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Giant Hydronephrosis Containing Eighteen Liters of Fluid in a Child: A Case Report

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Authors' contributions

This work was carried out in collaboration between all authors. Author SAA designed the study, wrote the protocol and wrote the first draft of the manuscript. Authors SUA, SAM and MA managed the literature searches. All authors read and approved the final manuscript.

Case Study

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ABSTRACT

Giant hydronephrosis is defined as the accumulation of more than 1L of fluid in the collecting system of the kidney. We present a case of giant hydronephrosis containing 18 L of fluid in a 13- year- old girl resulting from neglected PUJ obstruction. She had a single stage nephrectomy and did very well post-op.

Keywords: Giant hydronephrosis; PUJ obstruction; nephrectomy.

1. INTRODUCTION

Hydronephrosis are said to be giant whenever they contain more than 1 liter of fluid. They are rare entities. Giant hydronephrosis is thought to develop gradually over a long period, although rapid exacerbation has been reported [1]. Most giant hydronephrosis are asymptomatic apart from the increasing abdominal swelling. They become symptomatic only when they develop complication such as infection or compression of surrounding structures like intestines and blood vessels [2,3].

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It is usually secondary to PUJ obstruction, other causes are renal/ureteric stones, renal ectopia and uretero vesical junction obstruction [4,5].

We report a case of a giant hydronephrosis containing 18 L of fluid secondary to neglected PUJ obstruction in a 13- year- old girl.

2. CASE REPORT

SS is a 13- year- old girl who presented to us in November 2013 with abdominal mass which her mother first noticed when she was 2 year old (11years back). It started as a small swelling on the right flank which gradually increased in size until it reached the present state. It was painless and there were no other swellings in the body. No urinary symptoms or haematuria. There was significant weight loss and loss of appetite. There were no GI symptoms except easy satiety. She had no cardiopulmonary symptoms. She had recurrent episodes of fever few months before presentation.

Her mother did not recieve ante-natal care during her pregnancy and she was delivered at home.

Physical examination revealed a young girl, grossly wasted, afebrile, not pale, not dehydrated and there was no facial puffiness or pedal oedema. Her pulse rate was 80 beats/minutes and PB 120/70mmHg. Her weight was 49kg.

Her abdomen was grosslly distended, symmetrical, non tender and there was no palpable masses. Fluid thrill was positive and percussion note was dull (Fig. 1).

Result of her investigations are as follows;

PCV 36%, WBC 6.9 x 10^9/L, ESR 15mm/Hr.

Serum urea, electrolyte and creatinine were within normal range, liver function test was also normal.

Abdominal ultra sound scan revealed huge complex intra abdominal mass of unknown origin.

Abdominal CT scan showed a multicystic right renal tumour suggestive of nephroblastoma (Fig. 2).

She had exploratory laparotomy, the intra operative findings were; huge cystic mass occupying the entire abdomen, displacing the intestines posteriorly to the left (Fig. 3). The mass contained 18L of serous fluid. The PUJ was completely obstructed, There was no renal parenchymal tissue left.

She had left nephrectomy. She did well and was discharged from the hospital on the 7th post-operative day. Histology revealed a cystic lesion lined by attenuated transitional epithelium. No renal tissue was found.

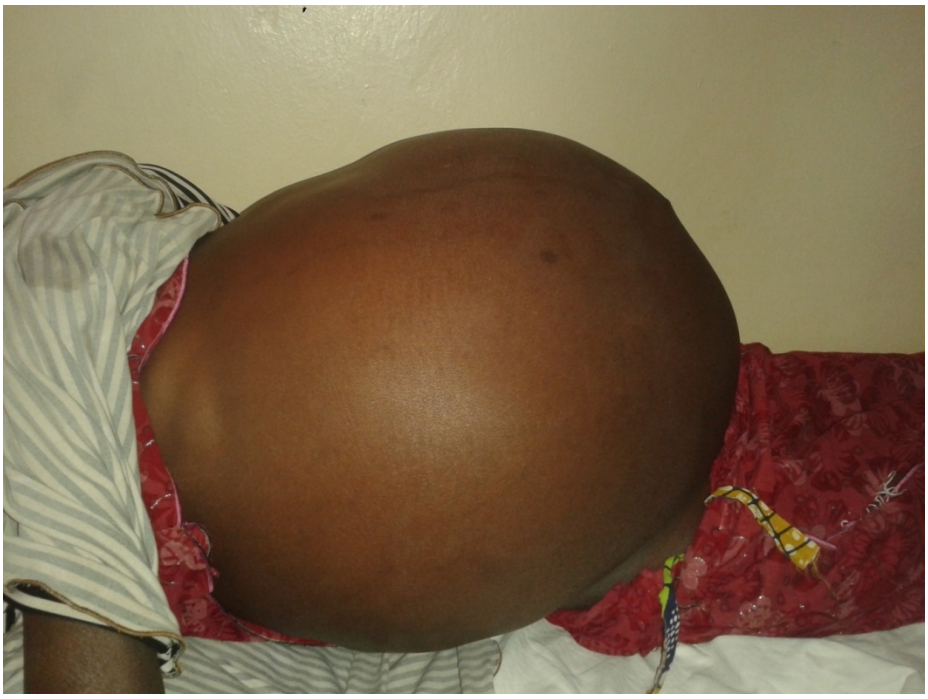

Fig. 1. Showing grossly distended abdomen

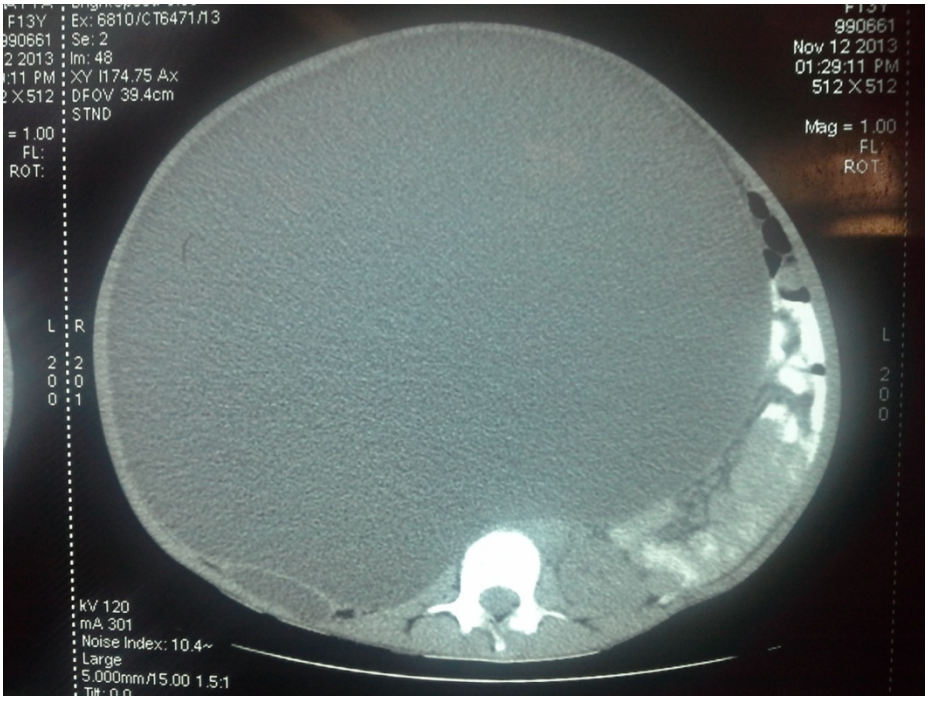

Fig. 2. CT Scan Showing huge cystic mass displacing the entire abdominal contents to the left

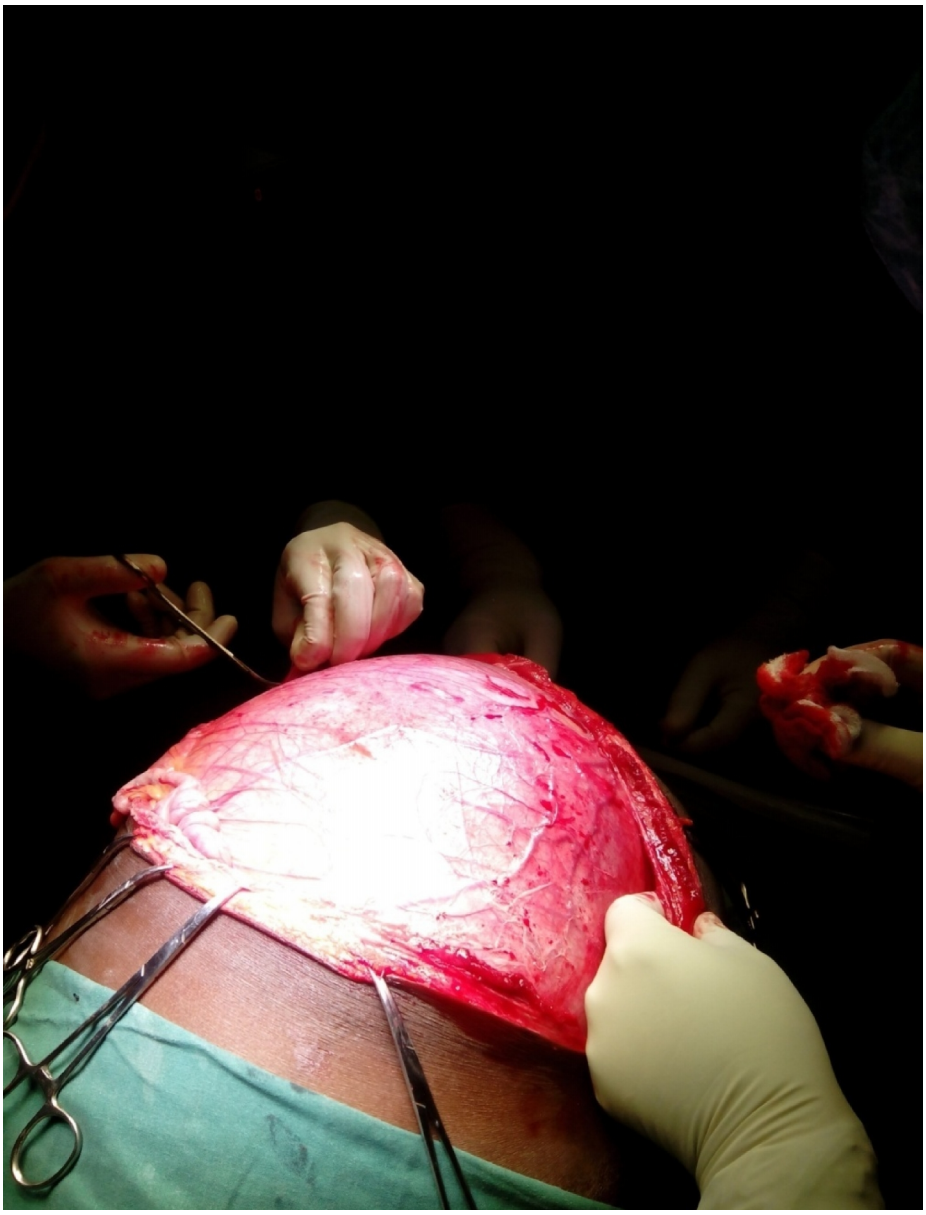

Fig. 3. Intra operative showing the mass occupying the entire abdominal cavity

3. DISCUSSION

Sterling [6] defined giant hydronephrosis as the presence of 1 to 2 litres of fluid in the collecting system of the kidneys. It is a rare condition particularly now that there is improvement in diagnostic gadgets such as ultra sound, CT scan and MRI. So far more than 600 cases have been reported in the literature. The first case of giant hydronephrosis was reported in 1746, since then there has been increasing number of cases [5]. Giant hydronephrosis can occur in a normally located or even an ectopic kidney. Hsieh et all.

reported a case of giant hydronephrosis in an ectopic kidney that resulted from PUJ obstruction [7].

PUJ obstruction is the commonest cause of giant hydronephrosis, other causes include urinary stones, trauma, renal ectopia, ureterovesical junction obstruction and rarely malignancies [4,5]. The cause of the of giant hydronephrosis in our patient was congenital PUJ that had been neglected. The swelling was noticed by the parents since when the patient was 2 year old (11 years back) but they did not take the child to any hospital until when it reached the present size. Instead they resorted to traditional medications.

Giant hydronephrosis usually develops gradually over a long period, although rapid exacerbation have been reported [1,3]. This is not different from the case in our patient which took 11 years to reach the present size. Because of the slow nature progression, most giant hydronephrosis are asymptomatic except for the abdominal enlargement. They become symptomatic only when they develop complication such as infection or compression of surrounding structures such as the intestines and blood vessels [2,3]. Our patient was asymptomatic apart from the abdominal enlargement and weight loss. Her weght loss and failure to thrive was a result of the giant mass compressing the stomach and the intestines leading to easy satiety and hence malnurition.

Hydronephrosis can attain enormous sizes when left untreated and therefore can pose diagnostic challenges as it can mimic other causes of massive abdominal swellings like massive ascites, retroperitonial cyst, pancreatic pseudocyst, mesenteric cyst or ovarian tumours [5,8]. Schrader et al reported a case with a weight of 15kg [1]. Yitmaz et al reported a case containing 13.5 L of fluid in a child [8]. So far our case is one of the biggest ever reported in the literature as it contained 18 L of fluid and the patient was just 13-year -old.

The treatment of giant hydronephrosis depends on the size as well as the general condion of the patient. The treatment includes pyeloplasty if it is not massive and there are preserved renal parenchyma, Per cutaneus drainage can be done when massive and the patient is haemodynamically unstable and is then followed by nephrectomy. Chiang et al advocates a two stage procedure with slow decompression by percutaneus nephrostomy before nephrectomy in compromised patients [9]. Nephrectomy is the mainstay treatment [2,4,5,10]. Our patient had one stage nephrectomy as she was haemodynamically stable during the pre operative period. She remained stable post-op and did not develop any complication.

4. CONCLUSSION

Giant hydronehrosis although rare should be considered when evaluating patients with massive abdominal swellings. High index of suspicion is essential to consider this diagnosis as it posses a diagnostic challenge notably in developing countries where imaging facilities such as CT scan and MRI are not readily available.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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