

# EMERGENCY PERCUTANEOUS NEPHROSTOMY IN THE SEPTIC KIDNEY

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Septicaemia continues to be a most dreaded issue in urology, because of its high lethality rate (15-30%), as 0.5-3.0 % of superior obstructive uropathy cases are complicated with toxico-septic states. The patient's prognosis depends on the promptitude of surgical treatment as well as the measures of reanimation and intensive care (1, 2, 3, 4).

First of all, surgical treatment refers to the rapid and efficient drainage of the kidney, with minimal damage for the patient, by percutaneous nephrostomy (P. N.). Later, the obstruction is removed at "cold" by percutaneous track in case of lithiasis or, even the kidney's advanced lesions make its maintenance useless. On the other hand in the extreme, in patients with a single functional or surgical kidney, P. N. may be definitive (5, 6, 7).

## *Material and Method*

In 6 years (1 Apr. 1985-31 Jul. 1991) we had 250 superior obstructive uropathy cases, of whom 64 were hospitalized in severe state with toxico-septic shock. Obstructive anuria on the single functional or surgical kidney was revealed in 35/64 patients. This had complication in 3 patients after percutaneous nephrolithotomy (PNL) for staghorn stones (2 cases) and obstructive pyelic stone (1 case). All the patients had urinary infections with resistant Gram-negative germs.

The positive diagnosis of obstructive uropathy was established according to natural history, radiologic and echographic findings. That of infectious shock, based on clinical criteria: fever, shivering, poor general state, moist and cold teguments, pale cyanotic limbs (reduced peripheral blood-flow). Complementary paraclinical and biological examinations guided the diagnosis and treatment. Of these we should mention only the most important ones: TA, pulse, diuresis, CVP, haemoleukograma, plasmatic fibrinogen, trombocyte count, determination of blood urea, and creatinine, ionogram and acidbase equilibrium; bacteriological examination of blood and urine (haemoculture and uroculture, respectively).

With a view to ensure an efficient drainage of the kidney, P. N. was performed in emergency in all patients (Table 1).

*Table 1.*

Obstructive uropathy	Nr.	ARF	CRF
1. Pyonephrosis $\pm$ lithiasis	9	9	-
2. Calculous anuria	35	35	-
3. Infected hydronephrosis $\pm$ lithiasis	6	3	3
4. Genital cancer in women	5	2	3
5. Bladder tumours	6	2	4
6. Advanced prostatic cancer	3	1	2
Total:	64	52	12

Operating time was 5-10 minutes.

The anaesthesia was local "ab initio", 20-40 ml xyline 1%. There is rapidly in execution, efficient and well tolerated by all patients with obstructive uropathy associated with toxico-septic shock. 25/64 of the patients had single functional or surgical kidney.

After performing the derivation, we made an energetic intensive care consisting in: antibiotherapy, perfusions, blood, plasm, under CVP control, cardiotoxic treatment and vaso-active drugs (DOPAMINE). After volemia increase (repeated CVP control), hepatoprotectives, diuretics, general roborants and oxygen therapy. In patients with DIC (thrombocytopenia, decrease of plasma fibrinogen, decomposition products of fibrinogen in the urin), heparin was administered in therapeutical doses.

### *Results*

Postoperatively, during the first 48 hours, we had 7 deaths. Other 4 patients died after 5-7 days because of irreversible renal failure, on the ground of older parenchymatous damage. The comparatively high death-rate, 11/64 patients (17,18%) is due to advanced renal parenchymatous deficiency,

hydro-electrolytic and acid-base disturbances, which is an expression of multiple organic failure (MSOF) in toxico-septic shock.

After the amelioration of the general state and the recovery of the normal biological constants, the track of percutaneous nephrostomy ensures the way of ulterior approach to the endoscopic treatment of the obstructive calculus and/or pyeloureteral junctional stenosis (endopyelotomy-E.P.) (fig. 1). In patients with advanced renal lesions and opposite healthy kidney, nephrectomy was carried out.

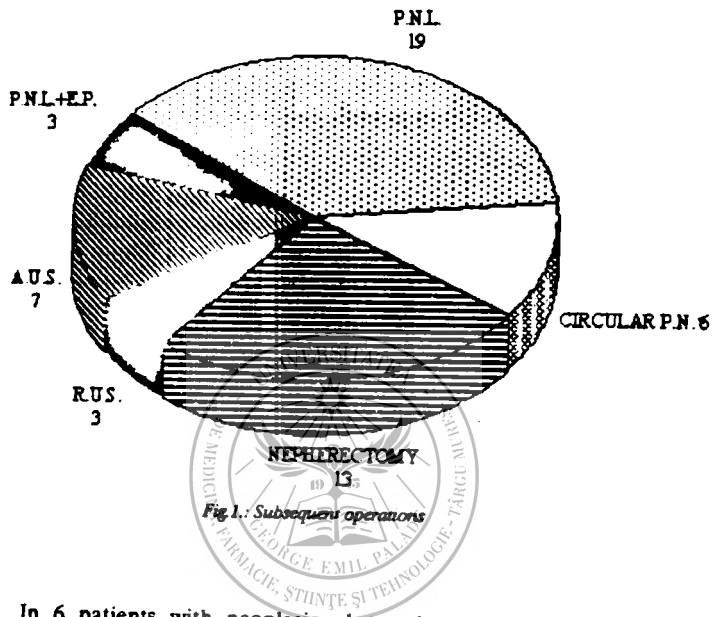


Fig. 1.: Subsequens operationis

In 6 patients with neoplastic obstructive uropathy, with a single functional kidney, P.N. was transformed into definitive circular nephrostomy, in which the constants of renal function were not restored to the normal. The intervention is well tolerated by all patients. The circular nephrostomy tube ensures, in addition to an efficient drainage, the safety and good conditions of urine discharge, by means of a protecting device.

### Discussion

High urinary diversion is performed in all superior obstructive uropathy. Open nephrostomy and anaesthesia are tolerated with much more difficulty by patients in septic condition, with parenchymatous renal deficiency; thus the high postoperative mortality and morbidity rate of these patients can be explained.

On the other hand, it is just so efficient in comparison with classical open nephrostomy, but it has quite superior advantages. If the general state of the patient does not allow other type of analgesia, it can be performed without any problems even in local anaesthesia. Being an "in situ" intervention, through a 1 cm wound, surgical aggression is minimal. Under the same circumstances, P.N. does not necessitate dissections and tissue dehiscences, being much more tolerated by such kind of patients (5, 6, 7).

Echography has a major part in performing a correct P.N., as it is efficient just in the presence of dilated pyelocaliceal system (8, 9).

In calculous anuria, after obstruction removal and the improvement of the general state and biological constants, P.N. ensures a subsequent way of approach of resolving renal and/or superior ureteral lithiasis. Obstructive pelvic ureteral stone can also be resolved safely through RUS, under P.N. protection (6, 7, 8, 10).

The prognosis of these patients depends first of all on performing a rapid and efficient drainage, with minimal aggression. Reanimation and intensive care are just as important, and they must be implemented as rapidly as possible (5, 8, 9).

In patients with urinary or genital neoplasms in the small pelvis, which invade the terminal ureters, high urinary diversion in emergency, with definitive character, represent in such cases the last therapeutical measure meant to save the patient's life (6, 8, 9).

The rapid colmatage of the P.N. tube, or mostly its dislocation, in certain prolonged survivals, can be easily resolved by transforming it into percutaneous circular nephrostomy.

### Conclusions

1. P.N. is a simple and efficient method for high urinary diversion, through 1 cm skin wound.
2. It avoids dissections and extended tissue dehiscences.
3. It prevents retroperitoneal fibrosis responsible for stasis and ulterior stone recidivation.
4. It can be carried out in local anaesthesia if the patient's general state does not allow another analgesia.
5. The operating time is much shortened, as it is only 7 minutes.

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Of 250 superior obstructive uropathy cases we have studied 64 patients hospitalized with toxico-septic shock. The constant symptom was arterial hypertension. Other 3 patients with long-standing urinary infections due to lithiasis developed this dreaded complication after PNL (staghorn stones-2, pyelic stone-1).

In complicated obstructive uropathy cases associated with toxico-septic shock, percutaneous nephrostomy for high urinary derivation in emergency is usually made in local anaesthesia. Its aim is rapid and efficient deobstruction of the kidney, with minimal damage for the patient; then it is followed by strong antibiotherapy associated with other reanimation and intensive therapy measures. There were 11 deaths. The stone generating obstructive uropathy was removed subsequently, after the improvement of biological constants and general state of the patient, under the protection of percutaneous nephrostomy.