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Features of urinary obstruction following kidney transplantation identified for the first time

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A research group from the Medical University of Vienna has successfully described the histological features of urinary obstruction in

humans the first time. Using data obtained from kidney transplant patients, it might be possible in the future to identify potentially dangerous complications following a kidney transplant at an earlier stage, and thus provide prompt treatment.

Obstructive urological complications can occur following a kidney transplant, and can lead to urinary obstruction and subsequently to allograft failure. These complications include narrowing of the ureter, a leak between ureter and urinary bladder or a haematoma that compresses the allograft or the efferent urinary tract. Although this can normally be detected by ultrasound, in the first few months following a kidney transplant, this test is not always diagnostically sufficient for detecting urinary obstructions. Where there is no clear diagnosis for restricted renal function following a transplant, a pathohistological workup of a kidney biopsy is therefore essential to establish the cause so that appropriate treatment can be started.

Histological findings indicate complications

"Histology results are one of the most important diagnostic tools in clarifying the cause of restricted renal function. Unfortunately, the existing literature on the subject inadequately describes the histological criteria that indicate a urinary obstruction," says lead author Marija Bojic from MedUni Vienna's Department of Medicine III. The new study enabled the study team, led by Zeljko Kikic, to describe a specific histological phenotype that is associated with just such obstructive urological complications.

The study involved biopsies from 976 kidney transplant patients. In particular, the researchers were looking for the presence of tubular ectasia—i.e., distension of the renal tubules. Kikic says, "These changes were observed in earlier animal models where a urinary obstruction was stimulated. We therefore wanted to investigate whether this also occurs

in humans." In addition, further changes in the renal tubules (tubuli) were analysed, and the results correlated with the existence of proven obstructive urological complications.

The MedUni Vienna researchers have now mapped out and described exact features that indicate a urinary obstruction. "These results can be used for the earlier detection of occult urinary obstructions, so that patients can receive the necessary treatment more quickly," says Bojic. The results are published in *Transplantation* and were presented at the international conference of the Banff Foundation in Pittsburgh.

More information: Marija Bojic et al. TUBULAR ECTASIA IN RENAL ALLOGRAFT BIOPSY- ASSOCIATIONS WITH OCCULT OBSTRUCTIVE UROLOGICAL COMPLICATIONS, *Transplantation* (2019). DOI: 10.1097/TP.0000000000002699

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