

# The ability of preoperative diagnostic tests to predict outcome in mature ovarian cystic teratomas

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**Received Date:** Aug 20, 2022

**Accepted Date:** Aug 21, 2022

**Published Date:** Sept 21, 2022

## Abstract

**Aim:** The most frequent benign ovarian neoplasm, dermoid cysts, were the subject of this study in order to ascertain the sensitivity of the tumour markers and diagnostic techniques utilised in the preoperative phase.

**Materials and Methods:** Between January 2004 and September 2005, 136 patients who underwent surgery at the Ankara Atatürk Training and Research Hospital's Department of Obstetrics and Gynecology for whatever reason and were diagnosed with an ovarian dermoid cyst were included in the study. The Ankara-Atatürk Training and Research Hospital, HIS, archive files, and patient numbers were used to retrieve the medical data of the cases retrospectively.

**Conclusions:** The analyses of ultrasonography, computed tomography, magnetic resonance imaging, and/or other imaging techniques (n = 132) showed that 103 of the cases were operated on, and the sensitivity of the preoperative screening techniques was estimated to be 75.5%. The tumour marker CA 19-9 was shown to have a 31% sensitivity.

## Introduction

Mature cystic teratomas (MCT) comprise 10-25% of generally ovarian neoplasia and 60% of all harmless ovarian neoplasms [1-3]. MCT frames over 95% percent of all over teratomas and is generally harmless [4]. Teratomas comprise of a solitary microbe cell and consequently may contain any or all of the three microorganism layers (ectoderm, mesoderm or

endoderm) [5]. These layers ordinarily structure tissues with various and sporadic designs in the ovary [5,6]. Over 95% of all ovarian teratomas are framed by MCT and is consistently harmless [4]. It is the most normal ovarian microbe cell cancer in conceptive age ladies [7]. Roughly 8-17% of the cases were respective [1,3,8-10]. Defame change should be visible in 0.5% to 8% of the cases (particularly in postmenopausal ladies). Since these growths are generally covered with squamous epithelium, 80% of harmful cases are made out of squamous cell carcinoma [11].

The trademark perceptible appearance of MCT is the multicystic mass with hair, teeth, and/or sebaceous/thick, tacky, and generally blended in with rank material. There is a strong distension (Rokitansky knob) between the teratoma and typical ovarian tissue [12,13]. MCT may minutely contain endodermal, mesodermal and ectodermal mature tissues, yet for the most part ectodermal components exceed the others [6,14].

These neoplasms, which are consistently harmless, are generally asymptomatic, however may give stomach distension, stomach mass, obstruction, queasiness, spewing, or indications of disease, contingent upon the size of the majority. The main complexities that might create from MCT are crack, twist and threat risk. Along these lines, careful expulsion is suggested [15-17]. Careful extraction furnishes authoritative finding in most ladies with mature cystic teratomas, killing side effects and forestalling confusions like twist, break, and dangerous degeneration. Likewise with other ovarian blisters, medical procedure might be by laparoscopic approach or laparotomy, and cystectomy or oophorectomy might be performed [18].

The essential imaging apparatus for preoperative assessment of MCT is ultrasonography (USG). The thickness of these cancers differs from full blister to full singular and, specifically, not at all like numerous other ovarian growths of the MCT, these cancers has numerous sonographic trademark highlights, for example, oil-fluid or hair-fluid levels, bristle thickness, Rokitansky overhang, Ice sheet tip, dab run, drifting balls sign [6,19,20]. The predominance of attractive reverberation imaging (X-ray) to other imaging modalities utilized in pelvis incorporate direct multiplanar assessment capacity, high

delicate tissue contrast, the capacity to separate the veins without involving contrast media and the protected utilization of them in pregnant ladies. Trademark/regular X-ray finding is the greasy tissue seen in around 95% of cases. Different discoveries are fluid levels, low sign force calcification (as a rule tooth tissue) and Rokitansky knobs, compound change curio, oil-fluid level, palm tree-like bulge, drifting ball sign, intratumoral keratinoid material [21-25]. Standard T1 and T2 imaging groupings support the finding of teratoma, however T1-weighted out-of-stage or artificially particular greasy tissue engraved pictures increment symptomatic certainty. Analytic precision of these strategies has been accounted for up to 96%. [22]. Out-of-stage imaging might be especially favorable for injuries containing modest quantities of fat [23]. Figured tomography (CT) has phenomenal awareness (93-98%) because of the assurance of fat in the analysis of MCT [23]. Registered tomography remembers a mass for fat thickness regardless of fat-liquid level. The high thickness Rokitansky hub comprising of hair and different parts can swim in the mass and calcification is much of the time present [26]. The indication of drifting balls is a striking and interesting finding of MCT and comprises of a few little round structures inside the growth [27].

Cancer markers might show a slight expansion in MCT [28]. CA 125, CA 19-9, carcinoembryonic antigen (CEA) are markers that can increment in MCT [29,30].

The point of this review is to decide the prescient upsides of the tests performed for determination in the preoperative period and to arrive at a quick and precise finding with minimal expense of this illness, which is regularly experienced in the conceptive period and which has different difficulties including loss of ripeness on the off chance that not treated.

## Material and Strategy

Between the dates of January 2004 and September 2015, in Ankara Atatürk Preparing and Exploration Medical clinic, Branch of Obstetrics and Gynecology a sum of 136 patients were incorporated who got worked out of the blue and revealed as ovary mature cystic teratoma. The clinical records of the patients were reflectively investigated and the patient data (document records and patient telephone numbers) was gotten from medical clinic recording framework. Where fundamental. The records of the patients were completely screened; age, gravida, equality, menopause, preoperative imaging strategies and histopathological analysis were recorded.

In the preoperative period, 119 patients were determined to have USG, 33 patients with CT, and 17 patients with X-ray.

Just CT was performed on 10 cases, on 3 cases just X-ray was performed, CT was performed on 22 patients with USG, X-ray was performed with USG on 13 patients, and every one of the three imaging strategies were performed on one patient. CT and X-ray were finished as extra radiological assessment when 33 (24.3%) of the patients couldn't be pre-determined to have USG or their growth markers were high (particularly CA-125) or when there was doubt of harm or the consequence of USG was no decent because of stoutness. The growth markers AFP, CA-125, CA 15-3, CA 19-9 and CEA were inspected. In the USG, the distance across of the growth, the side of the cancer and whether it is one-sided or respective, the presence of septation without thought of septa thickness, the presence of strong cystic partition, fat thickness, presence of acoustic shadowing, calcification and hyper-echogenicity were recorded. The breadth of the growth, the presence of fat-bone thickness and the chance of "dermoid" expectation assessed by figured tomography. The breadth of the growth, the presence of bone thickness, and the chance of the "dermoid" were broke down in the cases that went through X-ray.

Cases who didn't pre-determined to have ovarian pimple were recorded as accidental. Patient information were dissected in SPSS 17.0 Measurable Program. Unmistakable information were displayed as number (n),% (%), mean  $\pm$  standard deviation (SD), least and greatest. Mean upsides of gatherings and examination between bunches were finished by One-way ANOVA technique while assessing the growth distances across.

## Discussion

Albeit these neoplasms, which are habitually found in the conceptive period, are typically asymptomatic, it is essential to analyze and treat at a beginning phase since they have different complexities, including loss of richness, on the off chance that not treated. In the review directed by Genç et al., 33 patients were analyzed and 21 patients (63.6%) were accurately analyzed as MCT by preoperative ultrasonography. These outcomes are like our review [31]. Mais et al. verified that responsiveness and particularity were 58% and close to 100%, separately as per discoveries in USG, for example, sanctums echogenic knobs, central or diffuse echogenic foci, and various echogenic lines shaped by hairs in MCT [32].

In our review, the ultrasonographic assessment of the sores, strong, cystic, strong cystic, fat thickness, calcification, acoustic shadowing, and hyper-echogenicity designs, preoperative mature cystic teratoma was analyzed in 80 of 119 cases. Awareness of USG was viewed as 67.2%. de Kroon et al. tracked down aversion to 80% and explicitness to 89% in

examinations including 99 dermoid pimples [33].

In a review led by Tekin et al., of 40 patients with MCT analyzed as ultrasonographic primer determinations from 245 patients who were worked with the finding of adnexal mass, the similarity between the underlying conclusion and the genuine analysis was viewed as measurably critical. The responsiveness of ultrasonography (81.8%), particularity (93.1%), PPV (67.5%) and NPV (96.7%) were additionally observed to be high [34]. In the distributed examinations it is expressed that acoustic shadowing, central or diffuse hyperechoic foci, hyperechogenic edge shaped by hair should be visible at the paces of 90%, 60% and 60% again separately [24]. Tekin et al. announced in their review that despite the fact that hyperechoic strong part was identified in 89,5% cases and blended echogenicity due to hyperechogenic almost negligible differences in 77,4% cases, acoustic shadowing was just recognized in 12,5% of the cases [34]. In a similar report, it was figured out that 13 of 40 patients who were remembered to have MCT ultrasonographically, were misdiagnosed and it was showned that the explanation of conclusion of misdiagnosis is to take the rules of hyperechogenic lining and hyperechogenic strong design in the example acknowledgment strategy as a symptomatic standards [34].

Processed tomography has a high responsiveness for distinguishing MCT. Estimation of fat thickness is troublesome in situations where the fat in the sore is low. Other than the fat thickness, palm tree-like projection and fat-fluid levels are other explicit discoveries that should be visible on CT. On CT, the fat-fluid level should be visible at 10% [23]. In the investigation of Saba et al., CT uncovered commonplace elements of MCT to be, fat thickness 93% teeth and calcifications 56% Rokitansky knob and 81% hair thickness 65% fat-fluid levels 12% separately [35-42]. Guerriero et al. assessed 83 adnexal masses who persevered following 3 months of the 161 cases they analyzed. They had the option to determine MCT to have 100 percent responsiveness and particularity in 14 growths and acquired higher awareness when contrasted and X-ray [43]. Additionally, Purchase et al. looked at the preoperative CT and X-ray discoveries of sores in 25 cases with histopathological results announced as MCT Rokitansky bulge, fat and calcified tissue portrayal were assessed in CT and X-ray and they viewed the awareness of CT as 98% and X-ray was 88% [44]. In our review, taking into account the elements announced with CT, while the cystic construction was assessed as 31.3%, strong design as 28.1%, strong cystic design as 34.4%, fat thickness as 75% and bone thickness as 46.9%; bone not set in stone in that frame of mind of the cases assessed by X-ray and 12 (70.6%) of the cases were analyzed as "MCT" with no spellbinding trademark and 5 (29.4%) cases were characterized exclusively as cystic

design. Saba et al. in their audit of the X-ray, fat, fat-fluid, hair densities, palm tree bulges and distensions in the presence of MCT are underscored as regular highlights [15-17,45-49].

At the point when we take a gander at the growth markers in our review, CA 125 responsiveness, which is basically significant in the conclusion of epithelial ovarian neoplasms, was viewed as 16% in the determination of MCT, a microorganism cell ovarian growth. Kawai, Kikkawa, and Mikuni have shown that CA-125 qualities in patients with MCTs have expanded by 23.7%, 28% and 12.7%, separately, which are like our information [50-52].

In our review, the awareness of CA 15-3 in the conclusion of MCT was viewed as 10.7%. AFP awareness was determined as 6%. In a concentrate by Konishi et al., CEA levels expanded to 30% of cases determined to have MCT. While Kawai et al., couldn't find any critical ascent in that frame of mind with cases who have MCT [51-53]. In our review, CEA awareness was determined as 20.4%. In an investigation of Var et al. on 160 patients, CA 19-9 was seen as in 37.6% of the cases, CA 125 was available in 19.3%, CEA in 9.4%, CA 15-3 in 4% and AFP levels were high in 0,9% of the previously mentioned cases. In the review where they recognized that CA 19-9 is a more exact marker in ovarian MCT, they found that the main determinant of CA 19-9 level was the measurement of growth [54]. In our review, CA 19-9 was higher in MCT than the other growth markers and in 34 of the 110 cases, it was viewed as higher than typical qualities and its awareness was determined as 31%.

Studies have zeroed in on the relationship of growth width and level of cancer markers. Mikuni and Dede didn't track down a critical connection between CA 19-9 level and growth measurement, however they recognized a huge connection between CA19-9 level and cancer diameter. In the investigation of Var et al. while it is noticed typically in cases with growths whose distance across is under 4 cm, CA 19-9 levels begin to ascend in cancers with measurement between 4-10 cm and in cancers which have breadths more than 10 cm CA 19-9 levels are still on the ascent as well as CA 125 and CEA [52,54,55]. We didn't find a connection between growth size and level of cancer markers.

## Conclusion

The most frequent ovarian germ cell tumour, or MCT, accounts for 10% to 25% of all ovarian neoplasms and 60% of all benign ovarian neoplasms. Although MCT is typically asymptomatic, depending on the size of the masses, symptoms in symptomatic cases may include abdominal distension, abdominal mass, constipation, nausea, vomiting, infection, torsion, or rupture. The limitations of our study

within the scope of standards were the absence of any mention of the Rokitansky bulge in our CT and MRI reports, as well as the lack of details regarding the characteristics of the mass. Our study's definitions of the imaging methods were given in the form of broad terms, which was one of its weaknesses. Despite the fact that the radiologist refers to it as "MCT," radiologists are required to work on this topic and the technique should be performed by the same radiologist, which was not the case in our study. Sonography is therefore the main imaging technique utilised to calculate MCT. More elaborative radiology reports are required, supported by CT and/or MRI, in order to obtain accurate pre-operative diagnosis and uniformity. Preoperative tumour indicators don't seem to be relevant to the identification or confirmation of MCT. Studies are required to substantiate the claim that tumour markers rise with tumour growth.

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