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THE PLACE OF THE ECHOGRAPHY IN PERCUTANEOUS NEPHROSTOMY AND NEPHROSTOLITHOMY

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The percutaneous surgery of the kidney has developed in the last decade primarily due to the ultrasonography, investigation that allows the aimed puncture of the renal cavitary system. So, the percutaneous nephrostomy and later the nephrostolithotomy were born.

The aim of this paper is to show on the bases of the personal cases as well as data from the literature, the contribution the echographical investigation has in the accomplishment of a percutaneous nephrostomy and nephrostolithotomy. Therefore, we shall not enter into a rigorous analysis of our cases, we have dealt with on another occasion (1), and we shall only point out the extent this investigation assists the attainment of the above aim.

Technical data

The percutaneous nephrostomy can be carried out for two reasons: 1. as an operation on its own, an easy and efficient upper urinary tract diversion, or 2. as preliminary time of the percutaneous nephrostolithotomy carried out either in two times, or as the recent practice goes in one time.

The accomplishment of the percutaneous nephrostomy and nephrostolithotomy calls for a perfect knowledge of the renal cavitary system's topographical anatomy. The puncture is done on the posterior side of the kidney to avoid the harming of the neighbouring organs

in relation to its anterior side (the colon and the duodenum). The puncture of an inferior or middle posterior calyx is preferred. The study of the calyceal arrangement is usually done based on the intravenous pyelography's X ray films exposed in various incidences, or less often, by retrograde pyelography, or CT. The knowledge only of the applied anatomy's data that shows the existence of two major types of calyceal arrangement, that of Brödel and Hodson will not do in practice. That's the reason the calyceal arrangement of each case has to be established (2, 3).

Equally important to the success of the operation are the precise puncture technique as well as the accomplishment of the percutaneous track.

Material and method

As we have already said, we shall show our results only to the extent in which they point out the echograph's share to the success of percutaneous nephrostomy and nephrostolithotomy. From this point of view our cases were divided in two separate series: with and without dilated cavitary system. For our paper we have taken into consideration 86 cases.

Results

If the percutaneous operation was carried out on dilated kidney, the utility of the echography was decisive. It provided us in 57 cases the correct technique. On the other hand in the 29 percutaneous nephros tomies carried out on non-dilated kidneys (of which 27 for kidney stones), it was efficient only in case of two patients (Table I):

Table I

RESULTS		
	EFFICIENCY	%
P.N. + dilated kidney	57/57	100
P.N. + non-dilated kidney	2/27	7

Due to the echography uric acid calculous fragments could be identified and extracted in 5 patients with nephrostolithotomy, that could not be identified by fluoroscopy.

Discussions

From our own experience as well as from the medical literature results that the echography has a major place in the development of the percutaneous renal surgery, both in the correct accomplishment of the percutaneous nephrostomy as well as in that of the percutaneous nephrostolithotomy. These operations became possible due to the real time display echography, the sterilisable, guided puncture device equipped

transducers (4, 5). The echography is efficient especially in a dilated kidney, where it is the only mean to carry out a correct percutaneous nephrostomy. On the other hand, when the kidney's cavitary system is normal our experience shows that the echography should be completed with fluoroscopy. In these cases the dilatation of the renal cavitary system is done by retrograde injection of contrast, whereby the percutaneous puncture becomes guidable either echographically or fluoroscopically (6).

The performance of the nephrostolithotomy in case of radiotransparent kidney stones where fluoroscopy only is inefficient represents in our opinion another important use for the echography.

Conclusions

1. The echographic investigations permit the correct practice of the percuaneous nephrostomy and nephrostolithotomy.

2. The percutaneous nephrostomy is a bloodless renal operation either on its own, or as preliminary phase to other renal endoscopical operations, first of all for kidney stones (nephrostolithotomy).

3. The correctness of the percutaneous nephrostomy depends on the existence of a real time echograph with sterilisable head with guided puncture device as well as on the good knowledge of the renal cavitary system's arrangement.

4. The percutaneous nephrostomy and nephrostolithotomy carried out on a correct advice and with correct technique offers a series of clear advantages over the classical pyelolithotomy or nephrostomy: minor trauma, superior tolerance, reduced cost, minimal intra- and postoperative complications.

5. In the accomplishment of these operations the limits of the echography are related to non-dilated renal cavitary system, where the use of fluoroscopy becomes necesary.

6. The echography is also useful in the percutaneous nephrostolithomy to identify the radiotransparent stones or its fragments that escape fluoroscopical examination.

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