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PREVENTION OF NEPHROLITHIASIS RECURRENCE IN PATIENTS AFTER NEPHRECTOMY

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A number of compensatory and adaptive reactions of the remaining kidney develop after nephrectomy, the main mechanism of which is an increase in the volume and weight of the kidney. Weight gain often leads to nephroptosis [1]. What position the kidney will take in this case is important to know in order to assess the mechanisms of the development of complications. We found out the regularities of changes in the position of the kidney during hypertrophy [2].

Quantitative analysis of the position of a single kidney in three coordinate planes makes it possible to predict the occurrence of kidney diseases. Studies have been conducted that confirmed the relationship between hemodynamic disturbances in nephroptosis and the distribution of patients according to the degree of renal prolapse. The results of correlation, cluster and discriminant analysis showed that a closer relationship is observed between hemodynamic disorders and the degree of kidney rotation [3].

In order to implement the conducted research into practice, we have proposed a method of treatment and prevention of recurrence of nephrolithiasis in patients with coral-like stones of a single kidney. During surgery, it is necessary not only to remove the stone, but to do it with the least trauma and to restore the normal natural outflow of urine from the kidney. Therefore, the proposed method of treatment meets the following requirements: absence of negative impact of shock waves on the kidney tissue, improvement of the function of the operated kidney, absence of residual stones, reliability of fixing the kidney in a physiological position, short duration of intervention, ease of technical implementation, minimal invasiveness, obtaining stable positive results [4].

In the preoperative period, all patients undergo standard urological examinations. Computed tomography is additionally performed to determine the shape, density, and size of a coral-like concretion and multiple X-ray-negative stones. Percutaneous nephrolithotripsy is performed. Under combined ultrasound and X-ray control, a puncture of the lower and, if necessary, of the upper calyces is performed in the least vascularized area of the cortical layer, dilatation of the nephrostomy fistula

is performed with teflon tubes, complete rehabilitation of the calyceal-bowel system of the kidney is carried out, after which an antegrade installation is performed, or the already installed internal one is left stent (for 7-14 days). They move on to fix the kidney in a physiological position, widen the accesses made for puncturing the lower and upper calyces of the kidney, and with the help of a retroperitoneoscope, fix the kidney in a physiological position, for which a synthetic polypropylene monofilament mesh containing large pores is used, which is sewn to the extra-renal through the upper access fascia at the level of the 12th rib, pass through a pre-made tunnel in the paranephric tissue behind the kidney and with the help of a dissector, through the lower access, bend the kidney 1-2 cm medial to the lower pole, place a mesh between the front surface of the lower segment of the kidney and the prerenal fascia, to which it is fixed Z-shaped seams.

This leads to the elimination of nephroptosis and restoration of the right angle between the renal artery and the aorta, and the kidney becomes in a physiological position. The operation is completed by installing a drain in the retroperitoneal space. Antibacterial and anti-inflammatory therapy is prescribed in the postoperative period [5].

The proposed method has many advantages compared to the known ones. The advantage of the method is the minimization of operative access while maintaining an adequate volume of intervention in the treatment of clinically complex cases of nephrolithiasis of a single kidney. Ultrasound and x-ray control during access make it possible to objectively identify areas of the least vascularization and determine the intervention zone, which allows to significantly reduce the level of intraoperative complications. The use of percutaneous nephrolithotripsy with access to the lower and upper calyces to remove stones speeds up the operation and reduces the likelihood of residual stones. The use of performed accesses during percutaneous nephrolithotripsy to advance the retroperitoneoscope reduces traumatization. Fixation of the kidney in a physiological position ensures the absence of nephroptosis, which often accompanies a single kidney due to its hypertrophy after removal of the contralateral kidney, improves kidney function, prevents relapses of nephrolithiasis, nephrogenic hypertension [6].

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