

# Bilateral Ovarian Teratomas- A Case Report

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## ABSTRACT

**Introduction:** Ovarian teratoma is a common tumor, accounting for 20% of adult and 50% of pediatric ovarian tumors. Bilateral ovarian teratomas are relatively rare,

**Case Report:** A 17 year old female patient presented with complaints of pain in the lower abdomen of three months duration. We have done computed tomography and magnetic resonance imaging and found out bilateral ovarian lesions with classical findings.

**Conclusion:** These imaging modalities give a clear cut road map for surgical approach. Our patient was operated upon and is on follow up now.

**Keywords:** Bilateral, pain in the lower abdomen

## INTRODUCTION

Bilateral ovarian teratomas are relatively rare, occurring in 10-15% of all ovarian tumors. We are presenting a case of bilateral ovarian teratoma referred to the Department of Radiology for magnetic resonance imaging of the pelvis as clinical assessment was not clear. Both ovaries showed cystic masses with areas of calcifications on ultrasonography. With the help of advanced imaging modalities like computed tomography and magnetic resonance imaging, it was possible to delineate the extent and depict the relationship of the lesion with the adjacent organs. Patient was operated upon and histopathology confirmed the diagnosis.

Ovarian teratoma is a common tumor, accounting for 20% of adult and 50% of pediatric ovarian tumors.<sup>1,2</sup> Clinical assessment is difficult and unreliable, ultrasonography (USG) has been an accepted method for diagnosis. USG combined with Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) gives valuable information regarding site, size, number and nature of lesions with their relation to surrounding structures. Due to its multiplanar imaging capabilities, MRI can localize lesions to the anatomic location. In addition, additional imaging modalities like CT can be used as an imaging guide for fine needle aspiration cytology (FNAC) if required. We are presenting the case of a young girl with bilateral tumour. We will discuss radiological and histopathological findings.

## CASE REPORT

A 17year old female patient presented with complaints of pain in the lower abdomen of three months duration. There was no history of fever or menstrual abnormalities. Clinical examination revealed a 26week size mass which was firm in consistency, mildly tender and not-mobile. Lab findings showed elevated erythrocyte sedimentation rate (ESR) 58mm/hr, carcino embryogenic antigen (CEA) 125 57.45 u/ml, A clinical diagnosis of an adnexal cyst was made. Previous USG revealed a 25x15x10cms complex cystic ovarian mass suspected to be dermoid, for which she took ayurvedic

treatment.

The patient was referred for a MRI examination of abdomen and pelvis and the following sequences: Axial tesla 1 weighted image (T1WI), tesla 2 weighted image (T2WI), coronal short T1 inversion recovery (STIR), sagittal-T2WI. MRI revealed features of bilateral germ cell tumor terato-dermoid and in view of elevated CEA levels torsion or rupture was considered.

MRI images showing the largest of the three locules in the midline of pelvis measuring 16x10x9.6cm having a solid heterogenous component along the posteriolateral left inferior wall. Multiple thin linear hypointense bands were seen within the cyst [Figure-1]. Sagittal and axial postcontrast T1WI images showed a smaller locule on the superoleft lateral aspect of the largest locule measuring 4.5x5.3x2.8cms [Figure-2]. Another locule on the supero right lateral aspect of the largest locule measuring 11.6x9.6x9.1 cms is seen having fat and fluid components showing as fluid-fluid levels.

CT of the pelvis was carried out to demonstrate calcifications. A CT topogram showing chunks of calcifications in the pelvis at the level of L3 vertebral body on both the sides and 10<sup>th</sup> thoracic vertebral body on the right side [Figure- 3]. Axial plain CT images demonstrating fluid fluid levels in one of the locules and calcific components in all the three locules [Figure- 4]. In view of the MRI and CT findings of multiloculated cysts, fat-fluid levels, calcific components, a diagnosis of bilateral germ cell tumor was made.

The patient was operated upon and the per-operative findings showed bilateral ovarian teratomas/dermoid. There was no free fluid in the peritoneum. Right sided salphingo-oophorectomy and left sided cystectomy was done. Histopathological examination (HPE) revealed cyst wall lined by keratinized squamous epithelium with underlying sebaceous glands, hair shafts and sweat glands. The HPE confirmed findings of MRI, teratoma arising from left ovary and mature cystic teratoma from the right ovary.

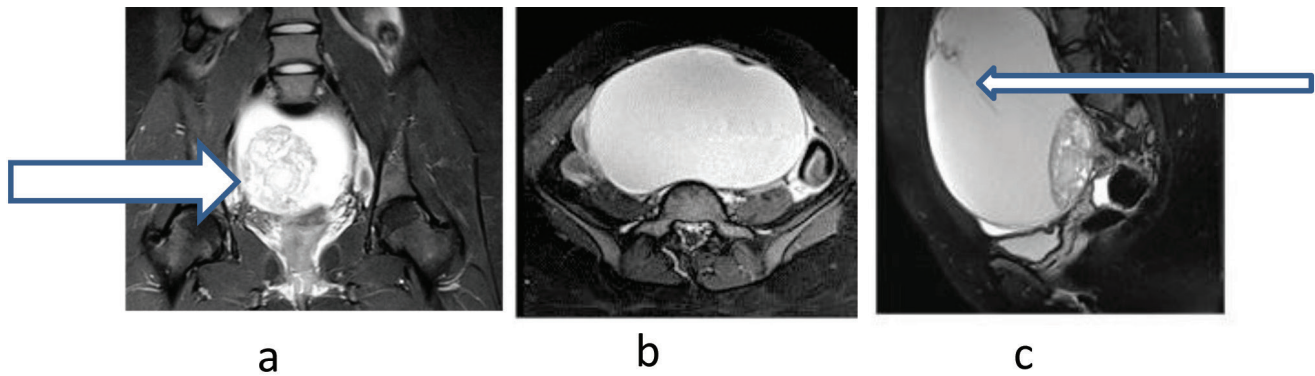
## DISCUSSION

The word teratoma or dermoid is derived from Greek "teras" means monster, it was first time in 1863 mentioned by Virchow.<sup>3</sup> But before this in 1831 Leblanc used dermoid in

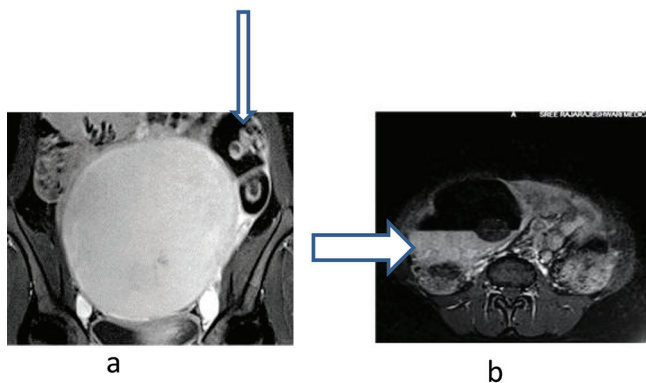
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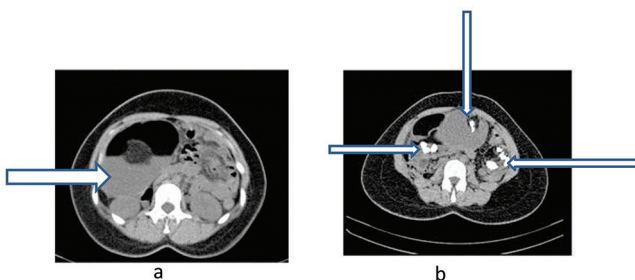
**Figure-1** a,b,c: MRI - images showing the largest of the three locules and a solid heterogenous component (thick arrow) multiple thin linear hypointense bands were seen within the cyst. (thin arrow)



**Figure-2** a,b: MRI – images showing a smaller locule (thin arrow) bigger locule is having fat and fluid components shows fluid-fluid levels. (thick arrow)



**Figure-3** CT topogram showing chunks of calcifications in the abdomen. (arrow).



**Figure-4** a,b: CT images demonstrating fluid fluid levels in one of the locules(arrow) and calcific components in all the three locules (arrows).

vetterinary cases.<sup>4</sup> Most common in sacrococccgeal (57%), sacro- coccygeal followed by mediastinal is 3%. Most common gonadal location is ovary followed by testis.<sup>5</sup> Cells differentiate along various germ lines, essentially recapitulating any tissue of the body. Examples include hair, teeth, fat, skin, muscle, and endocrine tissue. Teratomas have been reported to contain hair, teeth, bone and, very rarely, more complex organs or processes such as eyes,torso, and hands, feet, or other limbs.<sup>4-7</sup> Teratomas are thought to be present at birth (congenital), but small ones often remain undiscovered until much later in life.

Ovarian teratoma is a common tumor, accounting for 20% in adult and 50% of pediatric age.<sup>1,2</sup> An ovarian dermoid cyst (DC) or a benign cystic teratoma is a benign tumor arising from germ cells.<sup>1</sup> Dermoids are composed only of dermal and epidermal elements, whereas teratomas have additional mesodermal and endodermal elements. Ectodermal tissues (skin derivatives and neural tissue) are invariably present, mesodermal tissue (fat, bone, cartilage, muscle) is present in 90% of the cases and endodermal tissue (gastrointestinal and bronchial epithelium, thyroid tissue) is seen in majority of cases. Adipose tissue is present in 75% and teeth are seen in 31% of cases.<sup>8</sup>

It is the most common tumor seen in women below 30yrs of age.<sup>9</sup> Mature cystic teratomas account for 15% of all ovarian neoplasms specially in patients younger than 20 years. Bilateral involvement is seen in 10-15% of cases.<sup>10</sup> Conventional radiographs may show calcific components within the pelvis. Ultrasound is the preferred imaging modality since it is sensitive to calcifications, fluid and fat components. Typically an ovarian dermoid is seen as unilocular cystic adnexal mass with diffusely or partially echogenic mass with posterior or acoustic shadowing owing to the sebaceous materials and hair follicles, calcific components maybe seen. Mural hyper echoic Rokitansky nodules and presence of fluid-fluid levels which represents sebaceous material floating on fluid may be seen. If there is any internal vascularity on colour Doppler then further workup has to be done to exclude malignancy. CT is sensitive in the demonstration of fat- fluid level, calcification, Rokitansky nodules, and tufts of hair. The presence of most of the above tissues is diagnostic of ovarian cystic teratomas in 98% of cases. MRI is reliable in detecting benign ovarian masses and in identifying dermoid sand is sensitive to fat components. The diagnosis of a mature cystic teratoma can be confirmed when lipid structures are

demonstrable within the mass and is easily done with chemical shift-selective technique. Ovarian teratomas can be associated with complications such as torsion 16%, rupture 1%–4%, infection 1%, autoimmune hemolytic anemia less than 1%.and malignant transformation in 1-2% to squamous cell carcinoma is the commonest.<sup>1</sup> Rupture can be spontaneous or after torsion when they are bigger than 10 cm, it may lead to shock or hemorrhage with acute chemical peritonitis. Persistent, small leak over a long period of time can lead to granulomatous peritonitis.<sup>4</sup>

As per Gonzalez system: grade (0) - mature (benign), grade (1)- immature, probably benign, Grade (2)- immature, possibly malignant (cancerous), Grade (3) frankly malignant. If frankly malignant, the tumor is a cancer for which additional cancer staging applies. Our case was grade 1 and is on follow up.

They secrete beta human chorionic gonadotropin ( $\beta$ HCG), thyroxine or alpha-fetoprotein (AFP) under some circumstances AFP can be used as a diagnostic marker specific for the presence of yolk sac cells within the teratoma. These cells can develop into a frankly malignant tumor known as yolk sac tumor or endodermal sinus tumor.

## CONCLUSION

We would like to conclude by saying that USG is diagnostic in smaller lesions. To know organ of origin we need to do CT or MRI for clearly seeing outlines and a clear picture of involvement of any nearby structure before surgery. These imaging modalities give a clear cut road map for surgical approach. All cases should be followed - up, close observation, scanning and measurement of AFP and  $\beta$ HCG levels.

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