Ovarian Dermoid Cyst Causing Distal Ureteral Obstruction

WD Aiken[1], RG Mayhew[1], S Mitchell[2], M Stennett[3], P Johnson[1]

ABSTRACT

A case of a 45-year old woman with an ovarian dermoid cyst causing ureteric colic secondary to distal ureteral obstruction is reported. The dermoid cyst was observed on computed tomography to be adjacent to and compressing the distal left ureter and this was confirmed at surgical exploration. Following oophorectomy, the patient's symptoms completely resolved and the excised ovarian cyst was confirmed on pathological evaluation to be a dermoid cyst. This appears to be the first reported case of ureteral obstruction caused by an ovarian dermoid cyst in the English medical literature.

Keywords: Bone, hydronephrosis, obstruction, ovarian dermoid cyst, ureter

Quiste Dermoide Ovárico como Causa de la Obstrucción Ureteral Distal

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RESUMEN

Se reporta el caso de una mujer de 45 años con un quiste dermoide de ovario que le produjo un cólico ureteral secundario a la obstrucción ureteral distal. En la tomografía computarizada se observó que el quiste dermoide era adyacente al uréter distal izquierdo y lo comprimía. Esto fue confirmado en la exploración quirúrgica. Después de la ooforectomía, los síntomas del paciente se resolvieron totalmente, y en la evaluación patológica, se confirmó que el quiste ovárico extirpado era un quiste dermoide. Este parece ser el primer reporte de caso de una obstrucción ureteral causada por un quiste dermoide en la literatura médica inglesa.

Palabras claves: Hueso, hidronefrosis, obstrucción, quiste dermoide ovárico, uréter

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INTRODUCTION

An unusual case of an ovarian dermoid cyst causing distal ureteral obstruction is presented. Ovarian dermoid cysts are the most common germ cell tumours of the ovary in women of the reproductive age group (1). No previously reported case of an ovarian dermoid cyst causing ureteral obstruction was found in the English medical literature. The diagnosis was made with the aid of abdominopelvic computed tomography (CT) scan imaging. This case is presented to report this unusual cause of ureteral obstruction and to discuss the imaging techniques best suited to diagnosing it.

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CASE REPORT

A 45-year old woman was referred to a urologist by her general practitioner (GP) with a one-year history of intermittent left-sided colicky abdominal pain associated with nausea but not with vomiting, fever nor any lower urinary tract symptoms. Three weeks prior to seeing the GP, the pain had worsened. She had no chronic medical illnesses and had undergone two lower segment Caesarean sections eight and 12 years earlier.

On examination, she was in painful distress, had pink and moist mucous membranes and no evidence of fever. Abdominal examination was normal except for a Pfannenstiel scar and left renal angle tenderness. Urinalysis demonstrated 1^+ blood and protein but no evidence of infection. Renal function tests and complete blood count were normal. The patient already had done an intravenous urogram (IVU) requested by the GP which demonstrated a 1 cm irregular radio-opacity just below the left sacroiliac joint on the preliminary film and left hydronephrosis and hydroureter down and just medial to the level of the radio-opacity (Fig. 1).

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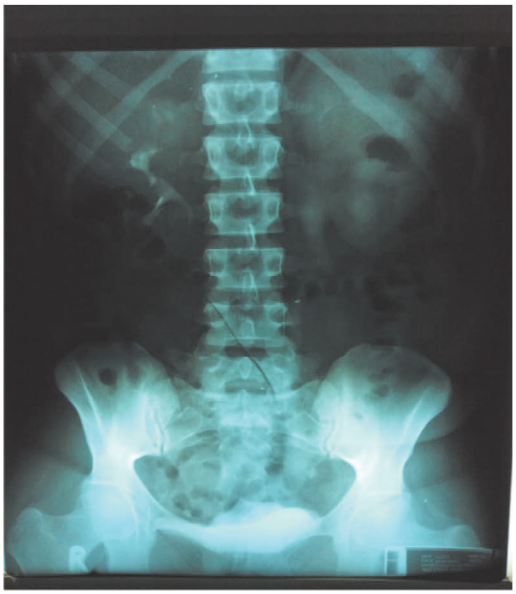

Fig. 1: Prone image of excretory phase of intravenuous urogram (IVU) showing hydronephrotic left kidney and hydroureter down and medial to level of the radio-opacity inferior to the left sacroiliac joint.

She was diagnosed as having left ureteral colic secondary to an obstructed distal left ureter and scheduled to have immediate placement of an indwelling ureteral stent to relieve the obstruction and achieve pain control. She had routine cystoscopy in the modified lithotomy position under general anaesthesia and a 0.038 inch guide wire was passed with ease up the left ureteral orifice into the renal pelvis under X-ray control. The guide wire was noted to be well medial of the radio-opacity. A 6F, 24 cm double-J stent was then passed and confirmed to be in good position before the guide wire was removed. The stent was also noted to be medial to the radio-opaque calculus (Fig. 2).

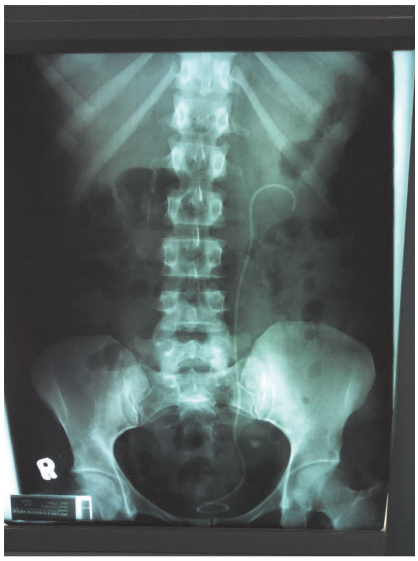

Fig. 2: Plain kidney, ureter and bladder (KUB) X-ray showing left ureteral stent lying medial to the radio-opacity inferior to the left sacroiliac joint.

Postoperatively, the patient's left-sided flank pain was relieved but was replaced with a severe left-sided lower back pain. A postoperative abdominopelvic CT scan demonstrated a 4.3 cm x 3 cm hypodense mass in the left hemi-pelvis containing calcific foci and was thought to represent a left ovarian dermoid cyst (Fig. 3). It was adjacent to and appeared to be compressing the distal left ureter.

Based on the CT findings, the gynaecologists were consulted and they assessed the patient as having a left ovarian dermoid cyst and uterine fibroids and, on the basis of her age and perimenopausal status, recommended total abdominal hysterectomy (TAH) and bilateral salpingo-oophorectomy (BSO).

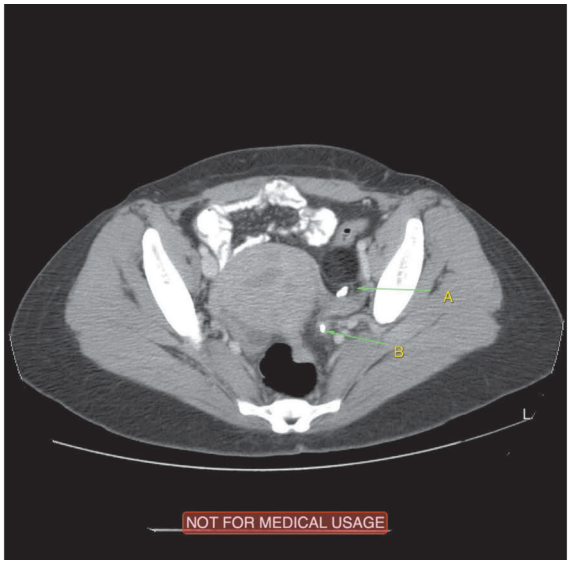

Fig. 3: Unenhanced axial computed tomography (CT) scan image of pelvis showing calcific density in left ovarian dermoid cyst (A) anterolateral to adjacent ureter (B).

At surgery, a bulky uterus was encountered and a discrete left ovarian mass was seen adjacent to and compressing an intact pelvic ureter. A TAH/BSO was done and the left pelvic ureter was examined and was noted to be intact. The patient made an uneventful recovery following surgery with complete resolution of her symptoms. She had the ureteral stent removed a few weeks later. Pathological examination of the excised ovarian cyst confirmed it was an ovarian dermoid tumour with elements of bone, muscle, hair and cartilage (Fig. 4). Follow-up ultrasound done six weeks later demonstrated complete resolution of the hydronephrosis.

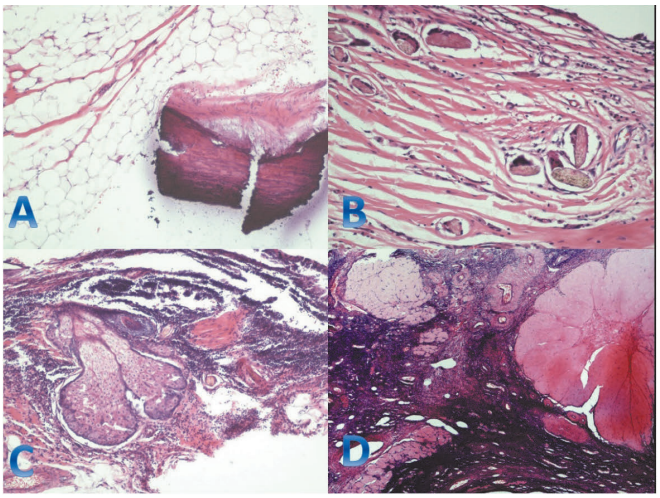

Fig. 4: Composite photograph showing histological sections of ovarian dermoid cyst demonstrating bone and fat (A), hair follicles (B), sebaceous glands, muscle fibres and lymphoid infiltrate (C) and glial tissue (D).

DISCUSSION

Dermoid cysts account for 10% of all ovarian tumours, and are characterized by the composition of tissue derived from more than one of the three primitive embryonic layers, although ectodermal elements such as teeth, bone, cartilage and hair typically dominate (1).

Ovarian dermoid cysts can be detected by a number of different imaging modalities. Ultrasound is a readily available, relatively inexpensive and non-invasive modality and has a sensitivity of 90% in diagnosing ovarian dermoid cysts (2) and is therefore likely to have detected the patient's ovarian cyst had it been done. The urologist had the benefit of the IVU films accompanying the patient at the initial consultation and this demonstrated hydronephrosis and hydroureter on the excretory phase consistent with distal ureteral obstruction. The priority of management was to relieve the patient's pain by relieving the obstruction.

Abdominal ultrasound has a sensitivity of 37–64% in detecting ureteral calculi in the setting of acute flank pain (3, 4) and would not have been requested after the more sensitive IVU. The sensitivity of IVU in detecting ureteral stones in the setting of acute flank pain compares favourably at 64% and approximates the sensitivity of CT scan in diagnosing obstruction (5). However, an initial ultrasound is likely to have made the diagnosis preoperatively and may have avoided an unnecessary CT scan.

A non-contrast helical CT scan is the imaging modality of choice in the evaluation of acute flank pain, and although the patient's pain was present for one year, she experienced an acute exacerbation in the three weeks prior to presentation which could have prompted investigation by a CT scan. Computed tomography has a sensitivity of 98% and overall accuracy of 96% in detecting ureteric calculi (6). It is also advantageous in detecting extraurinary retroperitoneal and pelvic masses that may cause ureteral compression as was the case with this patient. Computed tomography has 98% sensitivity in diagnosing ovarian dermoid cysts through identification of fat, teeth, bone or other stigmata (7).

It is possible that in another patient with a similar problem, the calcific density contained within the dermoid cyst could have completely overlapped the opacified ureter on a coronal or straight-on view of the excretory phase of an IVU, leading to the possible erroneous interpretation of an intraluminal calculus at the point of obstruction by the dermoid cyst. This was not the case here but is mentioned in support for CT imaging as the modality of choice, as this possible misinterpretation would not be likely to occur with a CT study.

In conclusion, to the best of our knowledge, this is the first reported case of an ovarian dermoid cyst causing ureteral obstruction in the English medical literature. The diagnosis was easily made on abdominopelvic CT scan and the obstruction was relieved once the dermoid cyst was excised.

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