

## THE UNUSUAL SONOGRAPHIC PRESENTATION OF DERMOID CYST

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### ABSTRACT

*Dermoid cyst is the most common germ cell tumor of ovary, comprise approximately 20% of all ovarian tumors. However on gross appearance cyst containing multiple fat balls of varying size is very rare. We have recently diagnosed such a case and present here to share the experience with others.*

*Key Words: Dermoid cyst / Fat balls / Ovary.*

### INTRODUCTION

The most common type of germ cell tumors are ovarian teratomas. The origin of teratoma is the pluripotent germ cells and contain well - differentiated tissues of at least two of germinal cells layers (ectoderm, mesoderm and endoderm).<sup>1</sup> They are easily diagnosed on imaging studies because of fat component within it.<sup>2</sup> Generally, cystic teratomas are classified into 1 of 3 categories on the basis of their configuration and components: they have either floating debris within a tumor, nodular or palm tree like mural protrusions and the third type shows a fat – fluid level. We report a case of a dermoid cyst that had none of the classic sonographic features, rather multiple mobile fat balls were seen within the cyst. Furthermore no features of calcification, tooth, or bone were shown on sonography and CT.

### CASE REPORT

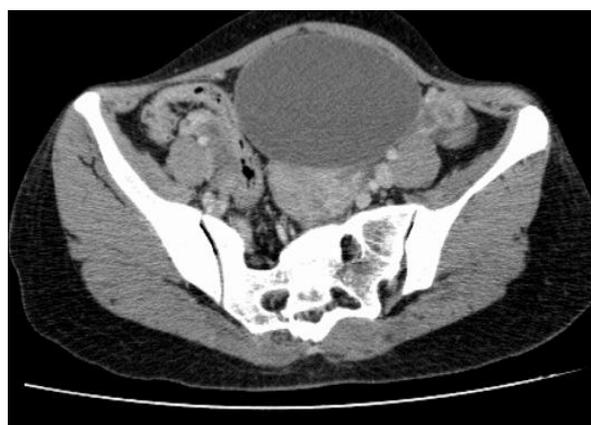
A 55 year old otherwise healthy, Para 5, postmenopausal woman was evaluated for pain in the right iliac fossa of 6 months duration. She had mild fever with chills and burning micturition.

A radiograph of the abdomen was unremarkable. Ultrasonography showed a cystic mass (11×8.5 cm) in the right adnexa containing numerous small floating, highly echogenic round masses (Fig. 1). The echogenicity of these masses characteristically corresponded to that of fat. No blood flow was appreciated on color doppler. Cystic teratoma arising from the right ovary was considered as a probable diagnosis.

Computed Tomography was done for confirmation of sonographic findings. It showed an encapsulated, non-enhancing mass with homogenous low attenuation that measured -30 Hounsfield units. Multiple floating hyperdense fatty masses were seen within the cyst cavity (Fig. 2). At laparotomy a large mass of 12 × 8 cm was seen. It was mildly congested and twisted.



**Fig. 1:** Transvaginal sonogram showing multiple mobile, spherical, echogenic structures floating in a cystic mass.



**Fig. 2:** Contrast – enhanced Axial CT Image at level of S1 showing well defined cyst having density up to (-30HU) at multiple sites indicative of fat within the cyst.



**Fig. 3:** At laparotomy a slightly congested large mass of 12 × 8 cm size was seen.



**Fig. 4:** Cut section of Specimen showing a cyst containing multiple round fatty balls.

The mass was removed along with right ovary (Fig. 3).

In cut section, the cystic mass was full of viscous, fatty fluid. There were multiple yellow white, ball-like masses floating in the fluid (Fig. 4). No tooth or calcific element was observed on gross examination. On Histo-pathology the cyst had keratinized epidermis with sebaceous and sweat glands and proved the radiological diagnosis of a benign cystic teratoma. The patient's postoperative course was uneventful.

## DISCUSSION

Dermoid cysts are formed during active reproductive years, very rarely present before puberty, and are not infrequently seen in post-menopausal women.<sup>3</sup> Typically, they remain clinically silent until they enlarge to become palpable abdominal masses, or may undergo torsion to present as acute abdomen. Sometimes it can present with signs and symptoms secondary to its endocrine content e.g. Struma Ovari.<sup>4</sup> Our case presented with pain secondary to torsion as shown by findings of doppler, laparotomy and post operative gross pathology.

The origin of teratoma is the pluripotent germ cells and contain well-differentiated tissues of at least two of three germinal cells. Mature ectodermal tissues (brain, skin) are always component of Germ cell tumor,

90% of tumors may have mesodermal tissues (fat, muscles, cartilage, bone), and most have endodermal tissues (ciliated, bronchial epithelium gastrointestinal, mucinous, thyroid tissue). Hence on every imaging modality teratomas present with a wide range of findings varying from pure cystic lesions to complex masses.

Sonography and Computed Tomography (CT) can easily facilitate diagnosis of these benign cystic fatty pelvic masses. However, an echogenic teratoma can mimic to bowel gas and can be missed during sonography. On ultrasound following features are pathognomonic of Teratoma:

1. An echogenic mural nodule (the Rokitansky nodule, "dermoid plug" or "dermoid nipple"),
2. Fat - fluid or hair - fluid level,
3. Distal acoustic shadowing produced by a highly echogenic mixture of matted hair and sebum, termed the "tip of the iceberg" sign.
4. Another specific sign is "dermoid mesh," i.e., multiple linear hyper-echoic interfaces produced by the floating hair fibers within the cyst.<sup>5</sup>

However, our case did not have any of these classic features; instead, there were multiple round, floating, echogenic fat balls seen within the large anechoic cyst. Also, there was no calcification or tooth-like structure shown on sonography. Only a few cases of cystic teratomas with multiple mobile spherules or globules have been reported. According to Kawamoto<sup>6</sup> et al multiple spherules floating within a pelvic cystic tumor are not characteristic in other tumors.

CT is highly sensitive to diagnose cystic teratomas.<sup>7</sup> It shows 93 - 98% sensitivity and 100% specificity in the diagnosis of mature cystic teratoma. Typically CT images demonstrate low fat density (-20 HU), gravity dependant layering with fat fluid levels, palm tree like protrusions, calcification, Rokitansky protuberance, and hair. When size of teratoma is more than 10 cm and borders are irregular with cauliflower appearance and soft tissue plugs, malignancy should be ruled out.<sup>8</sup>

Magnetic Resonance Imaging reveal very high signal intensity on T1 weighted images for sebaceous part of dermoid cysts like that retroperitoneal fat. On T2-weighted images sebaceous component have variable intensity.<sup>9</sup>

It is **concluded** that unusual findings of a mature cystic teratoma may pose occasional diagnostic challenges. This case further substantiates the idea that the sonographic and CT appearance of multiple floating masses in a cystic mass of the pelvis is pathognomonic for a cystic teratoma of the ovary.

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