Intestinal obstruction associated with ovarian remnant in postmenopausal female

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ABSTRACT

Ovarian remnant syndrome (ORS) is a rare condition, in which the ovarian tissue is inadvertently left behind after difficult oophorectomy. The most common preexisting conditions associated for this complication include endometriosis, pelvic inflammatory disease, and prior abdominal surgery as in these conditions, removal of ovarian tissue becomes difficult. This is likely due to the presence of the dense fibrotic adhesions between an ovary and the surrounding structures. This residual ovarian tissue can become functional and cystic. A 56-year-old multigravida postmenopausal female was diagnosed with intestinal obstruction. She had multiple abdominal surgeries in the past, including cholecystectomy, appendectomy, hysterectomy, and bilateral salpingo-oophorectomy. Patient underwent exploratory laparotomy. Intraoperatively, extensive adhesions and scarring of bowel wall were present and approximately 15 cm proximal to the terminal ileum, a small bowel mesenteric nodule was present. Histopathology of the mesenteric nodule was consistent with the diagnosis of ovarian remnant. ORS can be prevented with careful resection of the entire ovarian tissue during the difficulty oophorectomy so that no ovarian tissue is left behind.

Key Words: Intestinal obstruction, oophorectomy, ovarian remnant syndrome, postmenopause

INTRODUCTION

Ovarian remnant syndrome (ORS) is defined as the pelvic pain in the presence of histologically proven ovarian tissue after salpingo-oophorectomy. It is a rare condition, where ovary is incompletely resected as it was densely adherent due to endometriosis, extensive adhesions, or pelvic inflammatory disease. The residual ovarian tissue can get vascularized and enlarge under the influence of the hormones. Although ORS has been well described in gynecological literature, no report has been published, describing a patient presenting with intestinal obstruction with incidental histopathological diagnosis of ovarian remnant from the resected small bowel mesentery.

We present a patient who was diagnosed with intestinal obstruction. She underwent small bowel resection and reanastomosis. The histopathological evaluation of the resected small bowel mesentery demonstrated the presence of the ovarian remnant.

CASE REPORT

A 56-year-old multigravida postmenopausal woman presented to the emergency department with complaints of persistent nausea, vomiting, and abdomen pain for the past 1 day and constipation for the past 4 days...
Abdominal pain was left-sided, sharp, constant, nonradiating, and 10/10 in severity. The vomiting was nonbloody and nonbilious in nature. She took laxatives for constipation, without much relief. She denied fever, diaphoresis, shortness of breath, chest pain, or urinary symptoms. The past medical history was significant for diabetes, asthma, anxiety, and chronic back pain. She had multiple abdominal surgeries in the past, including cholecystectomy, appendectomy, hysterectomy, and bilateral salpingo-oophorectomy. Her family history was unremarkable. She was a chronic smoker, however, denied any alcohol or drug use. She was allergic to morphine, phenergan, and sulfa drugs.

On admission, the patient was in significant distress, secondary to the abdominal pain. She was afebrile with temperature of 97°F, tachycardic with heart rate of 108 beats/min and hypertensive with the blood pressure measuring 206/106 mmHg. Her respiration rate was 22 breaths/min, and the oxygen saturation was 95% on room air. Her neurologic, cardiovascular, and respiratory system examinations were within the normal limits. Her abdomen was distended with hypoactive bowel sounds. She was tender in the left upper quadrant without the presence of guarding, rigidity, and rebound tenderness. On laboratory analysis of her blood, the white blood cell count was 16,000, with hemoglobin and hematocrit of 14.2 g/dl and 42, respectively. Her platelet count was 196. The biochemistry and liver function test were within normal range except for mild hyponatremia (Na = 134 mmol/L).

An urgent contrast-enhanced computed tomography (CT) scan of the abdomen was performed. The CT scan demonstrated dilatation of the jejunum and proximal ileum with multiple air-fluid levels consistent with intestinal obstruction. Distal small bowel loops were collapsed, and there was a stricture noted in the small bowel. There was no evidence of pneumatosis. There was a small, irregular soft tissue mass in proximity to site of narrowing and acute angulation of the ileal loop [Figures 1 and 2].

The patient was observed for 24 h after the placement of the nasogastric tube. Repeat X-rays of the abdomen after 24 h demonstrated no interval improvement. The decision was made to proceed with exploratory laparotomy. Intraoperatively, significant ascites were noted, and approximately 500 cc of clear fluid was evacuated. The small bowel was extremely dilated throughout its proximal two-third. There was a stricture identified in the proximal ileum with an adhesive band, causing near complete obstruction. Extensive scarring of bowel wall was present and approximately 15 cm proximal to the terminal ileum, a small bowel mesenteric nodule was noted. The adhesions, the mesenteric nodule, and the obstructed segment of the small bowel were resected followed by functional end-to-end reanastomosis of the small bowel. The abdomen cavity was copiously irrigated at the end of the procedure.

The postoperative course was significant for hypertension, hypokalemia, and hypomagnesemia, which were successfully managed medically and her diet was gradually advanced. She was discharged home on postoperative day 5 in afebrile condition, tolerating regular diet, and having bowel movements. Histopathology of the mesenteric nodule associated with small bowel confirmed the presence of ovarian tissue consistent with diagnosis of ORS [Figure 3].

**DISCUSSION**

The true incidence of ORS remains unknown. The reported literature is limited to few case reports and case series. It occurs after the ovarian tissue is left inadvertently in the pelvis after difficult oophorectomy. This residual ovarian tissue may remain functional and can undergo cyclical changes.

ORS should not be confused with two similar and closely related entities including “residual ovarian syndrome” and “supernumerary ovary syndrome.” “Residual ovarian syndrome” is reserved to describe chronic pelvic pain associated with intentionally left normally vascularized ovarian tissue after partial oophorectomy. The “supernumerary ovary syndrome” refers to the embryological development of more than two ovaries.[2]

ORS is most commonly associated with pelvic endometriosis, pelvic inflammatory disease, and previous surgery (most commonly appendectomy). Our patient also had extensive history of endometriosis and multiple prior abdominal surgeries increasing her risk for the development of ORS.
Additional risk factors include inflammatory bowel disease and pelvic (uterine or ovarian) neoplasms, and ligation of the infundibulopelvic ligament within 2 cm of the ovarian margin. The ovarian stroma can extend microscopically into the infundibulopelvic ligament beyond the visual ovarian margins. Most cases reported in literature occurred after hysterectomy and bilateral salpingo-oophorectomy, however few cases have been reported after unilateral oophorectomy.

The clinical diagnosis is often difficult due to nonspecific clinical symptoms. It is most commonly seen in young premenopausal age group, with typical presentation of chronic pelvic pain within 5 years of oophorectomy. The pain is typically constant, however, can be cyclical. Additional clinical symptoms include dyspareunia, dysuria, and pain with defecation, vaginal bleeding, or an asymptomatic pelvic mass. Reported literature revealed the development of ureteric obstruction secondary to residual ovarian tissue and implantation of ovarian tissue in the anterior abdominal wall at the site of port insertion for initial planned oophorectomy. In addition, adenocarcinoma arising within the ovarian remnant has also been reported. A study by Satoshi et al. described women who developed rare primary ovarian clear cell carcinoma in the ovarian remnant after she had total abdominal hysterectomy and bilateral salpingo-oophorectomy for endometriosis. This patient underwent intensive care and received six cycles of systemic chemotherapy.

The radiological literature describing the CT scan findings of the ORS is sparse. Ultrasonographic findings are more often described. The most common ultrasound finding of ORS is cystic pelvic mass. A rim of vascularized ovarian tissue when present could help in suggesting the diagnosis; however, vascularized scar tissue can have a similar appearance. Additional ultrasound finding includes complex multiseptated cystic mass or solid pelvic mass, which can be difficult to differentiate from neoplasms. These ultrasound findings are nonspecific and can be confusing given the history of prior oophorectomy.

ORS should be considered in differential diagnosis in patients with pelvic pain and pelvic mass after oophorectomy, especially in patients with a history of pelvic surgeries before oophorectomy, and history of difficult oophorectomy secondary to pelvic adhesions. The residual ovarian tissue is most commonly found within the pelvis and can be adherent to the small bowel, large bowel, rectum, vaginal cuff, urinary bladder and ureter, uterosacral ligament, and pelvic sidewall. A serum follicular stimulating hormone levels in premenopausal range (<40 IU/dl) after bilateral oophorectomy supports the diagnosis of ORS; however, elevated (>40 IU/dl) serum follicular stimulating hormone levels does not exclude the diagnosis. Confirmation of suspected ORS in a patient with negative initial radiological imaging studies can be achieved by stimulation of ovarian tissue with clomiphene citrate followed by repeat imaging studies. This may also facilitate in the easy intraoperative identification and excision of remnant ovarian tissue.

Since our patient presented with sign and symptoms suggestive of acute intestinal obstruction, a contrast-enhanced abdominal and pelvic CT scan was performed, and an ultrasound was not performed. Due to the presence of mesenteric mass in close proximity to site of the intestinal obstruction, our differential considerations were mesenteric carcinoid, sclerosing mesenteritis, and mesenteric fibromatosis. However, on pathological examination, the mass was ovarian remnant.

We present a unique case of ORS, where the patient presented with intestinal obstruction and on histopathological
evaluation of small bowel mesentery, ovarian remnant was
diagnosed. Based on a systematic literature search using
MEDLINE (Ovid and PubMed) databases from 1950 to
March 2016 using keywords “ORS, intestinal obstruction,
exploratory laparotomy, and bowel resection” with no limits
placed, no case reports were identified demonstrating a
patient of ORS presenting with intestinal obstruction. Only
one case series by Nezhat et al.,[8] reported the identification
of ovarian remnant tissue on bowel requiring bowel
resection, however, none of the patients in their series
presented with intestinal obstruction.

Currently, the treatment of choice is laparoscopic or
robotic-assisted surgical resection.[3,9] However, the
surgical resection can be difficult secondary to pelvic
adhesions and may require extensive meticulous dissection
of retroperitoneum, bowel, pelvic sidewall, ureter, or
urinary bladder depending on the location of the ovarian
remnant. If the remnant tissue is embedded within the
bowel, urinary bladder, or ureteric wall, it can necessitate
the partial surgical resection of the involved organ.[10,11]
Ovarian remnant excision should be performed by a
surgeon with the requisite skill to perform this technically
challenging procedure. Due to the potential risk of
development of malignancy, currently, it is recommended
that the ovarian remnant when identified should always
be excised.

**CONCLUSION**

ORS is an uncommon complication of difficult
doctorectomy. The preoperative diagnosis is challenging
due to nonspecific clinical symptoms and imaging findings.
Therefore, ovarian remnant should be considered in
differential diagnosis of a patient, presenting with chronic
pelvic pain and pelvic mass with the history of difficult
doctorectomy.

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**Conflicts of interest**

There are no conflicts of interest.

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