Bladder Malacoplakia in a Patient on Chronic Hemodialysis Waiting for Kidney Transplantation

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Dear Sir,

There are some case reports of malacoplakia following renal transplantation [1-6] but none diagnosed before transplantation. We had the opportunity to see a case of malacoplakia of the bladder in a 27-year-old female on chronic hemodialysis due to end-stage renal disease. The patient started a work-up for kidney transplantation. A cystourethrogram showed vesicoureteral reflux, and during cystoscopy, some yellow patches which were biopsied were seen mostly in the trigone.

The biopsy specimen was processed for light and electron microscopy. For light microscopy, the tissue was placed in 10% buffered formalin and embedded in paraffin. Sections, 5-µm thick, were cut and stained with HE, periodic acid-Schiff (PAS), von Kossa’s and Perl’s stains. For electron microscopy, the tissue was fixed in Karnovsky and embedded in Araldite. Thick sections for survey were stained with toluidine blue, and thin sections were cut and placed on grids for electron-microscopic evaluation. The ultra-thin sections were examined in a Carl Zeiss EM-10 electron microscope.

On light microscopy, the surface epithelium was unremarkable. No ulcerations were seen. In the lamina propria of the mucosa, a dense and diffuse infiltrate of macrophages with rare scattered lymphocytes, plasmocytes and other inflammatory cells were seen. Large granules entirely filling the cytoplasm of the macrophages were strongly positive with the PAS reaction. Small spherules consistent with Michaelis-Gutmann bodies were frequently seen intra- and extracellularly. These bodies were positive for iron (Perl’s stain) and calcium (von Kossa’s stain).

Ultrastructural examination revealed macrophages containing numerous intracytoplasmic phagolysosomes generally circular.
phagolysosomes. In some of the larger structures with crystal deposition, there was central
cavitation constituting the typical Michaelis-Gutmann body which was seen intra-and
extracellularly (fig. 1). In the larger structures, a continuum of calcification could be
appreciated from scattered deposited crystals to the classical Michaelis-Gutmann body with
central cavitation. Bacteria or bacteria-like structures were not visualized.

The finding of malacoplakia surprised the nephrologists and urologists that were taking care
of the patient. Considering that the few case reports available of malacoplakia following renal
transplantation indicate that the disease may pursue a fatal course in 66% of afflicted
recipients [6], they decided to con-traindicate the transplant.
The pathogenesis of malacoplakia is unknown. It is hypothesized that it is an altered
immunological response to organisms like Escherichia coli. In our patient, urine cultures were
negative and no organisms were found on electron microscopy. Speculatively, we can
attribute the pathogenesis of the lesion in this case to the altered immunity that occurs in
chronic dialysis patients [7-10].

References
Sterling WA, Hathaway BM, Courington DP, Diethelm AG: Malacoplakia in a renal
MacMillan RD, Cardella CJ, Crawford LD, Biggar WD: Malacoplakia following renal
Shabtai M, Anaise D, Frei L, Waltzer WC, Fri-scher Z, Jao S, Miller F, Rapaport FT:
Malacoplakia in renal transplantation: An expression of altered tissue reactivity under

Kelleher JP, Doble A, Geraghty J, Carmichael D, Snell ME: Malacoplakia of the prostate
Newberry WM, Sanford JP: Defective cellular immunity in renal failure: Depression of
;50: 1262-1271.
Nakhla LS, Goggin MJ: Lymphocyte transformation in chronic renal failure. Immunology
1973;24:229-235.
Selroos O, Pasternack A, Virolainen M: Skin test sensitivity and antigen-induced lymphocyte
Lewis SL, Van Epps DE, Chenoweth DE: Alterations in chemotactic factor-induced
responses of neutrophils and monocytes from chronic dialysis patients. Clin Nephrol

Malacoplakia and Chronic Hemodialysis