

A young woman with endometriosis of kidney

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ABSTRACT

Endometriosis of kidney is a rare manifestation of a relatively common disease. We report a case in which ovarian and renal endometriosis were diagnosed concurrently. The disease was probably silent for a long time due to coexistent thyrotoxicosis modifying estrogen metabolism. Fine needle aspiration cytology clinched the diagnosis of endometriosis and avoided unnecessary nephrectomy.

Saudi Med J 2006; Vol. 27 (2): 244-246

Endometriosis is defined as the presence of ectopic endometrial tissue outside the myometrium. This condition affects 10-15% of premenopausal women, usually between the ages of 30 and 35-years.¹ The median age for diagnosis of extragenital lesions is 35-40 years, approximately 5 years older than that of genital lesions.^{2,3} Extra genital endometriosis may involve any tissue. Endometriosis involving the renal tract is rare and usually associated with evidence of previous pelvic endometriosis. Marshall⁴ described the first case of renal endometriosis. Less than 25 cases of renal endometriosis have been reported previously in the literature. We report a case that had multiple lesions in the kidney that was confirmed on histopathology.

Case Report. A 38-year-old woman mother of 2 children was diagnosed to have thyrotoxicosis 3 months back and was on carbimazole. She presented with abdominal pain of 2 months duration and was found to have left ovarian mass of 15 x 12 x 6 cm size. Before admission she underwent exploratory laparotomy with bilateral salpingo-oophorectomy and was referred to us for further management with the surgical specimen. She had no menstrual irregularities, dysmenorrhea or urinary symptoms. On examination,

she was toxic, sick looking, febrile and had a pulse rate of 102/min, blood pressure 110/70 mm Hg, and body mass index of 12.4 kg/m². She had a grade II goiter without any pressure symptoms. Systemic examination was unremarkable except a lower midline scar over abdomen, which was infected with an intraabdominal swelling. Laboratory examinations revealed hemoglobin of 11 gm/dl, total leukocyte count of 12,000/mm, creatinine 1.33 mg/dl. Urine routine examination showed 12-14 pus cells per high power fields and culture grew *Escherichia coli*. Her T₃, T₄ and thyrotropin were 2.56 ng/dl [0.6-1.81], 135 ng/dl (45-109), and 0.04 μ IU/ml (0.35-5.5). The thyroid microsomal antibody was positive. A ^{99m}Tc-scintigraphy of thyroid and whole body iodine scan revealed diffusely increased uptake of tracer in the thyroid bed. A contrast enhanced CT scan of the abdomen was carried out to look for intraabdominal collections revealed enlarged right kidney with a multiple focal hypodense lesions of varying sizes (5-10 mm) (**Figure 1**), and bilateral inflammatory collections in the adnexal area. The right ureter and pelviccaliceal system were dilated up to the lower end. The surgical specimen of ovary and fine needle aspiration cytology (FNAC) from hypodense areas of kidney revealed evidence of endometriosis (**Figure**

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Received on 5th June 2005. Accepted for publication in final form 27th September 2005.

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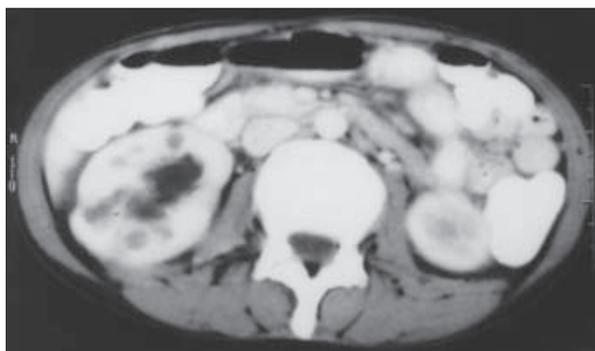


Figure 1 - Contrast enhanced CT scan of the abdomen showing multiple hypodense areas in the right kidney

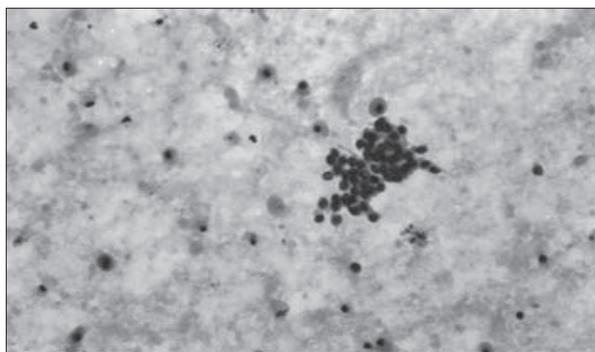


Figure 2 - Photomicrograph showing cluster of tubular epithelial cells in a background containing many scattered foamy histiocytes some of which contain hemosiderin. (hematoxylin & eosin x 360)

2). She was administered parenteral antibiotics and subjected to pigtail drainage of intraabdominal collection. Later, she received 5 mci of ^{131}I . At 6 weeks of follow up patient was euthyroid. An intravenous pyelography was performed, and we observed no ureteric obstruction. Danazol of 400gms were orally administered and she was responding very well.

Discussion. Extragenital endometriosis is relatively uncommon. The lesions may be found in the intestines, urinary tract, abdominal scars, thorax, umbilicus, and the kidneys in that order (**Table 1**).³ Genitourinary endometriosis is rare and commonly affects the female between 25-40 years. Urinary bladder is the most site to be involved followed by ureters, kidney, urethra and prostate occurring with a ratio of 40:4:1:1.^{4,5} Various theories have been proposed to explain the occurrence of endometriosis in the extra genital sites. Considerable evidence supports the migratory theory, which suggests that endometrial tissue elements originate in the uterine mucosa and reach an ectopic position by direct invasion, implantation or metastasis.⁶ More recent

Table 1 - Incidence of extra-genital endometriosis at different sites.

| Site | Percentage |
|---------------------------|------------|
| Intestine | 32 |
| Urinary tract | 20 |
| Bladder | 49 |
| Ureter | 49 |
| Kidney | 1 |
| Urethra | 1 |
| Lung and pleura | 2 |
| Scars | 30 |
| Umbilicus | 11 |
| Others | 2 |
| Inguinal region and thigh | 3 |

evidence suggests that endometriosis is caused by transplantation of viable endometrial fragments shed during menses that are regurgitated through the fallopian tubes due to the influence of prostaglandin mediated uterine contractions.⁷ Factors that increase incidence of endometriosis are those which cause relative uterine outflow obstruction. This theory could explain the occurrence of renal endometriosis by hematogenous metastatic spread.⁸ However, no such factors were operative in our case. Many clinical observers suggest that endometriosis is estrogen dependent. Any intervention that decreases estrogen production typically decreases the extent of endometriosis and oophorectomy is usually curative.⁹ Although, literature review suggests that renal endometriosis is usually associated with previous pelvic endometriosis, in our case they were almost concurrent and diagnosed coincidentally during the evaluation of postoperative intraabdominal collection. The other major theory to explain our case is the coelomic metaplasia theory. During early embryo genesis, coelomic membrane related cells were disintegrated into the developing kidneys and later stimulated by increased rate of conversion of androgens to estrogens due to a thyrotoxicosis state. In thyrotoxicosis, free estradiol is decreased and its tissue metabolism is increased, which possibly led to silent disease for a long time in our case. The common manifestations of renal endometriosis are local pain and rarely cyclical hematuria, which is more common with ureteric and bladder endometriosis. It usually comes insidiously and might present for many years before the diagnosis made. Sometimes the lesion may be totally asymptomatic as happened in our case. Many cases in the literature were diagnosed on histopathology of kidneys removed for presumed renal cell carcinoma.^{9,10} However, due to wider use of FNAC this type of situation will come down in

the future. Long standing pain from urinary tract and a poor response to common treatments should raise the possibility of endometriosis particularly in the women who have had a history of endometriosis, or if lesions are in the utero-sacral, cardinal ligaments, the ovaries and the pelvic wall.³ Literature is scant and unhelpful for the management of renal endometriosis. The choice of treatment depends upon the condition of kidney, the severity of symptoms, extent of disease, age of the patient and whether further pregnancy is planned.¹⁰ Our patient has already completed the family, and there was no disturbance of renal function, a total abdominal hysterectomy with bilateral salpingo-oophorectomy had already been carried out. Therefore, she was put on hormonal manipulation with danazol. The lesions regressed slowly. During treatment of endometriosis of kidney, renal function should be closely monitored and periodic radiological imaging should be carried out to look for regression of lesions. If ovarian inactivation is insufficient, the disease part is usually resected. Electro coagulation of smaller lesions is not recommended, as the endometrial tissue grows all the way.

In summary, endometriosis of kidney is a rare manifestation of a common disease. A high index of suspicion is necessary to avoid unnecessary nephrectomy.

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