Surgical Management of Suspicious Adnexal Masses

- Diagnosis
  - Two situations
    - Adnexal mass
      - Carcinomatosis

Puncture and Laparoscopy (d)

- Dissémination ??

Vergote 2001

- Retrospective study
- No routine peritoneal cytology
- No difference between puncture and rupture
- No routine staging
- No biopsies of the areas where the mass was fixed

I. Vergote concluded

« In view of the reports on rapid peritoneal spread and our findings laparoscopic removal of ovarian cyst should be restricted to patients with preoperative evidence that the cyst is benign. »
Dogma

- A perfect preoperative selection avoids the laparoscopic management of unexpected cancer and or LMP

The preoperative assessment of the adnexal masses: the accuracy of clinical estimates versus clinical prediction rules

Boll et al
BJOG 2003;110:519-523

Boll et al 2003

- 45 gynecologists were asked to estimate the probability of malignancy using clinical ultrasonographic data and CA 125.
- To compare their predictive performance with the performance of existing mathematical models
- To choose the abdominal incision
  - Vertical midline
  - Low transversal
  - Laparoscopy
Neither clinically relevant nor statistical differences could be found between the accuracy of the risk assessment made by clinicians and the accuracy of the risk assessment made by prediction models (logistic regression model and neural networks).

No difference between oncologist, general gynaecologist, and residents.

### Boll et al 2003 - Consequences of the clinical predictive performances

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Malignancy</td>
<td>Malignancy</td>
<td>Malignancy</td>
</tr>
<tr>
<td>Midline</td>
<td>Yes:23</td>
<td>No:29</td>
<td>Yes:21</td>
</tr>
<tr>
<td>Pfannenstiel</td>
<td>Yes:7</td>
<td>No:62</td>
<td>Yes:6</td>
</tr>
<tr>
<td>Laparoscopy</td>
<td>Yes:0</td>
<td>No:49</td>
<td>Yes:3</td>
</tr>
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</table>

### Bol et al Conclusions

- All kind of surgeons would operate some cancers through a low transversal abdominal incision.
- The percentage of benign masses operated by laparotomy would range from 65% (Resident) to 55% (Gen Gynaec.) and 41.4% (Gyn Oncologist).
A laparoscopic approach is essential to adequately managed these patients

Surgical Management of Suspicious Adnexal Masses

Diagnosis

- Two situations
  - Adnexal mass
  - CARCINOMATO SIS

Bristow RE Gynecol Oncol 2005

- Currently in the USA, fewer than 50% of the ovarian cancer patients have the benefits of having their initial surgery performed by a qualified gynecologic oncologist
Laparoscopic diagnosis

- Cancer confirmed
- Optimal oncological surgical treatment
  - Possible
  - Impossible
- Immediate or interval Debulking
- Biopsy, pictures, detailed operative report
- Refer the patient to an oncology department

In the oncology department

- Preoperative evaluation using the data of the laparoscopic evaluation
- Delay for surgery
- Re-evaluation even using a second laparoscopy
- Immediate or interval Debulking after 1, 2 or 3 cycle of chemotherapy

- This would be impossible if you do a laparotomy for the diagnosis because chemotherapy would have to be delayed

- Whereas after laparoscopy a second treatment: chemotherapy or laparotomy is possible within one week
Interval debulking after neoadjuvant chemotherapy

Bangkok Nov 2008

- In the randomised trial of 718 women from the European Union and Canada
- Study participants with stage III/IV ovarian, peritoneal, and fallopian tube carcinoma
- The median follow-up for all participants was 4.8 years.
- For the primary- and interval-debulking-surgery groups of the study, median overall survival (29 vs 30 months) and progression-free survival (both 12 months) were similar in an intention-to-treat analysis.
- However, reductions in complications were observed in the interval-debulking-surgery group, including a statistically significant reduction in postoperative deaths (2.7% in the primary cohort vs 6% in the interval cohort).

Bangkok 2008

- The use of chemotherapy before surgery significantly reduced postoperative deaths and adverse events
- And provided similar survival outcomes compared with the current standard of care, in which chemotherapy follows surgery.
- Optimal debulking still matters most, surgical timing does not

- In a multivariate analysis by the investigators, optimal debulking surgery was the strongest independent prognostic factor for overall survival among the study participants in both groups (P = .0001). Other significant prognostic factors included: histological type (P = .0003), largest tumor size at randomization (P = .00008) and disease stage (IIIC vs IV) (P = .0000).

Adnexal Masses
Strong arguments came from a recent paper …

- Meta analysis about neo adjuvant chemotherapy from Bristow et al September 2006
  - Each preoperative chemotherapy cycle was associated with a decrease in median survival of 4.1 months
  - Neo adjuvant chemotherapy is associated with inferior overall survival compared to initial surgery.

- But …;
  - Each 10% increase in the proportion of patients in each cohort undergoing maximal interval cytoreductive surgery was associated with 1.9 month increase in the median survival time
  - This confirmed a previous meta analysis on the effect of surgery in which each increase in the proportion of patient undergoing maximal cytoreduction was associated with an increase in survival time of 1.5 months.

- So using 1 cycle of chemotherapy
  - You lose 4.1 months
  - But switching from a 40 to 70% surgeon you gain 4.9 to 5.7 months
  - All patients would receive an optimal surgical management
Is laparoscopic diagnosis of advanced ovarian cancer a safe procedure?

- Vergotte et al 2005
  - 173 patients laparoscopic diagnosis of advanced ovarian cancer before
    - initial
    - or interval debulking
    - 71 patients had trocar site excision

- 8 patients had a clinical trocar site metastasis
- 22 patients, had a microscopic trocar site metastasis

But!

<table>
<thead>
<tr>
<th>Trocar site metastasis</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>30</td>
<td>143</td>
</tr>
<tr>
<td>Delay before surgery</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Ascites</td>
<td>83%</td>
<td>72%</td>
</tr>
<tr>
<td>Serous tumors</td>
<td>87%</td>
<td>82%</td>
</tr>
<tr>
<td>Stage IV</td>
<td>13</td>
<td>31%</td>
</tr>
<tr>
<td>Median survival</td>
<td>Not reached</td>
<td>29 months</td>
</tr>
<tr>
<td>3 years actuarial survival</td>
<td>68%</td>
<td>37%</td>
</tr>
</tbody>
</table>
Should we consider laparoscopy as the gold standard in the initial surgical management of ovarian cancer?

Yes!!

Preoperative work up

Clinical data including familial history
Vaginal and abdominal ultrasound
MRI
Questions
Teratoma?
Highly suspicious
Preoperative staging
Uni or bilateral++
Indications for MRI?

- Very large masses
- Highly suspicious masses
- To confirm the diagnosis of teratoma

Not for every patient

CA 125

- Inclusion of CA-125 does not improve mathematical models developed to distinguish between benign and malignant adnexal tumors.


Prerequisites to the laparoscopic management of suspicious masses

- Inform consent
  - Adnexectomy uni or bilateral
  - Vertical midline laparotomy
  - Staging
  - Total Hysterectomy
  - Restaging

- Frozen section examination should be possible

- A gynecologic oncologist should be available
Inform consent: two situations

- Patients ≤ 40 years old
  - Unilateral adnexectomy
  - Permanent sections are mandatory for grading
  - Grading is mandatory to decide conservative treatment
  - Laparoscopy
  - Restaging (interval +++ )

- Patients > 40 years old or obvious invasive cancer
  - Uni or bilateral adnexectomy
  - Hystérectomy
  - Staging
  - Vertical midline laparotomy

Frozen sections when?

- Mandatory
  - Suspicious mass and menopause
  - Bilateral suspicious mass in a young patient
  - Suspicious adnexal mass, solitary adnexa and young patient
  - Obvious or very likely invasive ovarian cancer

- Useful and or interesting
  - Every suspicious mass

Which surgeon for which patient?

<table>
<thead>
<tr>
<th></th>
<th>High Score</th>
<th>Low Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Resistance</td>
<td>42/46 (91%)</td>
<td>4/20 (20%)</td>
</tr>
<tr>
<td>High Resistance</td>
<td>3/26 (11%)</td>
<td>0/110 (0%)</td>
</tr>
<tr>
<td>Total</td>
<td>72</td>
<td>130</td>
</tr>
</tbody>
</table>

2. Schneider et al OBS GYN 1993
3. Weiner et al OBS GYN 1992
Which surgeon for which patient?

- Low or non suspicious mass
  - MRI
  - Oncologist

- Highly suspicious mass
  - MRI
  - Oncologist
  - Teratoma
  - Suspicious
  - Oncologist
  - + Frozen sections
  - ± ART dpt.

Installation of the laparoscopy

- Problems
  - Adhesions
  - Adverse events
  - To achieve a complete macroscopic inspection of the peritoneal cavity
  - To allow a reliable excision of trocar sites at restaging procedures

- Clinical data
  - Previous surgical history
  - Peritoneal dissemination
  - Size of the mass
  - Patient BMI and distance between the pubis and the umbilicus

Installation of the laparoscopy

- The techniques
  - Veress needle and the first trocar in the umbilicus
  - Veress needle in the left hypochondrium (Palmer point) and the first trocar in the umbilicus
  - Open laparoscopy in the umbilicus
  - Open laparoscopy in the left hypochondrium
Installation of the laparoscopy

- Small masses
- Diameter > 5 and < 10 cm
- Diameter ≥ 10 cm
- Peritoneal carcinomatosis, extensive adhesions and or very large masses

Diagnostic laparoscopy should be open?

<table>
<thead>
<tr>
<th>Trocar site metastasis</th>
<th>Closed</th>
<th>Open</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>5 (42%)</td>
<td>90 (98%)</td>
</tr>
<tr>
<td>No</td>
<td>7 (58%)</td>
<td>2 (2%)</td>
</tr>
</tbody>
</table>

P < 0.001


Ancillary trocars insertion

- Perpendicular to the abdominal wall
  - The intraperitoneal pressure should be high enough
  - Decrease the risk of retroperitoneal insufflation
  - Decrease the peritoneal trauma
  - Allow a more reliable excision of trocar sites at restaging

Umbilical trocar 8 cases, Umbilic and ancillary port 1 case

Allow a more reliable excision of trocar sites at restaging
Ancillary trocars

- Their situation should be decided according to the diameter of the mass to avoid a blind puncture

  - Small masses
  - Large masses

Impossible laparoscopy ??

Impossible laparoscopy
Impossible laparoscopy?

Laparoscopic Diagnosis

<table>
<thead>
<tr>
<th>Macroscopy</th>
<th>Pathology</th>
<th>Benign</th>
<th>K LMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>BENIGN</td>
<td>2413</td>
<td>2411</td>
<td>2*</td>
</tr>
<tr>
<td>MALIGN.</td>
<td>361</td>
<td>187</td>
<td>174</td>
</tr>
<tr>
<td>TOTAL</td>
<td>2774</td>
<td>2598</td>
<td>176</td>
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</table>

*2 LMP tumors

Signs of Malignancy

<table>
<thead>
<tr>
<th></th>
<th>K or LMP</th>
<th>False positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turbid Fluid</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>External Veg.</td>
<td>30</td>
<td>33</td>
</tr>
<tr>
<td>Internal Veg.</td>
<td>21</td>
<td>38</td>
</tr>
<tr>
<td>Peritoneal Metastases</td>
<td>18</td>
<td>1</td>
</tr>
<tr>
<td>Ascites</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Abnormal vessels</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Suspicious Ultrasound</td>
<td>15</td>
<td>26</td>
</tr>
<tr>
<td>Others</td>
<td>15</td>
<td>16</td>
</tr>
</tbody>
</table>

16
Peritoneal cytology

- Peritoneal fluid present and visible
  - Immediate aspiration of this fluid before any blood contamination and peritoneal washing
- Peritoneal fluid absent or not visible
  - Peritoneal lavage before any puncture

Peritoneal inspection

- Simple
  - Paracolic gutter, diaphragm, pelvis
Limits of Laparoscopy (4)

Inspection of the ovarian fossa

- Cancer

- Benign

Inspection of the contralateral adnexa
To puncture or not to puncture?

Ponction et coelioscopie (a)


Ponction avant le diagnostic

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer</td>
<td>32</td>
<td>9</td>
<td>28.1</td>
</tr>
<tr>
<td>Stade Ia</td>
<td>11</td>
<td>4</td>
<td>36.4</td>
</tr>
</tbody>
</table>

Ponction et Coelioscopie (b)

Vous aurez l'impression inverse !!! Pour 2 raisons

Signs of malignancy

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turbid fluid</td>
<td>34</td>
<td>23</td>
<td>67.3</td>
</tr>
<tr>
<td>External Veg.</td>
<td>30</td>
<td>23</td>
<td>76.7</td>
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<tr>
<td>Peritoneal metastasis</td>
<td>25</td>
<td>15</td>
<td>60.0</td>
</tr>
<tr>
<td>Ascites</td>
<td>10</td>
<td>8</td>
<td>80.0</td>
</tr>
<tr>
<td>Abnormal vessels</td>
<td>2</td>
<td>2</td>
<td>100.0</td>
</tr>
<tr>
<td>Suspicious Ultraso.</td>
<td>16</td>
<td>16</td>
<td>100.0</td>
</tr>
<tr>
<td>Others</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Ponction et coelioscopie (e)

Peut-on éviter la ponction diagnostique ?

Annexectomie systématique

Papillary formations and malignancy

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serous</td>
<td>23</td>
<td>11.7</td>
</tr>
<tr>
<td>Mucinous</td>
<td>9</td>
<td>4.6</td>
</tr>
<tr>
<td>Teratoma</td>
<td>2</td>
<td>1.0</td>
</tr>
<tr>
<td>LM&lt;0.05</td>
<td>37</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Puncture should be avoided whenever possible !!!

- Etude rétrospective
- Cytologie péritonéale non systématique
- Pas de distinction entre rupture et ponction
- Pas de lymphadenectomie systématique
- Seulement sampling
- Pb de l’évaluation des organes adhérents
**Ponction et celioscopie (c)**

- **Dissémination et incidence pronostique ?**

<table>
<thead>
<tr>
<th>Cancer:</th>
<th>NON</th>
</tr>
</thead>
</table>

**Traitement Immédiat et complet de la tumeur**

---

**Tumor Dissemination? Yes**

When the tumor is removed several weeks or months after the laparoscopic puncture or biopsy?

- HSIU 1986: Borderline tumors (2 cases)
- Our Group 1988: One case of stage Ia
- Maiman 1991
- Crouzet H, Héron JF, 1991
- Blanc et al 1993:
- Trimbos JB et Haville 1993 Cancer
- Kinderman et al
- Wenzl et al

---

**This was the same after laparotomy**

- Helewa Am J Obstet Gynecol 1986
  - 20% up staging at second look operation
  - 40% of cancer were missed at initial laparotomy
Long Term Follow up of Malignant tumors Diagnosed by Laparoscopy

Clermont-Ferrand; 1999

Results LMP: Overall Survival rates

Results: Survival rates

Laparatomy
ceillo, os conversion
borderline
p = 0.51

Laparatomy
p = 0.16

p = 0.005
Complication ??

33 years old infertile patient
5 cm extra ovarian solid tumor with vegetation
Frozen section: LMP serous tumor
Laparoscopic adnexectomy
Cytology: peritoneal biopsies were negatives
Stage I
Pathology: Serous ovarian carcinoma
Second look laparoscopy for staging 3 weeks later
Microvegetations in the posterior cul de sac
Stage IIc (pap/lymph nodes)
Radical treatment including TAH, lymph nodes dissection
Chemotherapy for 6 months
Alive with no evidence of disease 60 months later

Is laparoscopic inspection of the peritoneal cavity reliable when trying to assess the risk of peritoneal dissemination?

Pesslover et al 1995: retrospective analysis of 223 women with stage III and IV ovarian cancer

Conclusion: macroscopically detectable disease in the areas easily accessible to laparoscopic inspection was present in all cases of metastases to the mesentery, omentum or intestine

Difficult peritoneal inspections
Difficult peritoneal inspections

- 30° laparoscope
- 5 mm laparoscope inserted through any of the ancillary trocars
- Repeat the inspection after the drainage of the mass
- Repeat the inspection after the adhesiolysis

LAPAROSCOPIC MANAGEMENT AGE

No extracystic signs of malignancy

Suspicious ultrasound

Lap. inspection:
- Functional
- Endometriosis
- Periuterine

YES
- Puncture, Cystoscopy
- Conservative Treatment

NO

Lap. inspection:
- Functional
- Endometriosis
- Periuterine

Conservative Treatment

Radical Treatment

Laparoscopic view
Granulosa

52 years old

LAPAROSCOPIC MANAGEMENT AGE ≥ 40 - < 50
No extracystic signs of malignancy

<table>
<thead>
<tr>
<th>Suspicious ultrasound</th>
<th>2nd Imaging Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lap. inspection:</td>
<td></td>
</tr>
<tr>
<td>Functional Endometrioma</td>
<td></td>
</tr>
<tr>
<td>Parovarian</td>
<td></td>
</tr>
<tr>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>Doppler Ultrasound</td>
<td></td>
</tr>
<tr>
<td>Teratoma</td>
<td></td>
</tr>
<tr>
<td>Cystectomy without puncture</td>
<td></td>
</tr>
<tr>
<td>Conservative Treatment</td>
<td></td>
</tr>
<tr>
<td>Radical Treatment</td>
<td></td>
</tr>
</tbody>
</table>

LAPAROSCOPIC MANAGEMENT AGE ≥ 50
No extracystic signs of malignancy

<table>
<thead>
<tr>
<th>Suspicious ultrasound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obese Anormal hysteroscopy Previous CIN</td>
</tr>
<tr>
<td>Bilateral Adnexectomy</td>
</tr>
<tr>
<td>TAH + BSO</td>
</tr>
</tbody>
</table>

Frozen section should be available to decide the Staging
Laparoscopy is useful to evaluate the upper abdomen.

≥ 40 - < 50
Suspicious ultrasound
Lap. inspection:
1. Functional Endometrioma
2. Parovarian

YES
Doppler Ultrasound
Teratoma
Cystectomy without puncture
Conservative Treatment
Radical Treatment

≥ 50
Suspicious ultrasound
Obese Anormal hysteroscopy
Bilateral Adnexectomy
TAH + BSO

Frozen section should be available to decide the Staging
Laparoscopy is useful to evaluate the upper abdomen.
**Puncture in a bag inside the abdomen**

- Adequate lap bag
- Inside the abdomen before the procedure
- Avoid spillage from the bag

**Puncture in a bag through the abdominal wall**

- Cystectomy without puncture
- Put the cyst in a bag
- Pull the bag out of the abdomen through the umbilical trocar
- Puncture the cyst in the bag under visual control++

**Puncture in a bag inside the peritoneum**

- Cystectomy without puncture
- Puncture in the bag
- Prevent spillage from the bag+++
Ponction dans un sac 4

- Exemple Kyste dermoide du 4/6/2004

The adnexa is placed in the bag so that most contamination will fall in the bag preventing peritoneal dissemination. The bag is left open.

Endobag

- LMP serous tumor of 15 cm in diameter
- Veress needle and trocar above the umbilicus
- Highly inserted ancillary trocar
- Puncture with a 5 mm conical trocar inserted through a 5.5 mm ancillary trocar
- 5 mm aspiration device
- Grasping the puncture site with two atraumatic forceps
- Close the puncture site with two endoloops
- Extraction of the mass in a bag

A puncture in bag is impossible the mass is too large.
Adnexectomy: technique

- Minimal ovarian manipulation
- Retroperitoneal approach
- Skeletonize the infundibulopelvic ligament
- Bipolar coagulation
- Endoloop if necessary

Adnexectomy for LMP
Puncturing in the bag

- Contamination is decreased or even prevented using this technique.

Extraction

- Abdominal wall
  - Previous scar
    - Enlarge a trocar incision

- Vagina
  - Elective colpotomy
  - Total hysterectomy

Extraction

- The vaginal route avoids subcutaneous emphysema and allows you to have a good pneumoperitoneum for the next surgical steps.
Peritoneal biopsy: technique

Frozen sections and Adnexal Masses

Patients and Methods

1992 - 1996
843 patients
141 macroscopically suspicious masses
43.6 ± 15.9 years old, 47 patients > 50 years old
71 ± 42 mm: 35 tumors ≥ 100 mm
42 postmenopausal patients
Frozen Sections and Laparoscopy

Results (1)

<table>
<thead>
<tr>
<th>Frozen sections</th>
<th>N</th>
<th>Benign</th>
<th>LMP</th>
<th>Cancer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benign</td>
<td>90</td>
<td>86</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>?</td>
<td>5</td>
<td>3</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>LMP</td>
<td>25</td>
<td>1</td>
<td>21</td>
<td>3</td>
</tr>
<tr>
<td>Cancer</td>
<td>21</td>
<td>0</td>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td>Total</td>
<td>141</td>
<td>90</td>
<td>27</td>
<td>24</td>
</tr>
</tbody>
</table>

Results: Accuracy

- All cases: 88.7%
- Biopsies cystectomy: 96.8%
- Adnexectomy: 86.4%
- Diameter < 100 mm: 93%
- Diameter ≥ 100 mm: 74%
- Age < 50: 92.3%
- Age ≥ 50: 81.6%

False negative case n°1: 23 years old patient
Suspicious mainly solid mass of 15 cm with calcifications
No vegetations at laparoscopy

Biopsy and frozen section: teratoma
Treatment adnexectomy with ovarian morcellation
Definitive diagnosis: Immature teratoma
Second look 3 weeks later Stage III peritoneal gliosis with mature and immature implants
12 months chemotherapy + Laparotomy with colectomy and abdominal wall resection
Alive NED 60 months later
Ovarian morcellation is always a big mistake
If you ever think that it would be the solution then do a LAPAROTOMY

The difficult part of frozen sections is the choice of the biopsy which should be examined, not the microscopic examination

Frozen Sections and Laparoscopy
- Frozen section should not be used to decide the treatment of the ovary
- A macroscopically suspicious ovary should be entirely and immediately removed
- Except in young patients, in masses with a small solitary intra or extracystic vegetation
Frozen sections and Laparoscopy

- Frozen sections is required to decide the staging procedure and the treatment of the contralateral ovary and of the uterus.
- "USO was done in 41 patients (20.1%) because malignancy was not diagnosed intraoperatively, and relaparotomy for staging procedure was refused." Sevelda et al Cancer 1990

Frozen section before adnexectomy

- Frozen sections before adnexectomy
- Pre-menopausal patient
- Suspicious mass
- Small solitary vegetation
- F.S. Available
- F.S. Not available
- Biopsy
- Direct
-疑 or malignant
- Unilateral adnexectomy
- Difficult dissection
- Cystectomy
- Suspicious mass
- Postmenopausal
- All the mass is suspicious or several or large vegetation
- F.S. Available
- F.S. Not available
- Biopsy
- Direct
-疑 or malignant
- Unilateral adnexectomy
- Difficult dissection
- Cystectomy
Many intracystic vegetations are benign!

<table>
<thead>
<tr>
<th>Papillary formations and malignancy</th>
<th>Benign</th>
<th>Malignant</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>94</td>
<td>2</td>
</tr>
<tr>
<td>1 to 5</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>&gt;5</td>
<td>37</td>
<td>37</td>
</tr>
</tbody>
</table>

Granberg et al. 1990, Vaginal Ultrasoundography

In benign masses in young patients

- The ovary should be preserved whenever possible
- Functional tissue may be found around the cyst

- Maneschi et al. 1993
- Schubert B, Canis M et al. Hum Reprod 2005

RESULTS: Dermoid (n = 7), endometriosis (n = 13) and serous (n = 5) cysts were observed. Follicular densities (expressed per mm³) in ovarian cortex surrounding dermoid cysts were higher than in endometriosis and serous cysts for both histological (median of follicular densities: 13.04, 0.31 and 0.89 respectively) and viability analysis (2.93, 0.05 and 0.71 respectively).

Frozen section after adnexectomy

Adnexal Masses
In a young patient with a unilateral mass

- An adnexectomy without any immediate associated procedure is often the best choice for several reasons:
  - The diagnosis of non epithelial tumors may be difficult at frozen sections
  - Tumor grading is essential to decide a conservative treatment and it is not possible at frozen section
  - The prognosis is not worsened if the tumor has been immediately and entirely removed
  - Fertility preserving procedures such as frozen embryos or ovarian tissue freezing may be possible
**Conclusion**

- The surgeon is essential
- When the surgical diagnosis is difficult one should accept false positives to make it safe and to avoid potential postoperative dissemination
- In unilateral cancer diagnosed in young patients a two step surgical procedure is often the best choice to preserve fertility

**Rule 11**

**Restaging**

- Emergency
- Begin by Laparoscopy
- Cytology
- Trocar site excision
- Laparoscopy or Laparotomy?

**Take home messages**

- Laparoscopic diagnosis of malignant ovarian tumors appears safe
- Laparoscopy is a powerful tool in the management of suspicious masses, but you should know the limits and a Gyn oncologist should be available
- Laparoscopic management of LMP when adequately diagnosed is very attractive
- Results from the literature are controversial
- Good from our series and others (Darai, Morice)
- Poor from the Mangioni group experience (Gynecol Oncol 2004)
- Laparoscopic treatment of cancer is rarely possible and should be very cautiously used