Urology Case Reports 33 (2020) 101374

Contents lists available at ScienceDirect

Urology Case Reports

journal homepage: http://www.elsevier.com/locate/eucr

Oncology

Renal endometriosis mimicking a renal tumor in a pregnant patient

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ARTICLE INFO

Keywords:
Endometriosis
Renal tumors
Pregnancy
Inflammatory mass

ABSTRACT

Renal endometriosis, if progressed is a serious localization of disease burden that can lead to urinary tract obstruction, with subsequent hydronephrosis leading to potential kidney loss. Diagnosis is elusive and relies heavily on clinical suspicion as endometriosis can occur with both minimal and extensive disease. Management technique varies but the goal is to salvage renal function and disease burden.

Introduction

Endometriosis is the presence of ectopic endometrial tissue in an extra-uterine site. It is usually within the pelvis but very rarely at the distant site & symptomatic involvement of the kidney is exceedingly rare. Endometriosis is a common disorder affecting 5–10% of women of reproductive age ([1]). It is the second most common pelvic pathology and the most common cause of pelvic pain in the women. Endometriosis manifests during reproductive years as it is an estrogen dependent process with clinical symptoms of dysmenorrhea, dyspareunia and profuse bleeding.

The endometrial tissue that grows in the kidney responds to hormonal changes during the menstrual cycle. The endometriomas form a fibrous layer surrounding the kidneys and causes pain. They can either block or constrict ureters resulting in renal or ureteric colic. Imaging modalities like ultrasonography, contrast enhanced computed tomography (CECT) and magnetic resonance imaging (MRI) are not used to establish a confirmatory diagnosis since they cannot conclusively differentiate between endometriosis and malignancy. The most definitive diagnosis can be reached via the histopathologic examination of kidney tissue. Klein and Cattolica[2] noted that the main challenge in the treatment of ureteral endometriosis is its early diagnosis.

This case of renal endometriosis mimicking a renal tumor in a pregnant patient highlights how this benign disease process can mimic sinister urologic malignancies.

Case report

In April 2020, a 30-year-old married woman with seventeen weeks of pregnancy presented to our outpatient urology clinic and complained of paroxysmal dull pain in the right lower back for the last five days. The pain had been aggravated with exertion and progression of pregnancy. Medical and surgical history were unremarkable. No abnormalities were noted on abdominal and pelvic physical examination. All laboratory investigations were within normal limits.

Contrast enhanced MRI abdomen showed a fairly defined lesion at interpolar region of right kidney extending to the renal pelvis up to the pelviureteric junction. It measures approx. 5.7*6.5*5.9cm (AP*MTD*CC). Lesion is heterogeneously hypointense on T1W1 and T2W1 sequence with foci of hyper-intensity on T2W1 sequences. A small outpouching is also noted from the lower part of mass lesion with no definite fat suppression on T2FS sequences [Fig. 1].

We reviewed diagnostic and treatment options, most notably active surveillance, renal biopsy, ureterorenoscopy and partial or radical nephrectomy. Given the pregnancy and the renal mass along with her young age, we recommend ureterorenoscopy followed by radical nephrectomy. Ureterorenoscopy revealed a large growth protruding into right renal pelvis and pelviureteric junction without papillary lesion.

Patient was placed in modified flank position and using a standard subcostal incision right kidney was exposed and mass was readily identified. The mass was noted to be solid renal mass. Liver found adherent to anterior abdominal wall, adhesions broken and a mass observed in the caecum and ascending colon [Fig. 2]. Line of toldz divided and dissection of mass revealed abscess which was drained and pus sent for culture and sensitivity. Caecum and hepatic flexure of colon mobilized by dividing the hepatocolic ligament. Duodenum kocherized and pushed anteriorly.

Right renal vein identified and slinged. Kidney was mobilized

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https://doi.org/10.1016/j.eucr.2020.101374
Received 25 June 2020; Received in revised form 2 August 2020; Accepted 5 August 2020
Available online 10 August 2020

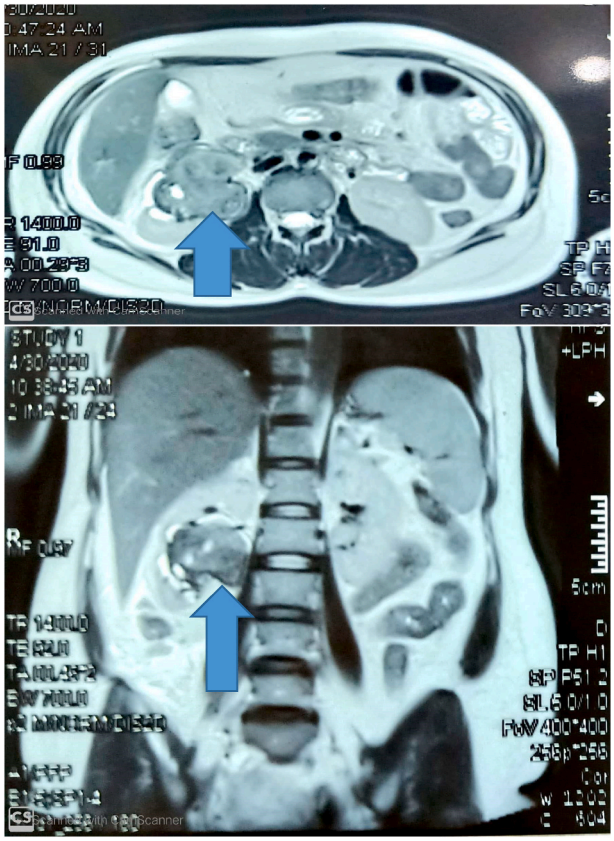


Fig. 1. Section “a & b” shows a fairly defined right renal mass.

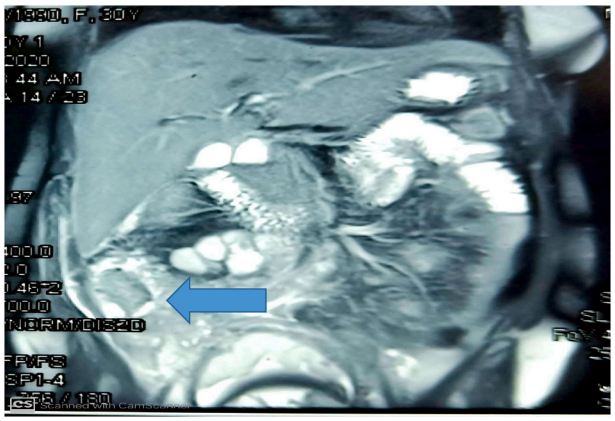


Fig. 2. Shows an inflammatory mass in right lower quadrant.

posteriorly to identify renal artery which was tied with vicryl 1 before sharp excision of the lesion. Kidney mobilized superiorly and separated from adrenal gland by ligating the suprarenal veins, inferiorly gonadal veins and ureter ligated and kidney removed. A visually appreciated negative margin was maintained throughout the resection of the mass.

Histopathology revealed fragments of renal parenchyma composed of endometrial type glands suggestive of endometrioma [Fig. 3].

Discussion

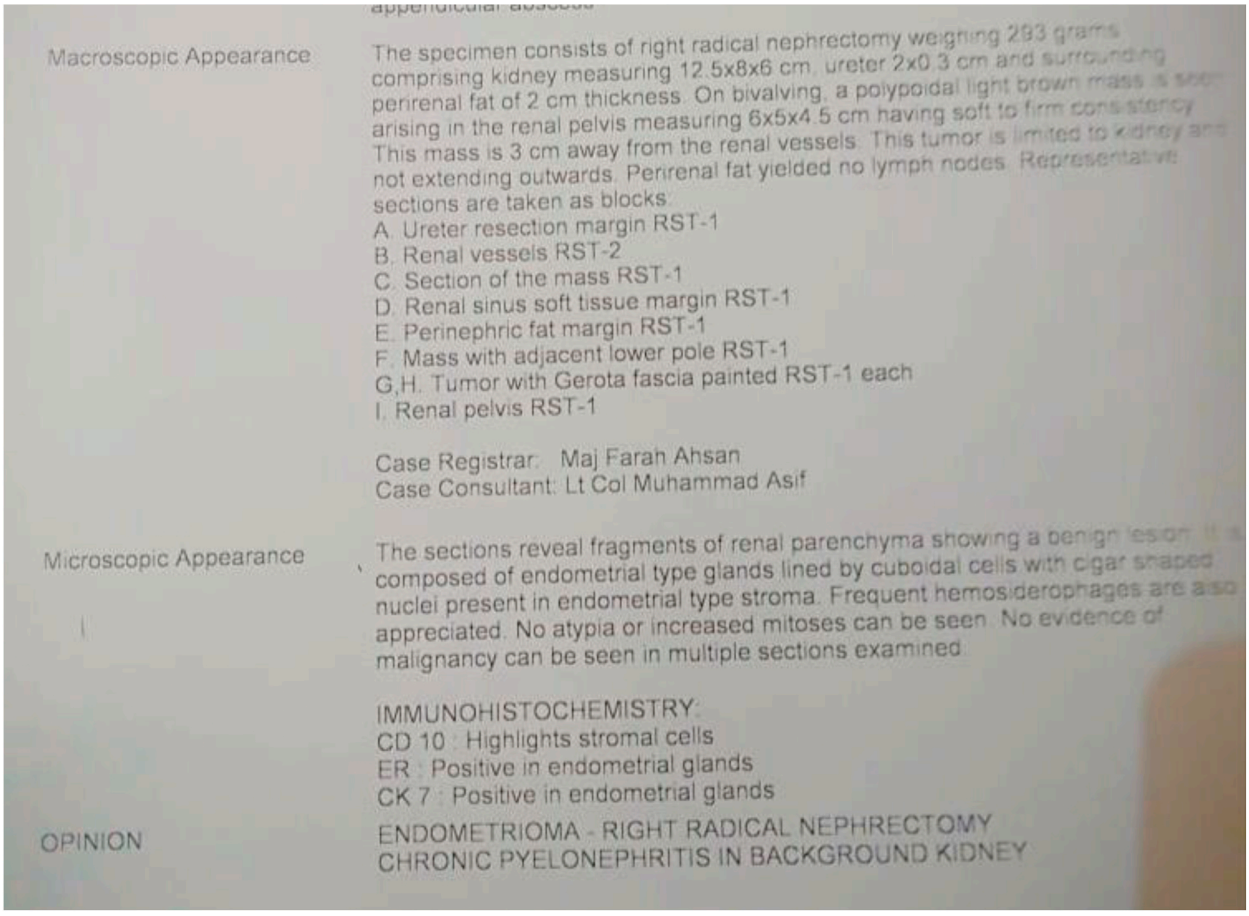
Although endometriosis was described as early as 1690 by Shroen. Later, Ruysch proposed an early version of retrograde menstruation, its pathogenesis remains elusive.[3] Ureteral endometriosis silently infiltrates the kidney and can kill function in one or both kidneys.

These sequelae can occur in both minimal and extensive disease. It has been reported that as many as 25%–50% of nephrons are lost when there is evidence of ureteral endometriosis, and 30% of patients will have reduced kidney function at the time of diagnosis that may result in silent kidney loss.[4]

The best treatment approach is generally aimed at relieving symptoms, ureteral obstruction and rescuing the involved kidney. A multidisciplinary team approach, including laparoscopic gynecologist, urologist, and colorectal surgeon play key roles in the successful treatment of extensive disease. Although it is true that medical treatment has long been considered the first step in the management of symptoms, it is expensive, recurrence is high, and the potential risk of renal function loss is an indication for surgical intervention.[5]

Conclusion

Management of endometriosis rests with early recognition and directed intervention. Ureteral endometriosis, if progressed results in hydronephrosis, renal atrophy and functional loss. Preoperative assessment with a thorough history, physical examination, and imaging can potentially help in the diagnosis. Evidence consistent with involvement



Macroscopic Appearance

The specimen consists of right radical nephrectomy weighing 293 grams comprising kidney measuring 12.5x8x6 cm, ureter 2x0.3 cm and surrounding perirenal fat of 2 cm thickness. On bivalving, a polypoidal light brown mass is seen arising in the renal pelvis measuring 6x5x4.5 cm having soft to firm consistency. This mass is 3 cm away from the renal vessels. This tumor is limited to kidney and not extending outwards. Perirenal fat yielded no lymph nodes. Representative sections are taken as blocks:

A. Ureter resection margin RST-1
B. Renal vessels RST-2
C. Section of the mass RST-1
D. Renal sinus soft tissue margin RST-1
E. Perinephric fat margin RST-1
F. Mass with adjacent lower pole RST-1
G,H. Tumor with Gerota fascia painted RST-1 each
I. Renal pelvis RST-1

Case Registrar: Maj Farah Ahsan
Case Consultant: Lt Col Muhammad Asif

Microscopic Appearance

The sections reveal fragments of renal parenchyma showing a benign lesion. It is composed of endometrial type glands lined by cuboidal cells with cigar shaped nuclei present in endometrial type stroma. Frequent hemosiderophages are also appreciated. No atypia or increased mitoses can be seen. No evidence of malignancy can be seen in multiple sections examined.

IMMUNOHISTOCHEMISTRY:
CD 10 : Highlights stromal cells
ER : Positive in endometrial glands
CK 7 : Positive in endometrial glands

OPINION

ENDOMETRIOMA - RIGHT RADICAL NEPHRECTOMY
CHRONIC PYELONEPHRITIS IN BACKGROUND KIDNEY

Fig. 3. Histopathology report.

of the genitourinary system allows for appropriate pre-consultation with urology surgeons.

The goal is to salvage the renal system and reduce disease burden. The surgical approach varies, within the hands of an experienced, advanced laparoscopic surgeon through minimally invasive techniques. The limiting factors in effectively treating even extensive disease is that the skill of the surgeon and the availability of proper instrumentation.

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