or focal, with irregular poorly-defined yellow masses centered within the renal medulla. Microscopically the renal parenchyma is replaced by an inflammatory infiltrate containing predominantly PAS+ histiocytes with eosinophilic cytoplasm (von Hansemann histiocytes). These contain scattered Michaelis-Gutmann bodies which can be visualized with PAS, calcium, and iron stains.

The differential diagnosis for malakoplakia includes xanthogranulomatous pyelonephritis, which is characterized by foamy histiocytes and the absence of Michaelis-Gutmann bodies.

References

1. Esparza, A. R., McKay, D. B., Cronan, J. J., & Chazan, J. A. (1989). Renal parenchymal malakoplakia: histologic spectrum and its relationship to megalocytic interstitial nephritis and xanthogranulomatous pyelonephritis. *The American journal of surgical pathology*, 13(3), 225-236.
2. McClure, J. (1983). Malakoplakia. *The Journal of pathology*, 140(4), 275-330.
3. Purnell, S. D. K., Davis, B., Burch-Smith, R., & Coleman, P. (2015). Renal malakoplakia mimicking a malignant renal carcinoma: a patient case with literature review. *BMJ case reports*, 2015, bcr2014208652.