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Case Report Open Access

Pyelonephritis: A Surgical Pathology?

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Background

A 65-year-old female came to us with a long history of right flank pain often associated with pyrexia but without significant urinary disease. She became to show this pain about 2 years before our meeting. The pain was quite heavy, oppressive but not continuous and for this reason the patient didn't ever care. The patient's history didn't reveal any malignant pathology. She was operated for appendicitis when she was young. In familiar history her maternal uncle was affected by multiple hepatic cysts but asymptomatic. At the physician exam the patient revealed a wick status and she confessed a vague weight loss since the last year. For this reason she said that she wasn't much more able to make the housework but only light housekeeping; in spite of this she must to continue to work. She has a pasty complexion and she complained soft pain to the palpation of the right abdomen.

The first diagnostic exam was ultrasound scan that detected a cystic lesion on the right flank; around it there was an unclear capsulate collection.

To optimize the diagnosis, A CT abdomen scan was performed. The CT with intravenous contrast in nephrographic and excretory phases, showed a large cystic mass on the upper part of the right kidney. The lesion had a thick solid wall, measuring 10×7.2×7.2 cm, that was compressing the remnant parenchyma; these features were suggestive of a dermoid-mucinous cyst (Figures 1 and 2).

The pelvis contained multiple urinary calculi but they were not totally obstructive. Around the lesion, we found out a bulky solid mass looks like a chronical abscess. It had grown and was coming out of the Gerota fascia of the muscle layer and emerging under the skin.

The patient was admitted to our department. The first step was a massive dose treatment of antibiotics. The first choice was amoxicillin clavulanic acid iv (1 gr tree times daily) associated with ciprofloxacin iv (400 mg twice day). The clinical status of the patient didn't improve enough to let us feel fully convinced of our strategy.

Decision making was very difficult and controversial for the frequent association of chronic infection, hydronephrosis and stones with malignant forms.

In fact, an intravenous pyelogram gave the impression that the right kidney was not functioning and initial dilatation of the pyelocaliceal system was present. The patient arrived in a septic phase but not in acute severe kidney failure.

Upon macroscopical examination, the mass revealed a lesion of uncertain behavior as the tumor was not actually bosselated or with internal septa. However, it was large and squeezing the kidney beneath.

As first treatment, a pig tail tube was positioned to reduce the abscess and improve the general condition of the patient. The hyperpyrexia decreased immediately. An ultra sound exam was performed. It only showed a reduction of the superficial collection and underlined a low attenuation area which replaced the renal parenchyma. This was probably secondary to inflammatory infiltrate and perinephric stranding.

Antibiotic policy was set up to control the infection; in spite of this, the patient was in a lot of pain and no significant improvement of renal performance resulted. The ultra sound exam was repeated and showed the cystic mass and the inflammatory infiltrate totally unchanged.

A nephrectomy was performed. No post-operative complications followed. Antibiotics were continued for four days and the postoperative course was uneventful.

The nephrectomy was our choice in consideration of the clinical status of the patient and the long history of pain and suffering. Some times is possible, such in trauma cases, to perform a partial nephrectomy. It can be the prior choice in pediatric kidney injury but even in that case, when the patient come in to a septic status, the "total" nephrectomy is mandatory.

Pathology

The excised mass measured 10×7.2×7.2 cm. The external surface was smooth. The cut surface showed large cystic spaces filled with friable gelatinous material. Microscopical examination revealed glands, cysts and papillae lined by stratified columnar epithelium without pleomorphic nuclei and vacuolated cytoplasm and without signet ring cells. The adjacent renal parenchyma showed sclerosis of glomeruli, interstitial fibrosis and inflammation, aggregates of foamy and

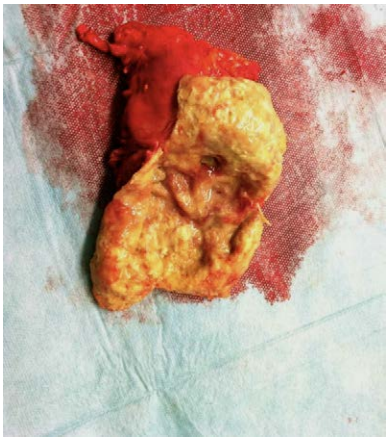

Figure 1: The specimen. See the yellow colour of the mass simulating fill-lipid areas.

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Figure 2: Detail of the specimen. See the cystic areas simultating a mucinous lesion.

hemosiderin-laden histiocytes, cholesterol clefts and giant cells along with focal calcification and mucin pools. For this reason, the diagnosis of mucinous cyst adenocarcinoma was excluded. The diagnosis of tuberculosis due to the presence of macropahages, histiocytes and histological signs of chronical infection has been ruled out because the Mantoux test was negative. Furthermore the tuberculosis in Italy shows a low incidence also if it is on the rise between the migrants. The patient was Italian and lives alone. She hasn't got any contact with children or any other place of possible contamination.

Discussion

We presented the case –report of a 65 year old woman with an acute pyelonephritis, hydronephrosis, urinary stones and a huge cystic lesion. The patient also showed a coarse abscess developed by the inflammatory infiltrate of the pyelonephritis that pressed the cystic mass and caused the flank pain.

At first, we believed that the cystic mass had suddenly been micro perforated because of a trauma and that this had caused the pyelonephritis and then the abscess. In fact the patient was a housewife and despite she declared to not be much more able to make housework she had gone on to do it. For this reason, during the housework, a little trauma could be very probable.

Decision making was very controversial because the patient was affected by a life-threatening septic status and the nephrectomy appeared to be the fastest life-saving solution.

In the series of Dong-Gi Lee [1], 5.3% (5/1026) was submitted to nephrectomy because of acute, severe pyelonephritis. The duration of the flank pain and of the costo-vertebral angle tenderness was statistically significant in that it was longer than in simple acute pyelonephritis.

The author underlined the risk of major complications when pyelonephritis evolves into an abscess, as it did in our case, especially in diabetic patients.

Here, we were confronted with almost two pathologies: acute pyelonephritis with urinary stones and a huge cystic mass with potential malignancy. Therefore, the choice of nephrectomy was the most rational and the safest.

In literature, we did not find a similar case but we remembered the experience of Yadav [2] who found a mucinous cystadenocarcinoma that had arisen from a persistent, chronic pyelonephritis.

Mucinous adenocarcinoma of the renal pelvis is an extremely uncommon tumor which grows by pseudomyxoma peritonea but also by silent cystic lesions.

Another clinical point was the differential diagnosis of the Xanthogranulomatous pyelonephritis.

Xanthogranulomatous pyelonephritis is an uncommon inflammation of the renal parenchyma that occurs in the presence of chronic obstruction and suppuration, as in our case [3].

Radiological diagnosis is usually made by the presence of an enlarged non-functioning kidney with staghorn calculus, caliceal dilatation and low attenuation areas which replace the renal parenchyma. This is secondary to inflammatory infiltrate and perinephric stranding [4].

All of these elements could be found in our patient; in addition, she showed the typical clinical presentation with fever, flank - abdominal pain and lower urinary tract symptoms.

In the series of Korkes [3], all patients underwent nephrectomy because Xanthogranulomatous pyelonephritis was considered a surgical pyelonephritis confirmed histologically.

However, our histological finds excluded the presence of areas with lipid-filled macrophages and for this reason even the diagnosis of Xanthogranulomatous pyelonephritis was ruled out.

Conclusion

We describe the case of a 65 year old female with chronic flank pain which developed into severe pyelonephritis with a purulent cutaneous fistula. We guessed that the fistula developed by micro-rupture of the huge cystic mass growing on the top of the kidney.

In spite of various efforts to opt for a conservative therapy, the rapid progression into septic shock led to the decision of nephrectomy. Histological findings excluded malignancy of the cystic mass and Xanthogranulomatous pyelonephritis but revealed signs of a chronic, complicated pyelonephritis.

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