

Giant mature teratoma in young female with right-sided hydronephrosis as a secondary complication: A case report

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ABSTRACT

Teratomas are the tumors made of different tissues. The composition includes hair, muscle, teeth, or bone. These tumors usually arise from ovary, testicle, or tailbone. These are asymptomatic when small in size without any complications, but become symptomatic when large and associated with secondary complications due to compression and displacement. We present the case of a 30-year-old female who had abdominal swelling of 2 months duration that increased in size rapidly. She was found to be having a big abdominopelvic mass in ultrasound, computerized tomography, and magnetic resonance imaging. There was moderate hydronephrosis on the right side which was due to the compression by this mass. She underwent total excision of the mass and it was turned out to be mature cystic teratoma. Cross-sectional modalities are quite sensitive in diagnosing the abdominal masses, especially teratomas. The diagnostic modalities further highlight the secondary features of the complications due to these masses.

Key words: Hydronephrosis, Ovary, Secondary complication, Teratoma

Teratomas are the embryonic tumors found in all the age groups such as babies, children, and adults. The mature teratomas develop from totipotent germ cells or pluripotent somatic cells. Most of the time the tumor is unilateral but bilateral may also be present. Le Blanc named this as a dermoid cyst in 1831. The diagnosis had become easy due to the modern diagnostic armamentarium in radiology. This accounts for 20% of all the ovarian neoplasms [1,2].

CASE REPORT

A 30-year-old woman had a complaint of swelling in the lower abdomen 2 months back. The swelling had gradually increased over the past 2 months. There was slight discomfort, but no pain reported. There was no history of trauma or fever. She is a non-smoker and non-alcoholic. There was no significant medical or surgical history. There was no history of diabetes mellitus, hypertension, or tuberculosis. On examination, the vitals were stable and systemic examination was grossly normal.

All the laboratory investigations were non-contributory. Urine for the pregnancy test was negative. All the basal biochemical investigations were within normal limits. Serum creatinine was within the normal range. Plain abdominal X-ray showed soft-tissue density in the central abdomen and pelvic region with the scattered calcification foci (Fig. 1). Ultrasound of the whole abdomen revealed a big mass extending from the mid-abdominal region to the pelvic cavity. The mass was of mixed in nature as that

of cystic and solid contents. There were a few areas of increased echogenicity (Fig. 2a and b). Color flow images do not show any vascularity within the mass (Fig. 3).

Non-contrast computed tomography of the abdomen was performed to look for the calcification in the mass. There was a large heterogeneous mass with scattered foci of calcification. The mass was displacing the uterus anteriorly with the epicenter being the right ovary (Fig. 4a, b and c). Magnetic resonance imaging (MRI) was performed to characterize the soft-tissue mass with delineation of the fat contents. There were cystic and fatty contents as depicted by various sequences (Figs. 5a,b,c and 6 a, b). The mass was seen compressing on the right ureteral course causing moderate hydronephrosis.

The patient underwent complete excision of the mass. There was uneventful recovery. The histopathological analysis had confirmed the mass as a mature teratoma. The patient is on regular follow-up.

DISCUSSION

Teratomas are generally defined as either mature or immature. Mature teratomas may be cystic, solid, or combination of both [3]. These contain different types of tissues such as the skin, muscle, and bone. There is abundant hair in the cystic component surrounded by the skin. Mature teratoma is generally benign. A dermoid cyst is a mature type of cystic teratoma. This contains abundant hair and other skin components derived from ectoderm [4]. These are very common in the ovaries in females. These come under the group of

non-seminomatous germ cell tumors. Germ cells and embryonal cells are pluripotent cells. The division of the teratoma is based on these types of cells of the origin. Teratomas originate from germ

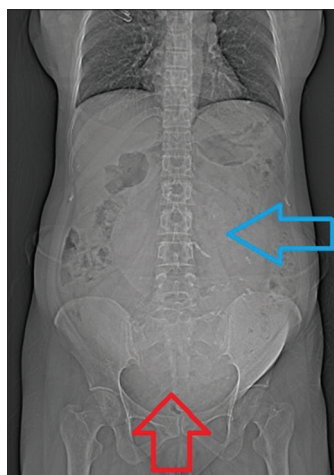


Figure 1: Plain abdomen skiagram. The central part shows soft opacity without any gas shadows with scattered calcified foci (blue arrow). The pelvis also does not show any gas except soft density shadow (red arrow)

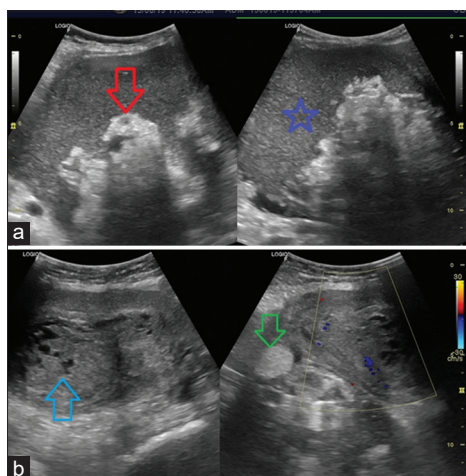


Figure 2: Ultrasound images of the mass. (a) There are areas of fat contents with distal shadowing (red arrow). The cystic component can be with coarse echoes from within the mass (blue star); (b) solid mass depicts some cystic areas (blue arrow) with the fat component without any vascularity (green arrow)

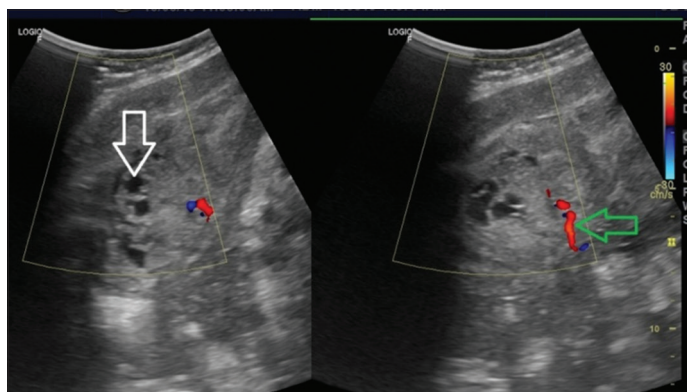


Figure 3: Color flow images show cystic areas (white arrow) and peripheral vascularity (green arrow)

cells occurs in the testicle in men and ovaries in women [5]. There can be recurrence after surgical removal.

Mature teratomas are classified into three as cystic, solid, and mixed, having both the contents. Mature cystic teratoma is called a dermoid cyst. The presenting complaints are pain, swelling, or bleeding [6]. Many times, they remain asymptomatic and attain the huge size as was in our case. There is always the fear of torsion in the case of ovarian teratomas. Approximately 1–3%

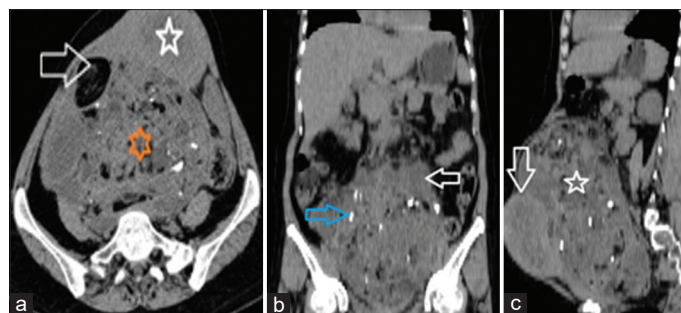


Figure 4: Non-contrast computed tomography abdominopelvic region. (a) Axial section shows large mass with calcified foci and solid-cystic components (red star) displacing the uterus anteriorly (white star). The epicenter of the mass appears to be from the right ovarian region (white arrow); (b) coronal section shows multiple calcific foci (blue arrow) with the cystic component (white arrow); (c) sagittal section shows the anterior displaced uterus (white arrow) with the mixed density mass lying on the posterior aspect (white star)



Figure 5: Magnetic resonance images. (a) T1WI axial section shows a hyperintense region depicting fat contents (blue arrow). (b) T2WI axial section also shows a hyperintense region corresponding to fat contents (vertical arrow). (c) Short tau inversion recovery (STIR) sequence axial section shows complete suppression of the fat contents (horizontal arrow)

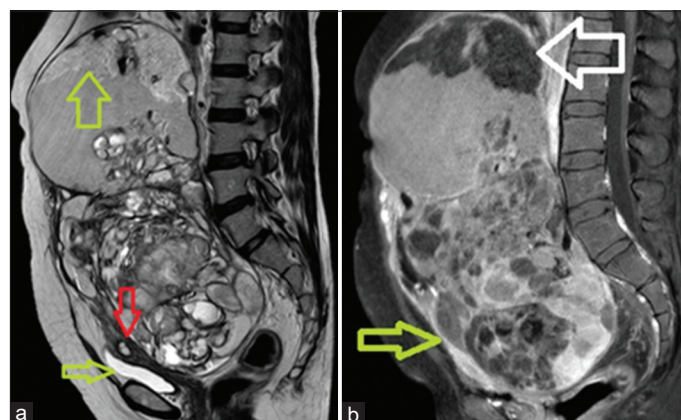


Figure 6: Sagittal section. (a) T2WI right parasagittal section shows a hyperintense fat region (upwards green arrow). The uterus is seen anterior to the mass (red inverted arrow) with urinary bladder lying anteriorly (green horizontal arrow). (b) T1WI post contrast fat suppressed sagittal sequence shows no enhancement (white arrow) and anterior uterus (green arrow)

of mature ovarian teratomas are malignant in nature. These are usually found in women during their reproductive years.

Immature ovarian teratomas are usually malignant and are found in young women below 20 years of age. These may accompany by N-methyl-D-aspartate encephalitis. There are intense headache and psychiatric symptoms in the form of confusion and psychosis [7,8]. Mature cystic ovarian teratoma accounts for 10–20% of all adult ovarian neoplasms with a mean age of 27 years and accounts for 60–70% of all benign ovarian neoplasms. The incidence of the right side location is the most common as per the data available. These are usually unilateral in 86% and bilateral in 13.9% [9].

Sonographic evaluation depicts dermoid mesh sign. MRI further delineates the content of the tumor and can be confirmed by various sequences [10]. These big masses can pose many complications such as intestinal obstruction and similar happened in our present case, leading to obstructive uropathy [11]. The most common complications include rupture, torsion, and malignant transformations.

Mature teratomas in non-seminomatous germ cell tumors are associated with a higher cumulative index of disease-related deaths which show that the outcome is adverse when there is differentiation in tumors [12]. There is a wide variety of radiological presentations which are related to the type of contents within the tumor. The combination of radiological and pathological diagnosis is the confirmatory step of the accurate diagnosis [13].

The most common pathologies for the differential diagnosis are hemorrhagic ovarian cyst and endometriomas. These can easily be differentiated on MR imaging. The less common is pedunculated lipoleiomyoma of the uterus and cystadenomas [14]. Around 3–16% of cases show complications in the form of torsion which requires immediate surgical intervention and 1–4% can lead to the rupture of the tumor. Malignant transformation to squamous cell carcinoma is seen in only 1–2% of cases as per the literature [15].

CONCLUSION

Ultrasound, CT, and MRI had a diagnostic and conclusive role in the evaluation of teratomas. Since the constituents of the mass are ranging from cystic to solid, fatty, and calcific, all the modalities have got different roles in the diagnosis. MRI further adds to the relationship to the adjacent structures such as the uterus and

urinary bladder. These non-invasive diagnostic modalities will provide the guide map for the surgical case.

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