CURRENT INDICATIONS OF OPEN SURGERY FOR THE TREATMENT OF RENAL LITHIASIS. URETEROCALYCOSTOMY AS DEFINITIVE TREATMENT FOR LITHIASIS IN A FEMALE WITH RECURRENT DISEASE.

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Summary.- OBJECTIVE: We describe one case of recurrent lithiasis associated with anatomical alteration of the renal pelvis related to previous surgery.

METHODS/RESULTS: The patient presented a urinary tract infection episode, complicated with pyonephrosis and sepsisemia. In the intravenous urography, infectious radiopaque pyelocaliceal multiple and complex lithiasis can be seen, as well as kidney hydronephrosis grade III-IV. Important pyelic sclerosis secondary to previous surgery on the renal unit was
Resumen.- OBJETIVO: Presentamos un caso de litiasis recidivante asociado a alteración anatómica de la pelvis renal secundaria a cirugía.

MÉTODOS/RESULTADOS: La paciente presenta un episodio de infección urinaria complicada con pielonefritis y septicemia. En la urografía intravenosa se observa litiasis radiodensa infecciosa, pielolocalicial múltiple compleja, sobre riñón con hidronefrosis grado II-IV por importante esclerosis piélica secundaria a cirugía previa sobre dicha unidad renal. Se realiza nefrectomía polar inferior con nefrolitotomía y reconstrucción de la vía urinaria superior mediante uréterocalicostomía. Dos años y medio después de la cirugía la urografía de control refleja ausencia de litiasis y leve retraso de la función renal.

CONCLUSIONES: La ureterocalicostomía está indicada en casos de obstrucción de la unión ureteropelviana asociada a una pelvis intrarenal por alteraciones de la fusión, rotación o localización renal, y en casos de fibrosis periódica severa secundaria a una pieloplastia falciada o cirugía renal previa. En el caso presentado además del componente infeccioso de las litiasis, una alteración anatómica, probablemente secundaria a la cirugía previa, provocaba una perpetuación de la clínica litiasica. Ante tal sospecha se impuso una solución de tipo quirúrgico que solucionara en un tiempo tanto la eliminación de la litiasis como una correcta derivación de la zona funcionante del riñón para evitar recidivas posteriores.

Keywords: Litiasis. Ureterocalicostomía. Surgery.
Urography reveals absence of lithiasis, and some nephrographic delay on left region and on right secretory pathway, with no changes regarding previous status. (Image 3). Renogram shows a 30% of left renal function, and a compensatory right kidney function, 70%. Patient’s renal function remains within normal values, and has only shown a single UTI that resolved with ciprofloxacin. Imaging revealed the presence of small asymptomatic bilateral remaining fragments.

**DISCUSSION**

As for the management of lithiasis, open surgery not only includes the classic pyelolithotomy or nephrolithotomy procedures, but also reconstructive surgery techniques for those cases that may require them. Now, the use of open surgery for such indications has been restricted thanks to the advent of extracorporeal lithotripsy, percutaneous techniques and ureteroscopy. However, the unquestionable results of this technique, although shadowed by the current literature, make this therapy a valuable instrument against lithiasis. The number of publications on open surgery has declined significantly, although this does not mean that the various interventions included in this technique may have been abandoned (1).

Paik (2) describes his experience on 780 patients with lithiasis, out of which 42 underwent open surgery through distinct techniques: pyelolithotomy, nephrolithotomy, ureterolithotomy, among them. Indications for open surgery were as follows: complex lithiasic mass (55%); previous treatment failure (ESWL or ureteroscopy) (29%); and anatomical changes of urinary pathways, such as infundibular stenosis, among them (24%); morbid obesity (10%), or medical comorbidity (7%), which indicated that overall surgery should be performed in a single process.

In 2003, Ather (3) reports a series of 1195 patients examines the differences among the three main types of treatments, wherein a 20% of surgical procedures were performed for distinct reasons: anatomical alterations in special, failure of other procedures, but less frequently, patient’s preference, management of great impacted lithiasis, or open surgery concomitant with another process (for instance, a cesarean delivery). The series also report a dramatic decline of these interventions, which

**FIGURE 1.** Simple radiography showing radiopaque multiple-origin pyelocalyceal lithiasis in left kidney. Sub-pelvic double-J catheter. Normally-situated nephrostomy.

**FIGURE 2.** Urography showing hydronephrosis, grade III-IV, on left kidney due to pelvic sclerosis. Post surgical changes, moderate parenchymatic atrophy of renal organ. Preserved kidney function.
now only represent an 8%, thanks to the inclusion of endoscopic pneumatic lithotripsy techniques to his center.

The Guidelines of the European Association of Urology (updated in June 2005) (4) make a review of the surgery indications aforementioned and also suggests surgery as the treatment of choice in big-sized coralliform lithiasis, and in those cases requiring correction of anatomical alterations, as the case described before. Although many authors champion combination treatments in coralliform lithiasis through percutaneous surgery and ESWL, some series yield better results with open surgery techniques, as expressed by Snyder (5), 0% of residual fragments versus percutaneous, 13%; or Esen (6) who reports better results than those seen in lithotripsy or in combination treatments.

Ureterocalycostomy is indicated in ureteropelvic junction obstruction (UJO) associated with intrarenal pelvis that result from anomalies of kidney fusion, rotation and position, as well as severe peripelvic fibrosis secondary to failed pyeloplasty or previous renal surgery. As for the case described previously, and in addition to the infectious component found in it, an anatomical change attributable to previous surgery made the lithiasis process a chronic condition. Faced with this suspicion, it was necessary to resort to surgery to manage in a single process both the lithiasis and the correct deviation of the functional region of the kidney to prevent subsequent relapses.

In general, the results of this technique are satisfactory and have already been described by diverse authors in the literature. In 2005, Matlaga (7) describes a series of 11 patients who underwent ureterocalycostomy, as a first indication in pyeloureteral junction stenosis or after failure of endourological treatments, and reports good outcomes on the kidneys that were treated. Haouas, in 2005, (8) refers other series with longer follow-ups that showed a good renal function in 12 out of 16 patients, although he also mentions some surgery failures that required subsequent nephrectomy in 2 patients, 4 and 10 years, respectively, after operation.

This technique is also used in relapses of stenosis of the pyeloureteral junction after pyeloplasty; however,
this would be a restricted technique and other authors would resort to a second pyeloplasty, or an endo-pyelolitotomy. Stenosis of the new junction is the most frequent complication observed in ureterocalycostomy, and can give rise to recurring obstructions; however, the incidence of this problem is low, so it can generally be regarded as a safe technique. Today, laparoscopic surgery is an option for such cases, but it requires a good management of the technique, especially with regard to intra-corporeal suturing and knot tying. The literature reports highly successful reconstruction series performed by experienced surgeons on upper urinary tracts, Gill, 2004 (9); some cases even include ureterocalycostomy through robotic surgery.

CONCLUSION

An adequate indication for open surgery, as well as the anatomical correction of an altered urinary pathway, may achieve, in a single procedure, good results both for lithiasis removal and diminution of relapses.

REFERENCES AND RECOMMENDED READINGS

(*of special interest, **of outstanding interest)