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On the Cover

What is the diagnosis?

A kidney biopsy sample from a patient without diagnostic morphologic abnormalities. A preimplantation kidney sample from a deceased donor with AKI. The autopsied kidney tissue from a patient with coronavirus disease 2019.

Image Description:

Left: The basolateral distribution of CD147 in the patient of glomerulitis without diagnostic morphologic abnormalities (original magnification, 200×).

Center: The tubular epithelial expression of CD147 in a deceased donor with AKI was altered with an additional intercellular junction distribution without detectable glomerular staining (original magnification, 200×).

Right: The distribution of CD147 expanded from the basolateral to circumferential pattern, including interfacial and apical sides in the autopsied kidney tissue from a patient with coronavirus disease 2019 (original magnification, 200×).

Teaching Points:

During viral invasion, the first step is the binding between the spike protein of the virus and its receptors on the host cell. Currently, there are several candidates proposed as the receptors of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), with the most popularly postulated candidate being angiotensin-converting enzyme 2. Besides angiotensin-converting enzyme 2, CD147 is another alternative receptor for SARS-CoV-2, which has also been verified to facilitate HIV-1, *Vaccinia virus*, measles virus, and malaria parasitic infection; therefore, targeting CD147 is a promising strategy to prevent the invasion of pathogens. Here, findings of the basolateral to circumferential shift in location of CD147 highly suggest that SARS-CoV-2 viral particles attack tubular epithelial cells *via* CD147 as well.

Image and text provided by Hua Su and Cheng Wan, Department of Nephrology, Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China; Zhen-Di Wang, Department of Urology, Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China; Yong Gao, Department of Orthopaedics, Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China; Yun-Cheng Li, Department of Otorhinolaryngology, Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China; and Fang Tang, Hong-Yan Zhu, Li-Xia Yi, and Chun Zhang, Department of Nephrology, Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China.