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Unexpected Identification of "*Trophreyma whippelii*" in a Renal Biopsy Specimen

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A 68 year-old Caucasian male presented with weight loss, fatigue and weakness. Diagnostic studies including bone marrow and liver biopsies, cardiac catheterization, colonoscopy and pleural tap of chylothorax were reported with negative results. A remote history of colon cancer with radiation and chemotherapy was noted. Clinical concern over possible amyloidosis precipitated a renal biopsy.

Needle cores of renal cortex were received in 10% buffered Formalin, 3% buffered glutaraldehyde or Michel's buffer and processed using routine methodology for brightfield, electron and immunofluorescent microscopy, respectively. Formalin-fixed tissue was embedded in paraffin, sectioned 3-um in thickness and examined by brightfield microscopy after application of routine and special histological stains. Glomeruli were normocellular by H&E stain with no specific alterations in extracellular matrix using PAS and silver stains. PAS-positive, Gram-negative rods were seen coating podocytes in Bowman's space and along epithelial cells of tubules. Thioflavin-T stain was negative for amyloid under fluorescent light. Tissue cores submitted for direct immunofluorescence lacked glomeruli upon frozen sectioning; therefore, immunolabeling was not performed.

One-micron thick sections of glutaraldehyde-fixed kidney allowed for the selection of one glomerulus for examination by transmission electron microscopy. Ultrastructural examination showed numerous rod shaped or bacilliform structures in Bowman's space between and adjacent to visceral and parietal epithelial cells. Rods were seen within lumina of renal tubules. Organisms were identified within parietal and tubular epithelial cells and a few rods were found within podocytes. Isolated electron dense immune-type deposits were detected in mesangial matrix and along the subepithelial aspect of glomerular capillary loop basement membranes, the latter forming humps. Amyloid fibrils were not identified. T. *whippelii* was identified by PCR amplification using tissue retrieved from the paraffin block.

The identification of *T. whippelii* in human kidney is a rare event. A search of the medical literature did not identify any published reports from renal biopsy specimens. Our case was identified in a patient suspected of having amyloidosis. Clinical symptoms such as weight loss, weakness and fatigue are common to both Whipple's disease and amyloidosis. Nephrotic syndrome with renal amyloidosis has been a rarely reported finding in patients with Whipple's disease [1,2,3] but in those cases the identification of *T. whippelii* was made on the presence of PAS positive macrophages in the lamina propria of jejunal tissue. Appropriate antibiotic therapy is generally successful in treating this rare disease, but left untreated it can prove fatal.

References

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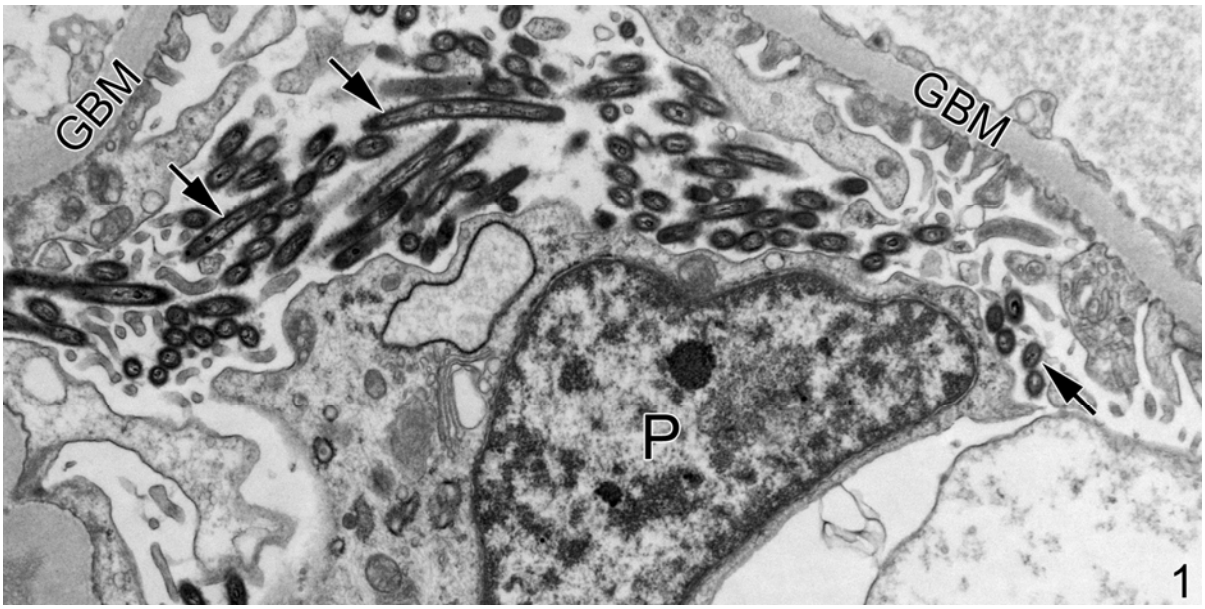

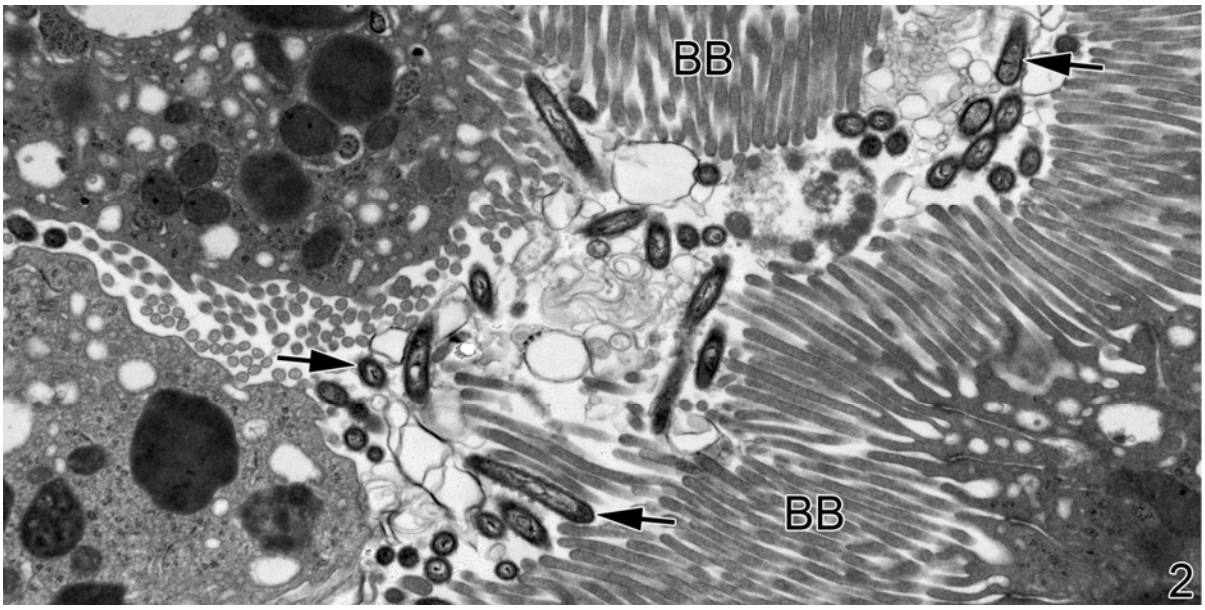

Fig 1, *T.whippelii* rods (arrows) are seen within the glomerular urinary space near podocytes (P) that are overlying glomerular basement membranes (GBM). Original magnification 15,500x

Fig 2. Organisms (arrows) are found in the lumen of this proximal tubule. BB, brush border microvilli,. 15,500x

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