“Sack of marble” appearance in mature cystic teratoma: an unusual finding

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ABSTRACT

Mature cystic teratoma (Dermoid) of ovary is a benign germ cell tumor consisting predominantly of ectodermal derivatives. In rare occasion sebaceous mate-
rial may get aggregated to form marble like appearance because of continuous mobility of Dermoid and its content. Such a case in a menopausal woman has been presented in this report.

Keywords: dermoid cyst, marbles, ovary, teratoma

INTRODUCTION

Mature cystic teratoma, also known as benign cystic teratoma or dermoid cyst, is common benign ovarian neoplasm arising from totipotent germ cells that differentiate abnormally. Mature cystic teratoma comprises of 20-30% of all ovarian tumors. It is mostly seen in women younger than 40 years of age and is seldom seen in postmenopausal women. Only 5-20% of cystic teratomas are found in postmenopausal women. However, occurrence of mature cystic teratoma is not uncommon in postmenopausal women. These teratoma may contain all three germ layers i.e. ectoderm, mesoderm, or endoderm. Hence they may contain hairs, teeth, skin, sebaceous material, bone, cartilage, mucous and even thyroid and neural tissues.

We present an unusual case of mature cystic teratoma of size 15 x 12 cm in a postmenopausal woman, who underwent total abdominal hysterectomy with bilateral salpingo-oophorectomy. Postoperative cut section of teratoma revealed multiple marble like appearance of sebaceous material.

CASE

A 59-year-old female presented with gradually increasing lower abdominal swelling for last one year and dull aching lower abdominal pain. She had four term normal vaginal deliveries and reached her meno-
pause nine years back. She was a known case of hypertensive disorder and was under antihypertensive drug.

Since last five years. She had an abdomino-pelvic mass of size 15 cm x 12 cm, which was mobile from side to side and nontender.

Her tumor markers (CEA=3.5ng/ml and CA125=12U/ml) were normal and pelvic ultrasonography revealed well defined large cystic area with low level internal echoes in the right side of pelvis. CT scan showed a large hypodense lesion measuring 10x13x13cm with internal multiple rounded hypodense floating areas giving rise to sack of marble appearance in right iliac fossa. [Figure-1A]

Risk of malignancy index-3 (USG score 1 x Menopause 3 x CA125 level 12) came to be 36. Considering her findings, case was posted for elective laparotomy on April 12, 2021. Intraoperative finding also revealed a right sided ovarian cyst of 15cm x 12 cm with smooth surface, cystic in consistancy. When cut and opened, multiple soft marble like appearance of sebaceous materials were observed floating in with thin pultaceous material of around 500ml. After evacuating the sebaceous materials, small tufts of hair were visible in posterior wall of the cyst. Other ovary and fallopian tube were normal, uterus was atrophied. Total abdominal hysterectomy with bilateral salpingo-oophorectomy was performed. [Figure-1B&C]

There were no intra-operative or post-operative complications. The patient was discharged on 3rd post-operative day. Histopathological report revealed section ovarian cyst showing thin keratinizing stratified squamous epitheli-
um, sebaceous glands, sebum, normal looking ma-
ture glial tissue, muscle, fat and fibrocollagenous
tissue suggestive of mature cystic teratoma. [Figure
-1D]

Figure-1: CT image (A), Gross specimen of uterus
with ovarian cyst cut open showing multiple mar-
ble like appearance of sebaceous material (B & C),
H&E stained histology showing keratinized epithelial
layer, fat globules and hair follicles (D)

COMMENTS

Ovarian teratoma is classified as immature and ma-
ture teratoma. Immature cystic teratomas are malig-
nant teratomas whereas mature cystic teratomas are
benign and slow growing tumors containing mature
forms of the three germ cell layers. They make up
approximately 20-30 % of ovarian neoplasm. Usually,
these tumors are asymptomatic and are inci-
dentally detected either during abdominal-pelvic
examination or during imaging or other pelvic sur-
geries. When these teratoma are large, they may
cause discomfort in the abdomen. At times, these
can cause pelvic pain, dysmenorrhea and dyspareunia.7
Abdominal distention, heaviness in the abdomen, increased frequency of micturition
and even difficulty emptying of the bladder are oth-
er symptoms.8 Our patient presented with swelling
and dull aching pain over lower abdomen only.

As imaging study is the mainstay to investigate
ovarian neoplasia, Ultrasoundography is usually done
as first line of investigation. In most of the cases,
they are easily diagnosed because of their charac-
teristic intra tumoral fat component.9 The most
common ultrasonographic features ascribed to the-
se tumors include the presence of shadowing echo-
density, regional diffuse bright echoes, hyper echo-
ic lines and dots, and a fat fluid level.10

Computed tomography also shows an excellent
sensitivity in detecting mature cystic teratomas as
fat is easily seen and measurable as it has lower
attenuation than water.11 Sometimes a raised solid
protuberance also known as Rokitansky nodule
projecting from cyst wall is also visible.11 In one of
CT performed at Zhejiang Provincial Integrated
Chinese and Western Medicine Hospital China of a

38 years old women with MCT, showed huge cyst-
ic mass in pelvis with complete capsule and multi-
ple round like shadows within the cyst wall, giving
rise to classical “sack of marbles” appearance.12 In
our case, CT revealed a large hypodense lesion
measuring 10 cm x 13 cm x 13 cm with internal
multiple rounded hypodense floating areas giving
rise to sack of marble appearance in right iliac fos-
sa. Based on cases reported till date and also from
our findings, we have observed that sack of mar-
bles appearances in MCT is very rare. The first
case was reported in 1991 by Muramatsu et al,
showing intracystic fat balls within MCT with CT
scan imaging.13 Similarly Kawamoto et al and
Jantarasaengaram et al found similar finding in
USG in the year 2001 and 2003.14,15

The true mechanism of the formation of these
sebaceous globules is still not clear. It has been hy-
pothesized that these globules are formed by ag-
gregation of sebaceous material around a nidus due
to prolong movement. Hence, with this knowledge
the appearance of marble balls in an adnexal tumor
can be taken as pathognomic for mature cystic ter-
atoma as its appearance has not been reported in
other adnexal tumors.16

CONCLUSIONS

The sack of marble appearance of sebaceous mate-
rial is rare and could be because of persistent slow
mobility of sebaceous material inside the Dermoid.

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