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Department of Obstetrics and Gynecology, Gynecological Surgical Oncology Clinic, Faculty of Medicine, Gaziantep University

TAJEV, April 2014, ANTALYA
Definition

- Ovary, tuba, broad ligament
- Usually originates from the ovary

Symptomatology

- Symptomatic
  - Acute abdomen
  - Pelvic pain
  - Dispareunia
  - Nonspecific complaints (compression sign, hormonal signs due to functional mass, urinary system or gastrointestinal system signs)

- Asymptomatic
Causes of adnexal mass

Extraovarian gynecological factors

- Functional cysts
- Ovarian benign tumor
- Ovarian malignant tumor

Benign
- Ectopic pregnancy
- Endometrioma
- Hydrosalpinx
- Leiomyoma
- Tuboovarian abscess
- Paraovarian cyst/tumor

Malignant
- Endometrial carcinoma
- Tubal carcinoma

Non-gynecological

- Benign (Appendicitis, bladder-urethral diverticula, nerve sheath tumor, pelvic kidney, peritoneal cyst)
- Malignant (Metastatic -GIS, breast-, Retroperitoneal sarcomas)
• In USA, approximately 5-10% of women undergo surgery for “suspicious ovarian mass”
  • Ovarian cancer detected in 13-21%

  Holcomb K, 2011

• Of those diagnosed with adnexal masses
  • In premenopausal period, 4-24%, and
  • In postmenopausal period, 39-63% were malignant

  Rossi A. 2011
Importance

**BENIGN**
- Follow-up
- Gynecologist
- Laparoscopy / Mini Laparotomy

**MALIGNANT**
- Surgery
- Gynecologic Oncologist
- Laparotomy
- Midline incision
Adnexal masses

Premenopausal period

- The upper limit of normal for ovarian volume is $20 \text{ cm}^3$

- Most of them are benign (functional cysts are the most common)

- Cystic teratoma are the most common form of neoplastic adnexal masses

- Other factors
  - (Ectopic pregnancy, PID, hydrosalpinx, pelvic kidney, intraligamentous myoma)

- Ovarian tumors
  - <20 years old, the most common Germ cell tumor
  - >20 years old, the most common Epithelial tumor

- Contribution of the tumor markers is limited
Adnexal masses

Postmenopausal period

- The upper limit of normal for ovarian volume is 10 cm³
- Incidence of asymptomatic ovarian cyst is 18%
  - 70% of them spontaneously regress
- Unilocular cysts and cysts <10 cm risk of malignancy is 0.1%

- Tumor markers are more useful in this period

Modessit SC, 2003
McDonalds JM, 2006
Suspicious Adnexal Mass: Diagnosis and Management

• The best diagnostic method?

• The best treatment method?
Diagnosis

- Anamnesis
- Physical and gynecological examination
- Laboratory
  - Tm markers
- Imaging methods
Anamnesis

The group at risk of malignancy:

- Postmenopausal period
- Nulliparity- Infertility
- History of breast cancer
- Family history (BRCA 1-2)
### Examination findings

<table>
<thead>
<tr>
<th>Clinical finding</th>
<th>Benign</th>
<th>Malignant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unilateral</td>
<td>***</td>
<td>*</td>
</tr>
<tr>
<td>Bilateral</td>
<td>*</td>
<td>***</td>
</tr>
<tr>
<td>Cystic</td>
<td>***</td>
<td>*</td>
</tr>
<tr>
<td>Solid</td>
<td>*</td>
<td>***</td>
</tr>
<tr>
<td>Mobile</td>
<td>***</td>
<td>**</td>
</tr>
<tr>
<td>Fixed</td>
<td>*</td>
<td>***</td>
</tr>
<tr>
<td>Irregular</td>
<td>*</td>
<td>***</td>
</tr>
<tr>
<td>Smooth</td>
<td>***</td>
<td>*</td>
</tr>
<tr>
<td>Ascites</td>
<td>*</td>
<td>***</td>
</tr>
<tr>
<td>Nodularity in Douglas</td>
<td>--</td>
<td>***</td>
</tr>
<tr>
<td>Rapid growth</td>
<td>--</td>
<td>***</td>
</tr>
</tbody>
</table>

The lowest sensitivity 60%
### Tumor markers

- **CA125**
- **Human Epididymis Protein 4 (HE4)**

### Important Tumor Markers:

**hCG**
- Important for the adnexal masses in reproductive period

**AFP, LDH, Estrogen, Progesteron**
- Important for the adnexal masses during pediatric and adolescent period

**CEA, CA19.9, CA72.4, Osteopontin**
- Soluble Mesothelin-Related Peptide (SMRP)
- Inhibin Pro Alfa C
• CA125 is still the most common marker used in the diagnosis of adnexal masses

• HE4 is more reliable in the differentiation of benign/malignant in premenopausal period

• There is no additional advantage of using CA125 and HE4 together

• CA125 and HE 4 cannot be used as a screening test in ovarian cancers due to their low sensitivity
Imaging Methods

- Sonography
- Tomography
- MRI
- PET-CT
The primary imaging method in evaluation and follow-up of adnexal masses is ultrasonography.

CT and MRI are not the primary imaging methods in adnexal masses.

MRI, could be used as the second choice if the US findings are not diagnostic or if the diagnosis is suspicious.

CT, could be used if it is thought that there is metastasis or before and after primary cytoreductive surgery.
Preoperative identification of a suspicious adnexal mass: A systematic review and meta-analysis

Jason E. Dodge a, Allan L. Covens b, Christina Lacchetti c,*, Laurie M. Elit d, Tien Le e, Michaela Devries-Aboud f, Michael Fung-Kee-Fung e,*** and The Gynecology Cancer Disease Site Group

a Division of Gynaecologic Oncology, Princess Margaret Hospital, University Health Network, Department of Obstetrics and Gynaecology, Toronto ON, Canada
b Division of Gynecologic Oncology, Odette Cancer Centre, Sunnybrook Health Sciences Centre, Toronto, ON, Canada
c Cancer Care Ontario, Program in Evidence-Based Care, McMaster University, Hamilton, ON, Canada
d Department of Obstetrics and Gynecology, McMaster University, Hamilton, ON, Canada
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f Guelph Family Health Team, Guelph, ON, Canada
Preoperative identification of a suspicious adnexal mass: A systematic review and meta-analysis

**Ultrasonographical Morphology**

- Sassone Scoring system
- Lerner Scoring system
- DePriest Scoring system
- Ferrazzi Scoring system
- Finkler Scoring system

**Enlarged Scoring Systems**

- Risk of Malignancy Index (RMI) 1-2-3
- Artificial Neural Network (ANN) 1-2
- Logistic Regression Models (LRM) 1-2

**Doppler Sonography**

- 2D Power Doppler
- 3D Power Doppler
- Resistance Index
- Pulsatility Index
- Peak Systolic Velocity
- Combined Morphology and Doppler
- 3D Ultrasonography and Doppler

*Although it has been widely used in USA after FDA approval; as there is no sufficient study comparing HE4 and other methods, evaluation of these tumor markers are not included to the metaanalysis*

Dodge et al. Gynecol Oncol, 2012
## Preoperative identification of a suspicious adnexal mass: A systematic review and meta-analysis

<table>
<thead>
<tr>
<th>Methods</th>
<th>Sensitivity (95% CI)</th>
<th>Specificity (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2D ultrasonography</td>
<td>85.3% (95% CI, 69.0–93.8%)</td>
<td>87.4% (95% CI, 75.0–94.1%)</td>
</tr>
<tr>
<td>3D ultrasonography</td>
<td>93.5% (95% CI, 74.1–98.6%)</td>
<td>91.5% (95% CI, 80.0–96.6%)</td>
</tr>
<tr>
<td>Sassone Scoring System (cutoff 9)</td>
<td>88.6% (95% CI, 81.3–93.3%)</td>
<td>77.5% (95% CI, 70.0–83.6%)</td>
</tr>
<tr>
<td>Lerner Scoring System</td>
<td>90% (95% CI, 87–98%)</td>
<td>63% (95% CI, 40–81%)</td>
</tr>
<tr>
<td>DePriest Scoring System</td>
<td>91% (95% CI, 85–97%)</td>
<td>69% (95% CI, 60–78%)</td>
</tr>
<tr>
<td>Ferrazzi Scoring System</td>
<td>85.2% (95% CI, 76.4–91.1%)</td>
<td>85.9% (95% CI, 71.9–93.5%)</td>
</tr>
<tr>
<td>Finkler Scoring System</td>
<td>83.5% (95% CI, 73.1–90.4%)</td>
<td>78.2% (95% CI, 59.0–89.9%)</td>
</tr>
<tr>
<td>RMI (cutoff 200)</td>
<td>79.2% (95% CI, 73.6–83.9%)</td>
<td>91.7% (95% CI, 87.2–94.6%)</td>
</tr>
<tr>
<td>RMI 2 (cutoff 200)</td>
<td>79% (95% CI, 71–87%)</td>
<td>81% (95% CI, 72–90%)</td>
</tr>
<tr>
<td>Tailor's Model</td>
<td>60% (95% CI, 20–100%)</td>
<td>93% (95% CI, 82–100%)</td>
</tr>
<tr>
<td>RI</td>
<td>77.2% (95% CI, 68.7–83.9%)</td>
<td>89.8% (95% CI, 85.6–92.8%)</td>
</tr>
<tr>
<td>PI</td>
<td>80.6% (95% CI, 74.9–85.2%)</td>
<td>79.9% (95% CI, 69.8–87.2%)</td>
</tr>
<tr>
<td>PSV</td>
<td>80.0% (95% CI, 67.7–88.5%)</td>
<td>84.2% (95% CI, 69.3–92.7%)</td>
</tr>
<tr>
<td>Visualization</td>
<td>88% (80–92%)</td>
<td>78% (95% CI, 65–87%)</td>
</tr>
<tr>
<td>MRI</td>
<td>91.9% (95% CI, 88.8–94.1%)</td>
<td>88.4% (95% CI, 83.7–91.9%)</td>
</tr>
<tr>
<td>CT</td>
<td>87.2% (95% CI, 74.2–94.1%)</td>
<td>84.0% (95% CI, 66.6–93.3%)</td>
</tr>
<tr>
<td>PET</td>
<td>67% (95% CI, 52–79%)</td>
<td>79% (95% CI, 70–85%)</td>
</tr>
<tr>
<td>CA-125</td>
<td>78.7% (95% CI, 75.3–81.7%)</td>
<td>77.9% (95)</td>
</tr>
</tbody>
</table>

*Dodge et al. Gynecol Oncol, 2012*
Sensitivity and specificity of 3D Ultrasonography is higher than 2D Ultrasonography

Sensitivity and specificity of morphological scoring systems is in accepted levels, however the superiority of each system to the other has not been demonstrated

The superiority of doppler evaluation alone to simple ultrasonographical evaluation has not been demonstrated

Although statistical difference has not been demonstrated, MRI provides better results according to CT

CA 125 measurement is less reliable according to the other assessment methods
Suspicious Adnexal Masses: Diagnosis

• Tumor markers are not sufficient alone
• US and tumor markers should be used together
Management

Premenopausal period

Postmenopausal period
Premenopausal Period

Postmenarche-premenopause

HCG

Positive

Exclude ectopic pregnancy

Suspicious mass and if it is larger than 10 cm

Gyn&Onco

Negative

US

No suspicious findings

Serial US (a gap of 4-6 weeks). If it doesn’t regress or if it enlarges or lasts for more than 12 weeks, refer
Adnexal Masses
Postmenopausal Period

• 2,763 postmenopausal women
• Incidence of asymptomatic ovarian cyst is 18%
• Unilocular <10 cm ovarian cyst
• Follow-up with TVS in 6-month intervals (6.5 years)

Result;
• Spontaneous resolution 70%
• Ovarian cancer absent (6.5 years)

Modesitt SC, 2003, Obstet Gynecol (Level II-1)

• <10 cm, simple unilocular cysts could be followed up with TVS without any intervention in appropriate intervals in postmenopausal and premenopausal periods as they are thought to be benign

ACOG 2007
Management of Asymptomatic Ovarian and Other Adnexal Cysts Imaged at US: Society of Radiologists in Ultrasound Consensus Conference Statement

The Society of Radiologists in Ultrasound convened a panel of specialists from gynecology, radiology, and pathology to arrive at a consensus regarding the management of ovarian and other adnexal cysts imaged sonographically in asymptomatic women. The panel met in Chicago, Ill, on October 27–28, 2009, and drafted this consensus statement. The recommendations in this statement are based on analysis of current literature and common practice strategies, and are thought to represent a reasonable approach to asymptomatic ovarian and other adnexal cysts imaged at ultrasonography.
<table>
<thead>
<tr>
<th>Normal Appearance</th>
<th>Follow-up*</th>
<th>Comments</th>
</tr>
</thead>
</table>
| **Reproductive age**
**Follicles**
- Thin and smooth walls
- Round or oval
- Anechoic
- **Size < 3 cm**
- No blood flow | Not needed | Developing follicles and dominant follicle ≤ 3 cm are normal findings |
| **Reproductive age**
**Corpus luteum**
- Diffusely thick wall
- **Peripheral blood flow**
- **Size ≤ 3 cm**
- +/- internal echoes
- +/- crenulated appearance | Not needed | Corpus luteum ≤ 3 cm is a normal finding |

Society of Radiologists in Ultrasound
Consensus Conference Statement
<table>
<thead>
<tr>
<th>Normal Appearance</th>
<th>Follow-up*</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal ovary appearance:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postmenopausal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Small</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Homogenous</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not needed</td>
<td>Normal postmenopausal ovary is atrophic without follicles</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinically inconsequential:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postmenopausal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Simple cyst ≤ 1 cm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Thin wall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Anechoic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• No flow</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not needed</td>
<td>Small simple cysts are common; cysts ≤ 1 cm are considered clinically unimportant</td>
</tr>
</tbody>
</table>

Society of Radiologists in Ultrasound Consensus Conference Statement
<table>
<thead>
<tr>
<th>Cysts with benign characteristics</th>
<th>Follow-up*</th>
<th>Comments</th>
</tr>
</thead>
</table>
| **Simple cysts (includes ovarian and extraovarian cysts)** | **Reproductive age:**  
  \( \leq 5 \text{ cm} \): Not needed  
  \( > 5 \& \leq 7 \text{ cm} \): Yearly | Simple cysts, regardless of age of patient, are almost certainly benign |
| • Round or oval  
• Anechoic  
• Smooth, thin walls  
• No solid component or septation  
• Posterior acoustic enhancement  
• No internal flow | **Postmenopausal (PM):**  
  \( > 1 \& \leq 7 \text{ cm} \): Yearly**  
  Any age: \( > 7 \text{ cm} \): Further imaging (e.g., MRI) or surgical evaluation | For cysts \( \leq 3 \text{ cm} \) in women of reproductive age, it is at the discretion of interpreting physician whether to describe them in imaging report |
| **Hemorrhagic cyst** | **Reproductive age:**  
  \( \leq 5 \text{ cm} \): Not needed  
  \( > 5 \text{ cm} \): 6-12 week follow-up to ensure resolution | Use Doppler to ensure no solid elements |
| • Reticular pattern of internal echoes  
• +/- Solid appearing area with concave margins  
• No internal flow | **Early PM:** 0-5 year  
  Any size: Follow-up to ensure resolution | For cysts \( \leq 3 \text{ cm} \) in women of reproductive age, it is at the discretion of interpreting physician whether to describe them in imaging report |
<p>| <strong>Late PM:</strong> Consider surgical evaluation |</p>
<table>
<thead>
<tr>
<th>Cysts with benign characteristics</th>
<th>Follow-up*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Endometrioma</strong></td>
<td>Any age:</td>
</tr>
<tr>
<td>• Homogeneous low level internal</td>
<td>Initial follow-up 6–12 weeks, then if not</td>
</tr>
<tr>
<td>echoes</td>
<td>surgically removed, follow-up yearly</td>
</tr>
<tr>
<td>• No solid component</td>
<td></td>
</tr>
<tr>
<td>• +/- Tiny echogenic foci in wall</td>
<td></td>
</tr>
</tbody>
</table>

| **Dermoid**                       | Any age:  |
| • Focal or diffuse hyperechoic    | If not surgically removed, follow-up yearly to  |
|   component                       |   ensure stability                              |
| • Hyperechoic lines and dots     |                                                     |
| • Area of acoustic shadowing     |                                                     |
| • No internal flow               |                                                     |

| **Hydrosalpinx**                  | Any age:  |
| • Tubular shaped cystic mass     | As clinically indicated                           |
| • +/- Short round projections    |                                                     |
|   “beads on a string”            |                                                     |
| • +/- Waist sign (i.e. indentations on opposite sides) |   |
| • +/- Seen separate from the     |                                                     |
|   ovary                          |                                                     |

| **Peritoneal inclusion cyst**    | Any age:  |
| • Follow the contour of adjacent | As clinically indicated                           |
|   pelvic organs                  |                                                     |
| • Ovary at the edge of the mass  |                                                     |
|   or suspended within the mass   |                                                     |
| • +/- Septations                  |                                                     |
### Cysts with indeterminate, but probably benign, characteristics

<table>
<thead>
<tr>
<th>Findings</th>
<th>Follow-up*</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Findings suggestive of, but not classic for, hemorrhagic cyst, endometrioma or dermoid</td>
<td>Reproductive age: 6-12 week follow-up to ensure resolution. If the lesion is unchanged, then hemorrhagic cyst is unlikely, and continued follow-up with either ultrasound or MRI should then be considered. If these studies do not confirm an endometrioma or dermoid, then surgical evaluation should be considered.</td>
<td></td>
</tr>
<tr>
<td>Thin-walled cyst with single thin septation or focal calcification in the wall of a cyst</td>
<td>Postmenopausal: Consider surgical evaluation</td>
<td></td>
</tr>
<tr>
<td>Multiple thin septations (&lt; 3 mm)</td>
<td>Consider surgical evaluation</td>
<td>Multiple septations suggest a neoplasm, but if thin, the neoplasm is likely benign</td>
</tr>
<tr>
<td>Nodule (non-hyperechoic) without flow</td>
<td>Consider surgical evaluation or MRI</td>
<td>Solid nodule suggests neoplasm, but if no flow (and not echogenic as would be seen in dermoid), this is likely a benign lesion such as a cystadenofibroma</td>
</tr>
<tr>
<td>Cysts with characteristics worrisome for malignancy</td>
<td>Follow-up*</td>
<td>Comments</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>------------</td>
<td>----------</td>
</tr>
<tr>
<td>Thick (&gt; 3 mm) irregular septations</td>
<td>Any age: Consider surgical evaluation</td>
<td></td>
</tr>
<tr>
<td>Nodule with blood flow</td>
<td>Any age: Consider surgical evaluation</td>
<td></td>
</tr>
</tbody>
</table>

Society of Radiologists in Ultrasound
Consensus Conference Statement
• Menopause / Premenopause
• TVS (morphological diagnostic criteria)
• CA-125
• Presence of ascites
Serum CA-125 is a good predictor of benign disease in patients with postmenopausal ovarian cysts.

Dikensoy E, Balat O, Ugur MG, Ozkur A, Erkilic S.

Department of Obstetrics and Gynecology, Gaziantep University, Gaziantep, Turkey.

Abstract

AIM: To determine whether serum CA-125 levels, in addition to tumor size and ultrasonographic findings can help in differentiating benign ovarian cysts from malignant disease.

METHODS: All postmenopausal women who had undergone explorative laparotomy for a preoperative diagnosis of an adnexal cyst between January 1999 and February 2006 were included if serum CA-125 levels were below 50 IU/ml.

RESULTS: Ninety-three patients with ovarian cysts and serum CA-125 levels lower than 50 IU/ml were included. Seventy-five (80%) of the patients (53 unilocular, 22 multilocular) had ovarian cysts < 13 cm. Of 18 patients with ovarian cysts > 13 cm, seven had unilocular and 11 had multilocular cysts. All the patients (n = 77) with a serum CA-125 level < 35 IU/ml had benign histopathology regardless of the tumor size or ultrasonic features. Among 16 patients with CA-125 levels between 35 and 50 IU/ml, two with unilocular cysts > 13 cm and nine with multilocular cysts (3 < 13 cm, 6 > 13 cm) had borderline histopathology.

CONCLUSION: We concluded that when unilocular ovarian cyst size is < 13 cm and serum CA-125 levels are below 35 IU/ml in a postmenopausal woman, the possibility of a benign etiology is most likely.
• Postmenopausal ovarian cyst
• > 50 years old, 93 cases

- Tumor size
  - >13 cm
  - <13 cm

- Morphological evaluation
  - Unilocular
  - Multilocular

- Tumor markers (CA 125)
  - < 35 IU/ml
  - 35-50 IU/ml

✓ In 77 patients with CA 125 < 35 IU/ml, all cases were found to be **benign**, independent from the size and morphological structure of the tumor

✓ All unilocular lesions <13 cm in size were **benign**

✓ In 16 patients with CA 125 between 35 - 50IU /ml, 11 were **borderline**
Serum CA-125 is a good predictor of benign disease in patients with postmenopausal ovarian cysts

E. Dikensoy, M.D.; O. Balat, M.D.; M.G. Uğur, M.D.; A. Ozkur, M.D.; S. Erkilic, M.D.
Department of Obstetrics and Gynecology, Department of Radiology, Department of Pathology, Gaziantep University, Gaziantep (Turkey)

Table: Tumor size, ultrasonographic findings and pathological results.

<table>
<thead>
<tr>
<th>Tumor size</th>
<th>Serum CA-125</th>
<th>Diagnosis of Pathology</th>
<th>N</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Benign</td>
<td>%</td>
<td>Borderline</td>
</tr>
<tr>
<td>&lt; 13 cm</td>
<td>≤ 35 IU/ml</td>
<td>69</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>35-50 IU/ml</td>
<td>3</td>
<td>50</td>
<td>3</td>
</tr>
<tr>
<td>&gt; 13 cm</td>
<td>≤ 35 IU/ml</td>
<td>8</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>35-50 IU/ml</td>
<td>2</td>
<td>20</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>82</td>
<td>88.2</td>
<td>11</td>
</tr>
</tbody>
</table>

Table: Comparison of tumor size, serum CA-125 levels and pathological results.

<table>
<thead>
<tr>
<th>Tumor size</th>
<th>Ultrasonographic findings</th>
<th>Pathological diagnosis</th>
<th>N</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Benign</td>
<td>%</td>
<td>Borderline</td>
</tr>
<tr>
<td>&lt; 13 cm</td>
<td>Unilocular</td>
<td>53</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Multilocular</td>
<td>19</td>
<td>86.4</td>
<td>3</td>
</tr>
<tr>
<td>&gt; 13 cm</td>
<td>Unilocular</td>
<td>5</td>
<td>71.4</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Multilocular</td>
<td>5</td>
<td>45.5</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>82</td>
<td>88.2</td>
<td>11</td>
</tr>
</tbody>
</table>
Do high levels of CA 19-9 in women with mature cystic teratomas of the ovary warrant further evaluation?

M.G. Uğur¹, E. Ozturk¹, O. Balat¹, E. Dikensoy¹, S. Teke¹, A. Aydin²

¹Department of Obstetrics and Gynecology, ²Department of Pathology.
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Summary

Purpose: To evaluate the serum levels of tumor markers (particularly CA 19-9) in patients with ovarian mature cystic teratomas (MCT) with respect to age, size, bilaterality, menopause, presence of adhesions, complications and the postoperative levels. Methods: We evaluated clinical characteristics and tumor markers of 157 patients with MCT of the ovary operated at our clinic. Results: CA19-9 was the only tumor marker with a mean serum level (46.95 ± 101.11 U/ml) above the cut-off value and the elevated rate was 33.1%. Tumor size, presence of adhesions and CA 125 levels were significantly higher in patients with elevated CA 19-9. Bilaterality rate was 10.8%. The most common complication was torsion (6.4%). Conclusion: We suggest that elevated levels of CA 19-9 may be expected in MCTs of the ovary and that they will probably be decreased postoperatively. Therefore, postponing evaluation of other possible sources of CA 19-9 elevation in asymptomatic and young patients is more common sense.

Key words: Tumor markers; CA 19-9; Mature cystic teratoma; Ovary; Adhesion.
Suspicion of dermoid cyst (US)
- 157 cases
- Tumor markers (CA 125-19.1%, CA 19-9 -33.1%, CA 15-3 -18.9%, CEA -15.4%, AFP - 4%)

In the group with high CA 19-9 (33.1%)
- Tumor size
- Presence of adhesion
- Increase in CA 125 level

was found to be significantly higher

High levels of CA 19-9 can be expected in dermoid cysts, especially in young patients

Tumor markers become normal in postoperative period

There is no need for examination of other foci such as gastrointestinal system in young patients with dermoid cysts and high CA 19-9 levels if there is no other clinical sign

Eur. J. Gynecol Oncol. 2012, 2, 207-9
The sensitivity and specificity of frozen diagnosis of adnexal masses is 89.2% and 97.9%, respectively.

Systematic lymphadenectomy and surgical staging prolong survival (early-stage ovarian cancer).

Fertility protective approach (Borderline tumor and Stage I, Grade I ovarian cancers).

Appropriate surgical staging could be done with LT or LS.

The risk of intraoperative rupture of capsule is more common in patients undergoing LS than LT.
The effect of intraoperative rupture of capsule on survival

- Poor prognostic
  - Paulsen T. Et al.
  - Vergote I et al.
  - Bakkum-Gamez JN et al.
  - ……

- Not prognostic
  - Dembo AJ etal.
  - Sevelda P et.al.
  - Sjövall K. et. All.
  - ……

- is controversial. There is no ideal prospective randomized study.
For resurgery
(definitive diagnosis is malignant)
when should the patient be operated?

- Appropriate surgery within 1-3 weeks
Adnexal Mass: Management

• Follow-up:
  ≤ 7 cm unilocular simple ovarian cysts
  ≤ 5 cm complex cysts (CA125 Normal)

• Surgery:
  • Intraoperative frozen (gold standard)
  • Fertility sparing surgery
  • Radical surgery
Summary

Suspicious adnexal mass
(Anamnesis, physical examination, Tm markers, imaging)

Surgery (LS-LT)

Intraoperative evaluation
(surgery and frozen)

Appropriate surgery (Benign, BOT, Early stage ovarian ca, advanced stage ovarian ca)

Definitive diagnosis after surgery and referral of the patient
ENYGO ACTIVITIES in 2013

ENYGO Sessions at ESGO18, 2013 followed by Tree planting and the ENYGO party
ENYGO workshop on Radiology (CT and USS) in gynaecological oncology
Teaching the Teachers Workshops
Cadaveric Workshop in Surgical Anatomy and Advanced Laparoscopic surgery
ENYGO Elections, newsletters, surveys, and more