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Case report

Giant hydronephrosis mimicking progressive malignancy

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Abstract

Background: Cases of giant hydronephroses are rare and usually contain no more than 1–2 litres of fluid in the collecting system. We report a remarkable case of giant hydronephrosis mimicking a progressive malignant abdominal tumour.

Case presentation: A 78-year-old cachectic woman presented with an enormous abdominal tumour, which, according to the patient, had slowly increased in diameter. Medical history was unremarkable except for a hysterectomy >30 years before. A CT scan revealed a giant cystic tumour filling almost the entire abdominal cavity. It was analysed by two independent radiologists who suspected a tumour originating from the right kidney and additionally a cystic ovarian neoplasm. Subsequently, a diagnostic and therapeutic laparotomy was performed: the tumour presented as a cystic, 35 × 30 × 25 cm expansive structure adhesive to adjacent organs without definite signs of invasive growth. The right renal hilar vessels could finally be identified at its basis. After extirpation another tumourous structure emerged in the pelvis originating from the genital organs and was also resected. The histopathological examination revealed a >15 kg hydronephrotic right kidney, lacking hardly any residual renal cortex parenchyma. The second specimen was identified as an ovary with regressive changes and a large partially calcified cyst. There was no evidence of malignant growth.

Conclusion: Although both clinical symptoms and the enormous size of the tumour indicated malignant growth, it turned out to be a giant hydronephrosis. Presumably, a chronic obstruction of the distal ureter had caused this extraordinary hydronephrosis. As demonstrated in our case, an accurate diagnosis of giant hydronephrosis remains challenging due to the atrophy of the renal parenchyma associated with chronic obstruction. Therefore, any abdominal cystic mass even in the absence of other evident pathologies should include the differential diagnosis of a possible hydronephrosis. Diagnostic accuracy might be increased by a combination of endourological techniques such as retrograde pyelography and modern imaging modalities.

Background

Cases of giant hydronephroses are rare and usually contain up to 2 litres of fluid in the collecting system [1,2]. Giant hydronephrosis is thought to develop gradually over a long time period, although rapid exacerbations of the condition have been reported [3]. Patients always present with abdominal enlargement and most of them are asymptomatic [1]. However, complications include compression of surrounding structures including the contralateral ureter, intestine, veins, infections, renal insufficiency, malignant change and rupture of the kidney [4–6]. Even though the use of multiple diganostic instruments such as ultrasonography, excretory, antegrade and retrograde urography, as well as CT technology has facilitated the diagnosis of hydronephrosis in the last decades, accurate diagnosis of giant hydronephrosis in individual cases remains challenging [7,8]. An extensive list of alternate diagnoses has been reported including ovarian cyst, retroperitoneal haematoma, hepatobiliary cysts, mesenteric cysts, pseudomyxoma, renal tumour, retroperitoneal tumours, ascites and splenomegaly [7].

We report a remarkable case of giant hydronephrosis on the basis of a benign ovarial tumour mimicking a progressive malignant abdominal neoplasm.

Case presentation

A 78-year-old cachectic woman called on her general practitioner with a slight chronic neuropathy. Indipendent of that, she presented with an enormous abdominal tumour. According to the patient, her abdominal girth had slowly increased in diameter over the last months, maybe years, which she ascribed to hyperalimentation. She negated any general symptoms like fatigue, weight loss or gain, fever, or any kind of urinary dysfunction. Medical history was unremarkable except for an abdominal hysterectomy without ovariectomy more than 30 years before due to a hysteromyoma.

The physical examination revealed an extremely distended abdomen, bowel sounds could only be auscultated in the flanks. The hemogram and serum biochemistry displayed only a leukocytosis of 15,900/µl and a sight elevation of serum bilirubin, creatinine and blood urea; tumour markers were in normal range. Results of urin analysis were normal. Ultrasonography confirmed the clinically diagnosed huge abdominal tumour, which appeared as a large cystic mass of mixed, predominantly low echogenicity. The left kidney appeared regularly, the right kidney could not be identified. Moreover, intravenous urography was performed and showed a normal left kidney and ureter, however, there was no contrast medium excretion on the right side. In addition, an oval formation, about 10 × 12 cm in diameter with peripheral calcification, appeared in projection to the pelvis, which compressed the urinary bladder from cranial (Figure 1). To complete diagnostics, a CT scan was performed, which revealed a giant cystic tumour filling almost the entire abdominal cavity displacing the small intestine, colon, pancreas, spleen and the left kidney. It was analysed by two independent radiologists who suspected a tumour originating from the right kidney (Figure 2) and additionally an independent cystic ovarian neoplasm (Figures 3 and 4). There was no sign of metastatic disease.

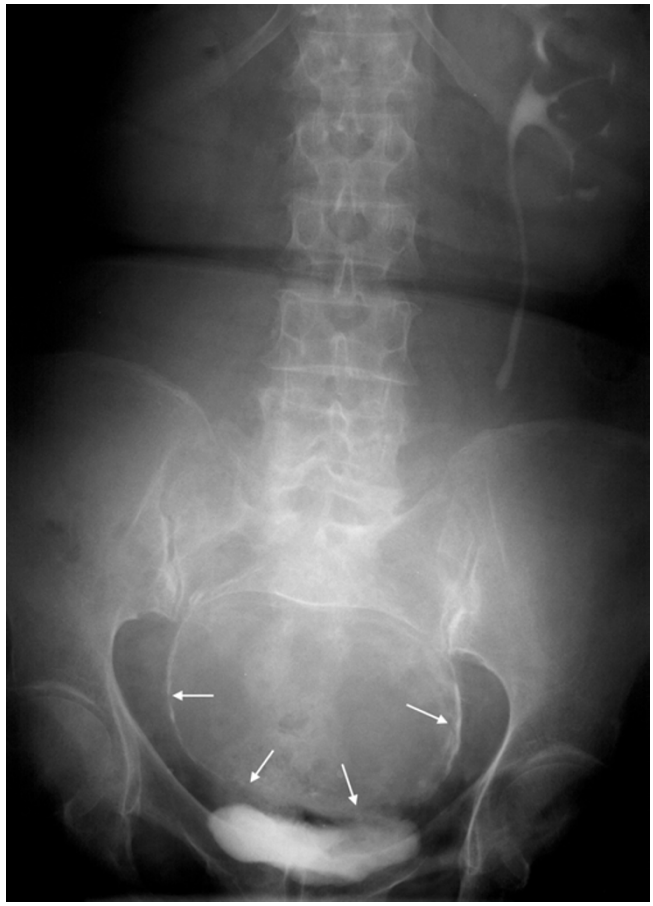

Figure 1
Intravenous Urography. Intravenous urography showed good excretion of contrast by the left kidney and ureter, however, there was no contrast medium excretion on the right side. In addition, an oval structure with peripheral calcification appeared in projection to the pelvis, which compressed the urinary bladder from cranial.

Subsequently, a diagnostic and therapeutic laparotomy was performed. After the incision of the peritoneum the tumour presented as a retroperitoneal, cystic, 35 × 30 × 25 cm expansive structure adhesive to adjacent organs

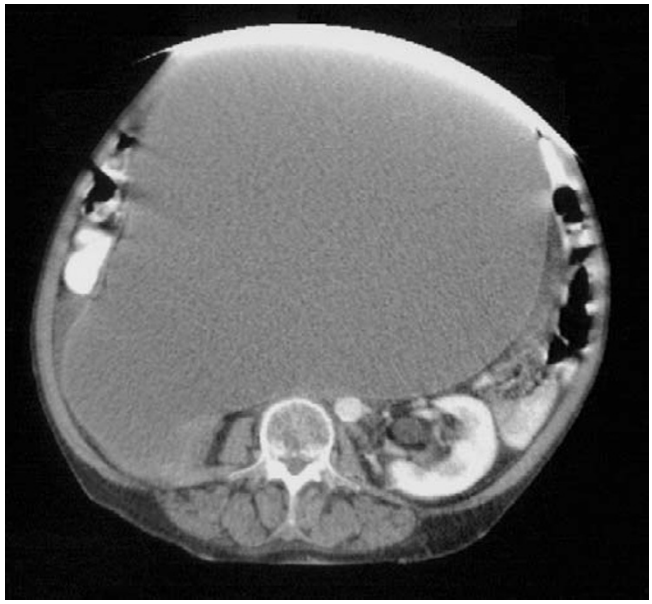

Figure 2
Abdominal CT scan. CT scan of the giant abdominal tumour filling almost the entire abdominal cavity displacing the small intestine, colon, pancreas, spleen and the left kidney.

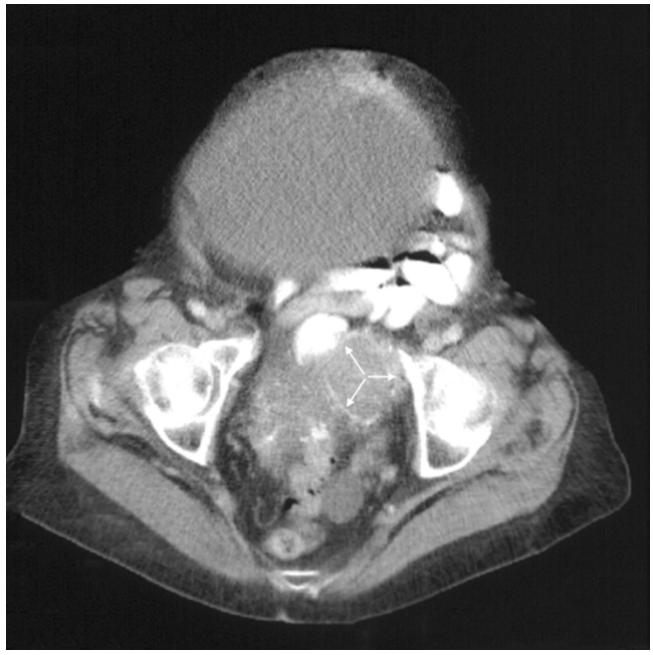

Figure 4
Caudal pelvic CT scan. CT scan of the second structure, which was localised in the pelvis and diagnosed to be a cystic ovarian nteoplasm: caudal scan.

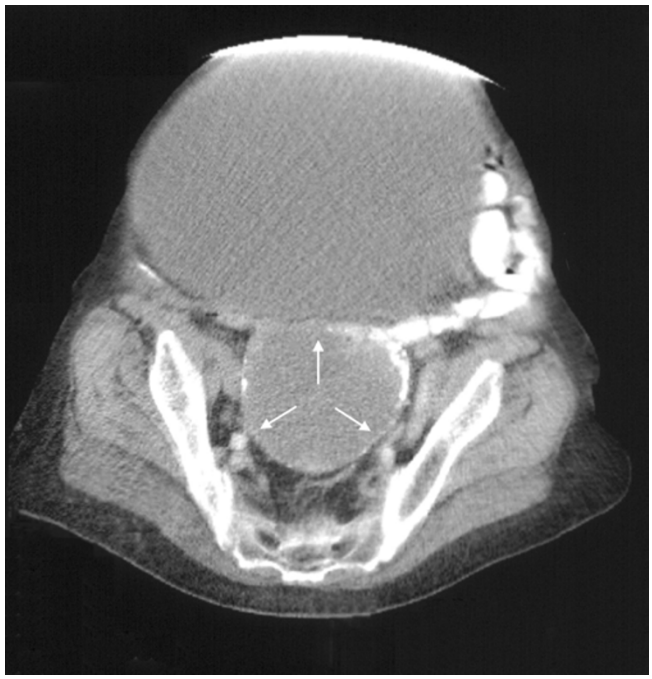

Figure 3
Cranial pelvic CT scan. CT scan of the second structure, which was localised in the pelvis and diagnosed to be a cystic ovarian neoplasm: cranial scan.

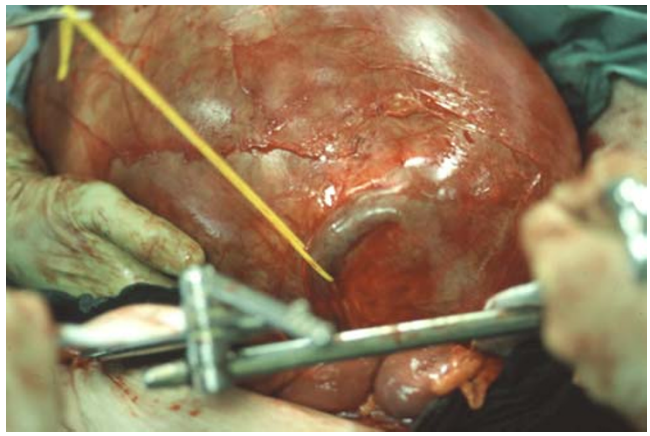

Figure 5
Operative situs. Intraoperative picture of the giant hydronephrosis with focus on the renal pedicle.

without definite signs of invasive growth. The right renal hilar vessels could finally be identified at its basis (Figure 5). After extirpation, another tumourous structure emerged in the pelvis, which originated from the genital organs, most likely from an ovary. It enclosed the right ureter and was adhesive to two intestinal loops. The complete structure was also resected.

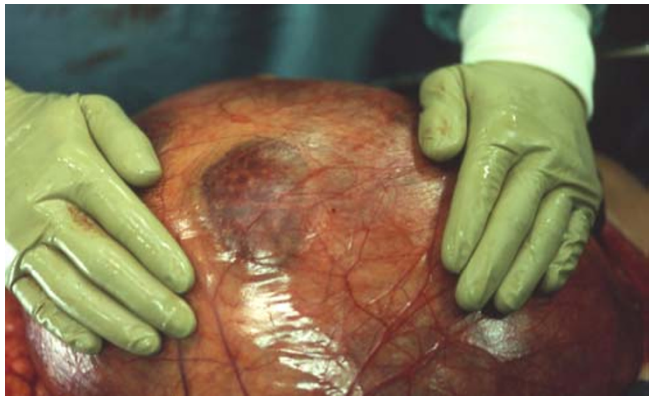

Figure 6
Pathologic specimen. Giant hydronephrotic right kidney, 35 × 30 × 25 cm in diameter with a weight of >15 kg.

The histopathological examination revealed a >15 kg hydronephrotic right kidney lacking hardly any residual renal cortex parenchyma (Figure 6). The renal pelvis, which had a maximal diameter of 30 cm, was filled with a mixture of clear fluid and clotted blood. The ureter was widened to 15 mm. The second specimen was identified as an ovary with regressive changes and a large partially calcified cyst. There was no evidence for malignant growth.

Conclusions

Although both clinical symptoms and the enormous size of the tumour had indicated malignant growth, it turned out to be a giant hydronephrosis. Presumably, a chronic obstruction of the ureter had led to extensive progressive hydronephrosis with consecutive loss of renal parenchyma and function.

In the literature, giant hydronephroses usually contain 1–2 litres of fluid in the collecting system [1,2,7] and a similar case has only rarely been described [8].

As demonstrated here, an accurate diagnosis of giant hydronephrosis remains challenging [7,8]. Due to the atrophy of the renal parenchyma associated with chronic obstruction, the diagnostic accuracy even of modern imaging modalities is limited since functioning renal parenchyma with adequate contrast enhancement might be absent [7]. Therefore, any abdominal/retroperitoneal cystic mass even in the absence of other evident pathologies should include the differential diagnosis of a possible hydronephrosis. Regarding the case presented here, a preoperative cystoscopy in combination with a retrograde illustration of the ureter could have been useful to complete diagnosis. In general, diagnostic accuracy might be increased by a combination of endourological techniques (such as retrograde pyelography) and modern imaging modalities, e.g. magnet resonance imaging.

Competing interests

None declared.

Authors' contributions

AH and AJS performed the operation, AJS and GA wrote the draft, RH and RvK discussed treatment options. All authors contributed to, read and approved the final manuscript.

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