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Surgery for Ovarian Remnant Syndrome

Lessons Learned from Difficult Cases

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Ten cases of ovarian remnant syndrome jointly managed by gynecology and urology departments are presented. Complications of the surgery included a high incidence of ureteral and bowel injury. Preoperative, intraoperative and postoperative considerations may reduce the complications or minimize their significance. One case of ovarian cancer developed among the instances of ovarian remnant syndrome in this series. Preoperative, intraoperative and postoperative considerations can reduce the complications of surgery for ovarian remnant syndrome.
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Introduction

Ovarian remnants were first noted as causes of ureteral obstruction in a report of two cases by Major in 1968.[1] The ovarian remnant syndrome was formally described by Shemwell and Weed in 1970. The syndrome is the condition "in which remnants of ovarian cortex, left behind after surgical removal of the ovaries, become functional and sometimes cystic."[2] Steege further distinguished between "definite" and "probable" cases of ovarian remnant syndrome. Definite cases were those in which there was (1) documentation of previous bilateral oophorectomy, and (2) histologic documentation of ovarian tissue obtained during subsequent surgery. Probable cases were those in which (1) previous bilateral oophorectomy had occurred, (2) premenopausal levels of serum follicle stimulating hormone (FSH) were <40 mIU/mL in the absence of estrogen or progestin replacement therapy, and (3) a pelvic mass was both palpated and visualized on ultrasound.[3]

The ovarian remnant syndrome is clearly different from two other conditions: (1) the residual ovary syndrome, in which an ovary left in place at gynecologic surgery later becomes encapsulated and causes pelvic pain,[4] and (2) the supernumerary ovary syndrome, which is a very rare condition resulting from malpositioning of an ovary because of congenitally delayed germ cell migration.[5]

Surgical removal of ovarian remnant tissue often requires dissection and mobilization of the ureter throughout its entire pelvic course but is often accomplished without major complications. However, complications may be common with the degree of ureteral dissection required to remove ovarian remnants. This report describes 10 patients who were jointly managed by gynecology and urology departments because of major surgical complications or difficult dissections resulting from attempts to remove ovarian remnant tissue.

Materials and Methods

The study was a retrospective chart review of patients with ovarian remnant syndrome who came to the attention of both our gynecology and urology departments because of surgical complications at the University of Michigan between January 1988 and May 1991. Over 20 operations for probable or definite ovarian remnant syndrome were performed at the University of Michigan during the same interval. However, only those managed by both departments were included in the study. All

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patients were referred to the gynecology or the gynecologic oncology service. Six faculty physicians served as primary surgeons in these cases.

Results

The 10 patients in this report ranged in age from 30 to 45 years. Eight of the 10 had definite ovarian remnant syndrome, with ovarian masses confirmed at surgery. Two had probable ovarian remnant syndrome, with adnexal masses but not pathology confirming ovarian tissue. All presented with pelvic pain, and 9 of 10 had a palpable adnexal mass that was confirmed by a preoperative ultrasound evaluation. The previous surgery had resulted from endometriosis (3 cases), uterine myomas with pelvic adhesions (5), cervical intraepithelial neoplasia with pelvic adhesions (1) and ovarian teratoma with pelvic adhesions (1). All eight who had FSH levels checked had low preoperative gonadotropin levels. Preoperative intravenous pyelography, done on all 10 patients, was abnormal in 3 and showed delayed renal visualization (1), ureteral stricture (1) and ureteral obstruction (1). Each of these patients had major ureteral surgery as a result of ovarian remnant removal. Two direct intraoperative ureteral injuries occurred in these 10 patients, requiring ureteral reimplantation with a Boari flap in one and resulting in a ureterocolonic fistula in the other. In one other instance, Boari flap reimplantation was done because of long-standing ureteral obstruction from the ovarian remnant. Two patients had further surgery after ovarian remnant excision for periureteral fibrosis. In one instance an ovarian tumor (poorly differentiated serous cystadenocarcinoma) was removed as an ovarian remnant.

Postoperatively, 8 of the 10 patients were free of pain at their six-month visit. One of the patients with continued pain received radiotherapy to the adnexal area (2,000 rads) after three operations to remove ovarian tissue and to lyse adhesions. The other patients had transvaginal needle drainage of a peritoneal cyst. The patient with cancer within the ovarian remnant received postoperative chemotherapy.

Discussion

Functional ovarian tissue has been shown to develop after peritoneal implantation of bits of ovarian cortex in nonhuman animals.[2] Analogous clinical findings occur in conditions that cause dense adhesions between the ovarian cortex and peritoneal surface. Usually this is seen in the ovarian fossa directly adjacent to the ureter. All 10 patients in this study had dense pelvic adhesions at their initial surgical procedures. Underlying pathology, such as endometriosis or pelvic inflammatory disease, has been noted in several reviews and was seen in these 10 cases.[3,6]

In dissection of the ovary at the time of initial tissue removal, careful identification of the ovarian blood supply and base of the ovary usually completes excision. Retroperitoneal dissection that clearly identifies vascular and ureteral strictures should be performed at the time of initial ovarian excision in patients with pelvic adhesions.

At least five preoperative issues should be considered before performing surgery for ovarian remnant syndrome. First, suppressive therapy for functional ovarian cysts should be considered for patients with smaller cystic adnexal masses. Progestational agents, oral contraceptives or gonadotropin releasing hormone therapy may eliminate the need for surgery in some patients. Second, provocative therapy should be considered, especially for patients who require repeat procedures for very small but painful adnexal lesions. The use of both clomiphene and menotropins has been described for stimulating the ovarian tissue, enlarging it and making identification of ovarian tissue easier.[7,8] In the one patient in this series on whom this was attempted, there was a 3-cm increase in ovarian size with two weeks of clomiphene therapy prior to surgery.

Third, since dense pelvic adhesions should be expected in instances of ovarian remnant syndrome, the risk of bowel injury may also be increased. In 2 of 10 patients in this series, direct entry into the sigmoid colon was required to accomplish ovarian tissue removal. Preoperative bowel preparation (mechanical and medical) should be undertaken before ovarian remnant surgery. Fourth, as emphasized especially by this report, preoperative evaluation of the urinary tract should be undertaken. In three patients in this series with abnormal preoperative pyelograms, major urologic surgery was required in association with removal of the ovarian remnant. Urologic consultation, even preoperatively, is helpful, and comanagement of these patients should be encouraged.

Last, informed consent discussions prior to surgery should include the fact that a significant percentage of patients with this condition will require intestinal or urinary tract procedures. Patients should be willing to give consent for any procedure

that may become necessary when surgery for ovarian remnant syndrome is undertaken.

Intraoperative management raises at least three issues in difficult cases of ovarian remnant syndrome. First, the use of ureteral stents placed cystoscopically during surgery has been encouraged by some[9] and questioned by others.[6] Stents were considered helpful aids to ureteral identification in 5 of the 10 cases in this report. All direct ureteral injuries occurred in patients in whom stents were not used. Second, the needs to engage in lateral, retroperitoneal dissection and to begin dissection at the level of the pelvic brim are both helpful considerations in difficult ureteral dissections.[10] Finally, placement of radioopaque vascular clips in the region of the ovarian remnant may be helpful in directing future radiotherapy in frustrating cases in which obscure bits of ovarian tissue fail to be excised and regrowth of functioning tissue occurs.

Three postoperative concerns are prominent in ovarian remnant syndrome cases. First, retroperitoneal fibrosis may be a progressive problem that results in delayed ureteral strictures, obstruction or fistula formation, as seen in two patients in this study. All these cases occurred two to six weeks after surgery for ovarian remnant tissue, even when no direct ureteral injury was noted during surgery. Therefore, postoperative follow-up should include evaluation for ureteral integrity at two- and six-week intervals after surgery. Also, wrapping the freely dissected ureter with omentum and placing sheets of oxidized methyl cellulose over the dissected areas have prevented the recurrence of retroperitoneal fibrosis in the patients in this series and should be considered, although data are lacking to support strongly any method of fibrosis prevention.[11] Second, in patients in whom repeated efforts have been made to remove ovarian remnant tissue and localized pelvic pain with a question of an adnexal mass continues, radiotherapy should be considered. Pettit and Lee resorted to it in 2 of 31 patients,[6] and 1 patient underwent it after three attempts at tissue removal in our series. A low dose of radiation (≤2,000 rads) is effective in destroying ovarian tissue and carries a minimal risk to other structures. Third, no evidence exists currently to suggest that estrogen replacement therapy increases the risk of ovarian remnant syndrome. Therefore, estrogen replacement should be considered, as it is in other routine cases after complete ovarian tissue removal.

As shown by one case in this series, ovarian carcinoma may develop in ovarian remnant tissue. One patient underwent adnexectomy for a benign dermoid cyst and later developed carcinoma in the ovarian remnant tissue. Therefore, attempts at preoperative suppression that might delay surgery excessively should be used selectively. Collections of peritoneal cytology and liberal use of intraoperative frozen section diagnosis are wise during surgery for ovarian remnant syndrome, as in surgery for any other adnexal mass. This is true even if the original ovarian tissue removed was benign, as was the case in this series.

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