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## Case Report

# Elevated serum CA 19-9 levels in dermoid cyst: a predictor of ovarian torsion and tissue necrosis?

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### ABSTRACT

Dermoid cyst (mature cystic teratoma) with well differentiated derivatives of all the three-germ cell layer is a benign tumour with ovaries being the commonest site. Dermoid cyst accounts for more than half of ovarian tumours in girls below 20 years of age. 80% of dermoid cyst are seen in reproductive age group between 20-40 years. Size of dermoid cyst usually varies between 5-10 cm and it may be bilateral in 10% of cases. Malignant transformation is very rare occurrence only in 1-3% cases, however torsion may occur in 15% of dermoid cyst. Carbohydrate antigen or cancer antigen 19-9 is usually raised in gastrointestinal tumours, pancreatic malignancy, pseudocyst of pancreas. However, it may be raised in some other malignancies and benign condition like torsion of dermoid cyst. Authors report an unusual case of torsion large dermoid cyst with tissue necrosis along with significantly elevates levels of serum CA 19-9. A 30-year-old P1L1 female presented with chief complaint of heaviness and pain lower abdomen and loss of five kilogram weight for last three months. A provisional diagnosis of dermoid was made. Serum CA 19-9 level were 1126 IU significantly raised. An exploratory laparotomy done under regional anaesthesia. A large dermoid cyst 12\*10 cm with torsion and areas of gangrene in ovarian tissue was seen replacing left ovary. Large and small intestine, stomach, pancreas were explored to rule out any pathology. Histopathology confirmed diagnosis of mature cystic teratoma. There was significant fall in serum Ca 19-9 levels to 247 U/ml two weeks after surgery and levels returned to normal limit six weeks after surgery.

**Keywords:** Ca 19-9, Dermoid

### INTRODUCTION

Dermoid cyst (mature cystic teratoma) with well differentiated derivatives of all the three germ cell layer is a benign tumour with ovaries being the commonest site.<sup>1</sup> Dermoid cyst accounts for more than half of ovarian tumours in girls below 20 years of age.<sup>1</sup> 80% of dermoid cyst are seen in reproductive age group between 20-40 years. Size of dermoid cyst usually varies between 5-10 cm and it may be bilateral in 10% of cases.<sup>2</sup> Malignant transformation is very rare occurrence only in 1-3% cases, however torsion may occur in 15% of dermoid cyst.<sup>3</sup> Rupture of dermoid cyst is very rare due to thick

cyst wall. Dermoid cyst may occur at birth or early childhood along line of embryonic fusion over head, neck, mediastinum and presacral area.<sup>4</sup>

Carbohydrate antigen or cancer antigen 19-9 is usually raised in gastrointestinal tumours, pancreatic malignancy, pseudocyst of pancreas.

However, it may be raised in some other malignancies and benign condition like torsion of dermoid cyst.<sup>5</sup> Elevated serum CA 19-9 level may have significance in large tumour diameters and higher rates of ovarian torsion in mature cystic teratoma.<sup>6</sup>

We report an unusual case of torsion large dermoid cyst with tissue necrosis along with significantly elevated levels of serum CA 19-9.

## CASE REPORT

A 30 year old P1L1 female presented in gynecology outpatient department of MMIMSR, a tertiary care hospital of North India on 18.12.18 with chief complaint of heaviness and pain lower abdomen and loss of five kilogram weight for last three months. Pain was dull ache, constant more so in left iliac fossa, relieved on medication. Pain has no relation with menstruation, urinary or bowel practice. On general physical examination patient was poorly built and poorly nourished with very low BMI i.e. 13.2 Kg/ sqm, vitals stable with mild anaemia. On per abdomen examination a midline tense cystic mass upto 14 weeks of pregnancy extending into left iliac fossa. Mass was tender, tense cystic in consistency with smooth surface. A bimanual pelvic examination confirmed 12\*10 cm tender, tense cystic mass, smooth surface with restricted mobility felt in midline and left adnexa. Movement of mass were not transmitted to cervix and viceversa. Liver, spleen were not palpable. Ultrasound pelvis showed 12.1\*9.8\*7.8 cm hyper to hypoechoic lesion in midline with echogenic solid component suggestive of fat with rokitansky mural nodule with multiple thin linear echogenic structure with multiple indentation of uterus. A provisional diagnosis of dermoid was made. CECT whole abdomen and pelvis further confirmed diagnosis of left dermoid cyst with multiloculated lesion with varying fluid attenuation in different loculi with multiple small foci of fat attenuation. Multiple calcified area in linear pattern extending from left lateral wall with source of it assuming partial tooth like appearance. Cyst wall was well circumscribed with maximum wall thickness of 7.0 mm along its floor. Cyst was indenting and displacing bladder dome inferiorly and bowel loops superiorly. Gall bladder, common bile duct, pancreas, spleen, bilateral kidneys and adrenals were normal. CBC, RFT, LFT, TSH and viral markers were within normal limits. ESR was 22mm. Tumour markers serum alpha fetoprotein, beta subunit of HCG, LDH, Ca 125 were well in range. Serum CA 19-9 level were 1126 IU significantly raised. A thorough evaluation by MRI whole abdomen, colonoscopy, endoscopy, X ray chest and neck to rule out malignancy of gastrointestinal tract or pancreas in view of highly raised CA19-9 level was done. An exploratory laparotomy done under regional anaesthesia. A large dermoid cyst 12\*10 cm with torsion and areas of gangrene in ovarian tissue was seen replacing left ovary. Left ovariectomy done in view of areas of tissue necrosis in left ovary. Large and small intestine, stomach, pancreas were explored to rule out any pathology. Histopathology confirmed diagnosis of mature cystic teratoma. Postoperative period was uneventful with discharge on 7th postoperative day. There was significant fall in serum Ca 19-9 levels to 247 U/ml two weeks after surgery and levels returned to normal limit six weeks after surgery, with weight gain of 3 kg.

## DISCUSSION

Mature cystic teratoma constitute 10-25% of all ovarian tumours with majority of them being unilateral and 5-10 cm in diameter, seen in age group of 20-40 years.<sup>2</sup> patient was 30 years with unilateral dermoid cyst of 12\*10 cm in size. Ultrasound remain gold standard for the diagnosis. However sonography may miss diagnosis of torsion in an ovary comprising dermoid cyst due to shadowing pattern in dermoid cyst, even normal colour flow or doppler studies may miss the torsion in dermoid cyst as seen in our case.<sup>8</sup> There was evidence of torsion with areas of necrosis in dermoid cyst. A high tumour marker Ca 19-9 level is seen typically in advanced inoperable pancreatic cancer.<sup>9</sup> In present case with large left side dermoid cyst with torsion with areas of necrosis had significantly high Ca 19-9 1147 u/ml levels which returned to normal with in six week after surgery. Recent literature points that raised levels of tumour marker Ca 19-9 may also be related to large size of dermoid cyst with stretching of capsule, torsion or tissue necrosis as observed in our case.<sup>5-7</sup> Ca 19-9 level may be correlated with size of dermoid cyst as reported by Emn U et al.<sup>3</sup> In present case too, large size of dermoid cyst (12\*10\*10 cm) leading to stretching and thinning of capsule might be cause of high Ca 19-9 levels. Kyung MS et al, reported that increased level of Ca 19-9 is a predictor of ovarian torsion.<sup>6</sup> as observed in present case, he also reported concomitant rise in Ca 125 as well as Ca 19-9 in 3% of cases. Ca 125 level were well within normal range in our case. Raised Ca 19-9 level due to rupture of dermoid cyst with leakage of its content into blood was observed by Atabekoglu E et al.<sup>10</sup> He also observed that weakening of cyst wall due to stretching of large dermoid cyst may lead to rise in Ca 19-9 levels. In present case also thinning of cyst wall due to large 12\*10\*10 cm dermoid cyst with torsion and tissue necrosis could be responsible for significantly high levels of Ca 19-9. However, a thorough work up to rule out malignancy of pancreas and gastrointestinal tract is mandatory in cases of dermoid cyst with raised Ca 19-9 levels.

## CONCLUSION

Elevated serum levels of tumour marker Ca 19-9, a cancer antigen in mature cystic teratoma may be correlated with large tumour diameters, ovarian torsion with tissue necrosis. However larger studies to validate are need of the hour.

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