RENAL PELVIS SPONTANEOUS RUPTURE SECONDARY TO URETERAL LITHIASIS. CASE REPORT AND BIBLIOGRAPHIC REVIEW

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Summary.- OBJECTIVE: To report a case seen at the Urology Department and comment on the literature.

METHODS: We present the case of a 46-year-old male who presented left flank pain. Intravenous pyelography was performed. The study showed evidence of contrast extravasation at the level of the left renal pelvis and a 7 mm stone located on the left ureterovesical junction. A literature search was performed using Promedicum, Pub Med and Ovid. The search words were: rupture, renal pelvis, lithiasis and spontaneous combined by boolean operators.

RESULTS: The management was successful using endourology procedures and a double pigtail catheter for a two-week period.

CONCLUSIONS: Spontaneous rupture of the renal pelvis (SRRP) is an infrequent pathological event. Most of the cases are related to obstructive uropathy, infection and diagnostic procedures. Intravenous pyelography is a useful tool although intravenous contrast CT scan has higher sensitivity. The treatment depends on patient state but most cases can be managed with minimally invasive procedures and double pigtail catheter placement.

Keywords: Renal pelvis. Spontaneous rupture. Ureteral lithiasis. Contrast extravasation. Double pigtail catheter

INTRODUCTION

Spontaneous urine extravasation through renal pelvis is a rare clinical condition. When it happens, it is generally related to obstruction, trauma or previous urinary tract surgery (1).
CASE REPORT

We present the case of a patient with spontaneous rupture of the renal pelvis with obstructive uropaty. A 46 year old male who arrived to the emergency room with acute left flank pain for the last 4 days. The pain was progressive. In the previous 6 hours he presented malaise, nausea and vomiting. He did not have other symptoms or previous clinical history of urinary disease.

At admission his vital signs were: blood pressure 130/90 mmHg, cardiac rate 95 per minute and euthermic. The physical examination revealed left flank pain on palpation and no acute abdominal data. The red blood cell count, serum creatinine and urea were normal. The urianalysis reported 20 leucocites and 50 erithrocites in sediment.

The abdominal x ray was normal. A renal ultrasound was performed showing left renal ectasia without images suggesting stones or tumor. The right kidney was normal.

Four hours after admission the pain was controled with intravenous analgesics. An intravenous pyelogram was performed 12 hours later reporting both kidneys enhancing the contrast media. At the elimination phase the right side was normal. The left kidney showed ectasia and contrast media extravasation at the renal pelvis level and an image at the urethero-vesical junction suggesting an obstructive process (Figures 1 and 2).

A left uretheroscopy was performed showing a 7 milimeter obstructive stone on the left uretero-vesical junction. The stone was managed with endocorporeal lithotripsy and the fragments were extracted. A double pigtail catheter was left for 2 weeks and the patient evolution was satisfactory.

DISCUSSION

Urine extravasation from the renal collecting system or renal pelvis is a rare condition. In 1856, Wunderlich described one of the first cases. Later, in 1957 Shaw and Weiner reported a few cases of patients with atraumatic
renal rupture (2). Most cases have been detected at the fornix level. The fornix is the weakest point of the collecting system when the renal pelvis pressure exceeds a critical level reported from 20 to 75 mm Hg. The pressure at this range can be exceeded during an acute obstructive process or when a retrograde pyelography or intravenous pyelography are performed (1). This sort of condition is also associated with other urologic diseases. The most common cause is hydronephrosis, specially when the renal pelvis is fixed because of fibrosis (3). Other causes have been reported: lithiasis, necrosis, tumors, stricture and urinary tract infection (4). Limphoma and chemotherapy have been described as a cause of spontaneous rupture of the renal pelvis (5). During intravenous pyelogram the extravasation risk is about 3% when no obstruction is present. The risk increases from 5 to 33% when an obstructive pattern exists (1). Intermitten changes of renal pelvis pressure such as: coughing, sneezing, strain, nausea and vomiting, have been reported as causes of SRRP. Urine extravasation goes to retroperitoneum and frequently the patient does not have hematuria or urinary symptoms (4). Most symptoms are similar to other presented during reno uretheral colic. In the present case the patient had an intense flank pain that suddenly desapeared. Other clinical symptoms described are: pain, abdominal mass and bleeding. The pain is the most common symptom, it is sudden and can be irradiated to ipsilateral groin. Gross hematuria has been described as a common sign (6).

In some cases the diagnosis can be difficult because of lack of symptoms (5,7). The differential diagnosis included: appendicitis, cholecystitis, diverticulitis, lithiasis and others. The diagnosis can be delayed in about 50% of cases in spite of the available image techniques. The intravenous pyelogram can show urine and contrast media extravasation and the ultrasound can be used to search for other abdominal anomalies. Intravenous contrast tomography is the most usefull diagnostic tool and the false negative results can be diminished with abdominal X ray plains on excretory phase (6,8). It is important to take care of patient stability before doing any image study.

Treatment should be individualized in each case. There are some reports of patients managed with open surgery (7,8). On the other hand, there are many reports that support minimally invasive procedures with double pigtail catheter placement (3-6).

**CONCLUSION**

Spontaneous rupture of the renal pelvis is a disease without characteristic clinical signs. It should be differenciated from other causes of abdominal pain such as: appendicitis, cholecystitis, etc. Intravenous pyelogram is a useful tool in making diagnosis although intravenous contrast tomography has more sensibility. We consider that most cases could be managed with minimally invasive procedures and double pigtail catheter placement. Open surgery can be a possibilty in difficult cases associated with extensive rupture of renal pelvis, renal trauma or injuries in other abdominal organs.

**REFERENCES AND RECOMMENDED READINGS**

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


