Torsion, Autoamputation, and Reimplantation of Viable Ovarian Dermoid Cyst

Alexis D. Greene, MD, Andrzej K. Breborowicz, MD, PhD, Anne Hardart, MD
Department of Obstetrics & Gynecology, St Luke’s Roosevelt Hospital Center, New York, NY, USA (all authors).

ABSTRACT

Introduction: Case reports of parasitic teratomas exist; however, most viable ovarian dermoids reimplant into the omentum. It is rare to report a viable ovary containing a dermoid that has undergone autoamputation and reimplantation in the posterior cul-de-sac.

Case Description: We report the case of a 48-year-old woman with a history of lower abdominal pain that was relieved with pain control and recurred 1 year later, prompting a diagnostic laparoscopy. Laparoscopy confirmed an ovarian dermoid cyst in the posterior cul-de-sac. Intraoperatively, the ovary containing the dermoid appeared viable; this was confirmed by histopathology.

Discussion: The mass found on laparoscopy can best be explained by torsion, autoamputation, and reimplantation of the ovary containing the mature cystic teratoma into the posterior cul-de-sac.

Key Words: Dermoid cyst, Ovarian torsion, Autoamputation, Teratoma.

INTRODUCTION

A parasitic ovary, which is an ovary that has reimplanted elsewhere in the abdomen, obtaining a new blood supply, is a rare occurrence not commonly discussed in the gynecology literature. It is usually found in neonates, and the ovary is most often reimplanted in the omentum.1 Extremely rare is the case in which a viable ovary is found in the posterior cul-de-sac in an adult.1–3 This case involves a woman with a history of abdominal pain for 1 year who was found on diagnostic laparoscopy to have a mature cystic teratoma that had undergone autoamputation with viable ovarian tissue adherent to the posterior cul-de-sac, attached to a viable fimbriated portion of the fallopian tube.

CASE DESCRIPTION

A 48-year-old woman, gravida 7, para 5, originally presented to the emergency department 14 months before surgery with right-sided flank pain radiating to her groin. A computed tomography (CT) scan with contrast was obtained to rule out nephrolithiasis. Although no kidney stone was seen, a right-sided cystic mass consistent with hydrosalpinx was found, along with a 4 × 3-cm mass below the cystic structure with thick calcifications (Figure 1). This was described as a possible ovarian mass, and ultrasonographic examination was recommended. Endovaginal and transabdominal ultrasonography confirmed hydrosalpinx and identified the calcified mass as a possible leiomyoma; however, no connection to the uterus or cervix was seen. The patient was sent home from the emergency department with pain management and was advised to undergo follow-up in the gynecology clinic as an outpatient. The pain subsequently resolved, and the patient was then lost to follow-up until 1 week before surgery when her pain recurred. Pelvic ultrasonography at that time showed a persistent and slightly enlarged right-sided hydrosalpinx. The previously noted calcified mass was no longer seen. Intermittent torsion was suspected, and a diagnostic laparoscopy was performed.

On laparoscopy, a right-sided hydrosalpinx with torsion was noted and excised (Figure 2). The right ovary was not found near the tube in its proper anatomic location, and no fimbriae were seen.
briæ were seen on the fallopian tube. The uterus, left ovary, and tube appeared normal. In the posterior cul-de-sac, a mass measuring approximately 5 cm was seen. At first, it was difficult to identify what it was; it appeared to be encased in a peritoneal layer. After careful sharp and blunt dissection of the mass, it was identified as an ovary and dermoid cyst, attached to a portion of the fimbriated end of the fallopian tube. The ovarian stroma around the dermoid appeared viable, and the fimbria appeared pink and normal (Figure 3). As the ovary was dissected out from the cul-de-sac, the area was hemostatic, and the ovary did not appear connected to the uterus or other nearby pelvic structures. A rectal examination was performed throughout the dissec-

Figure 1. CT imaging of calcified mass inferoposterior to uterus.

Figure 2. Laparoscopic image of torsion of right hydrosalpinx.

tion to ensure that the mass was not connected to the rectum. The mass was removed, and the surgery was uncomplicated. Postoperatively, the patient returned for follow-up and her pain had resolved.

The histology slides were reviewed with the pathologist. The cul-de-sac mass was 7.3 × 5.0 cm, containing ovarian tissue, a mature cystic teratoma, and a fimbriated portion of the fallopian tube. Viable ovarian stromal tissue was seen with a normal blood supply on the outer layer of the specimen. The fimbria attached to the ovary was also viable. Coagulation necrosis was noted in the center of the ovary, characterized by nonviable cells without nuclei. Hair shafts and adipose tissue were identified, consistent with a degenerative, mature cystic teratoma. Hydrosalpinx of the fallopian tube with mild to moderate chronic salpingitis was reported. The histologic and laparoscopic findings were consistent with an ovary that had undergone autoamputation containing a dermoid cyst and reimplanted in the posterior cul-de-sac.

DISCUSSION

The diagnosis of a parasitic ovary containing a dermoid cyst is usually unknown before surgery. In most cases the tumor is not accurately diagnosed and is often generalized as an ovarian or abdominal mass.1 Although the preoperative diagnosis is often ovarian tumor, color Doppler flow imaging of the tumor is often inconsistent with this diagnosis because there is typically no vascular connection between the mass and the adnexum. The imaging in our patient also identified a pelvic mass on CT, and similarly, no vascular connection between the mass and the uterus or ovary was seen.

Dermoid cysts may present as calcified masses in the pelvis; however, the differential diagnosis of a calcified mass includes uterine leiomyoma, ovarian cystadenoma, and a calcified lymph node.2 In our case a calcified right-sided pelvic
mass posterior to the uterus was seen on CT scan. At the
time, it was read as a probable calcified myoma.

A review of the literature on parasitic dermoids mostly
shows mature cystic teratomas within the omentum. The
reason for the predilection for the omentum is because of
its unique role in the intra-abdominal inflammation pro-
cess.\textsuperscript{5} Ushakov et al\textsuperscript{1} reviewed 25 cases of omental der-
moinds, 10 of which were proven to be parasitic omental
ovarian teratomas. The incidence of parasitic dermoid
cysts, as these would be named after reimplantation else-
where in the abdomen, is 0.4\% of all ovarian dermoids.\textsuperscript{1,5}

Ushakov et al\textsuperscript{1} reviewed 3 proposed etiologies of omental
teratomas.\textsuperscript{3} The first etiology is a primary omental teratoma.
Embryologically, while the germ cells are migrating along
the primitive gut to the genital ridge, they may arrest at the
level of the dorsal mesentery. In this scenario, a dermoid
would be seen; however, no ovarian stroma would be
shown, and both ovaries would be in their normal anatomic
location. This could not be the case in our patient because
ovarian stroma existed with the dermoid and the right ovary
was missing from its proper location.

The second theory involves a supernumerary ovary that
forms within the omentum. This proposed theory has never
been proven because only omental dermoids without ovar-
ian tissue have been found.\textsuperscript{1} In our case the dermoid cyst
was attached to normal ovarian stroma and fimbria of the
fallopian tube, so this is unlikely to explain our case.

The third theory, which is most plausible for our patient,
is autoamputation and reimplantation of the ovarian der-
moid. Autoamputation occurs when the ovary undergoes
torsion and then amputates from its normal position. Tor-
sion of the adnexa usually occurs on the right side. The
sigmoid colon located on the left side is thought to be
protective of the twisting of the left adnexum, making
right adnexal torsion more common.\textsuperscript{1,2,4,6} When the blood
supply to the dermoid is cut off as a result of torsion, the
tumor can undergo necrosis and actually undergo auto-
amputation as a result. The dermoid may reimplant in
neighboring structures and develop a new blood supply.

What we believe to have occurred, which would ex-
plain our patient’s abdominal pain, is as follows: The
original abdominal pain that the patient had was likely
the right-sided ovarian torsion. The ovary containing the der-
moid cyst had undergone autoamputation and fell into the
posterior cul-de-sac. When the pain recurred 2 weeks before
surgery, it was likely the right-sided hydrosalpinx with torsion,
a separate pathology from the original pain, yet with similar
symptomatology.

Two similar cases have been reported in the literature in
which an ovary that had undergone autoamputation was
found with a dermoid cyst in the posterior cul-de-sac; how-
ever, both were attached to the omentum. In one case the
dermoid was found during a cesarean delivery.\textsuperscript{3} The patient
reported a remote history of severe abdominal pain as an
adolescent that resolved but was never diagnosed. During the
cesarean section, the ovary, the dermoid, and a portion of the
fallopian tube were found enveloped in the omentum, from
which the ovary obtained its vascular supply. It was also easily
dissected out from the posterior cul-de-sac. This is more con-
sistent with most reported parasitic ovarian dermoids. The
difference in our case was that the ovary that had undergone
autoamputation was not attached to the omentum; it was fixed
and adherent to the posterior cul-de-sac and was unrecogniz-
able as an ovary and teratoma until dissected out.

A second case was reported in a 24-year-old woman with
an acute onset of left lower quadrant pain.\textsuperscript{2} She was not
operated on until several months later, showing a dermoid
with viable ovarian stroma in the posterior cul-de-sac. As
in the cesarean case report, the omentum was encasing and
vascularizing the ovary.

Our case is unique in identifying a parasitic ovary containing
a dermoid cyst that maintained a blood supply separate from
the omentum. What we learned from this case is to always
look for the adnexum in its appropriate location, and if it is
not found, a total abdominal survey should be performed.

References:

1. Ushakov FB, Meirov D, Prus D, Libson E, BenShushan A,
Rojansky N. Parasitic ovarian dermoid tumor of the omentum—a
review of the literature and a report of two new cases. \textit{Eur J

2. Kusaka M, Mikuni M. Ectopic ovary: a case of autoampu-
tated ovary with mature cystic teratoma into the cul-de-sac. \textit{J

3. Peitsidou A, Peitsidis P, Goumalatsos N, Papaspyrou R,
Mitropoulou G, Georgoulas N. Diagnosis of an autoamputated
ovary with dermoid cyst during a cesarean section. \textit{Fertil Steril.}
2009;1294.e9–e12.

4. Henry LM, Rauh J, Burket R. Pelvic calcification and auto-
amputation of the uterine adnexa in an adolescent. \textit{J Adolesc

5. Shetty NS, Vallabhaneni S, Patil A, Babu MM, Baig A. Unre-
ported location and presentation for a parasitic ovarian dermoid

6. Peh WCG, Chu FSK, Lorentz TG. Painful right iliac fossa mass