Electron Microscopy of Tubular Casts: Correlation with Traditional Morphologic Findings

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Abstract

Renal tubular casts are cylindrical structures formed primarily in the distal convoluted tubule or collecting tubule. They are composed of materials filling the tubular lumen and molding along its contour. The clinicopathologic attributes of tubular cast including light microscopic features are well described. In contrast, knowledge on the ultrastructural changes of these casts is limited. This communication focuses on the electron microscopic studies of renal tubular casts, It fully abstracts the current literature and together with a meticulous review of institutional renal biopsy archive, confirms the current knowledge, expands it, and further reports novel observations. Distinctive ultrastructural features are expressed by most types of tubular casts, which are well correlated with light microscopic changes. This review further demonstrates that beyond the often elegant and artful images under the electron microscope, the ultrastructural morphology of the tubular cast not only offers diagnostic clue or initiate molecular/chemical studies but can also provide definite diagnosis or pathogenetic insight unaffordable by other traditional studies.