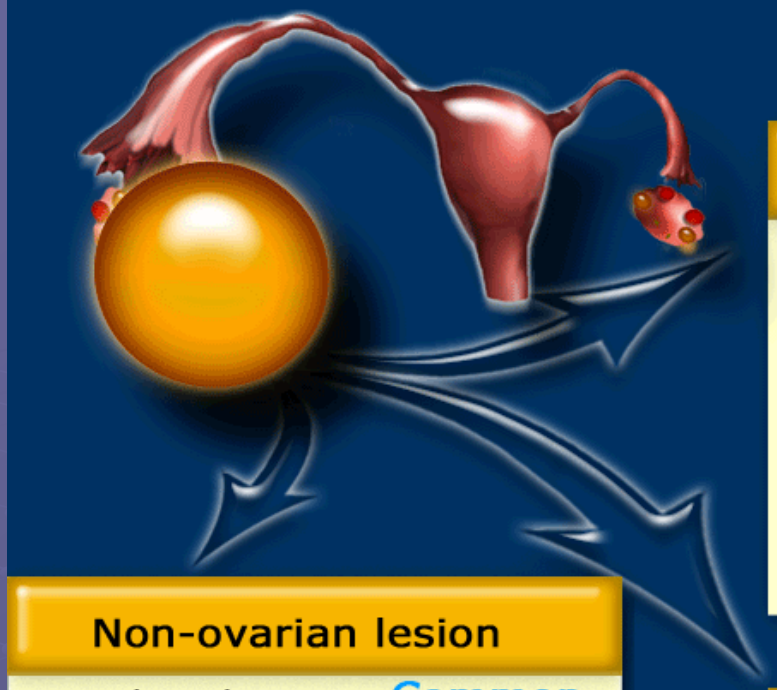


Cystic ovarian lesion

Follicular cyst
Corpus luteum cyst
Ovarian endometrioma
Cystic teratoma
Tubo-ovarian abscess
Cystadenoma
Cystadenocarcinoma

Non-ovarian lesion

Common

Lymphocele
Para-ovarian cyst
Hydrosalphinx
Endometrioma extra-ovarian
Lymphangioma
Ectopic pregnancy

Less common

Peritoneal ca
Malignant mesothelioma
Appendiceal mucocele
Enteric duplication cyst
Leiomyoma cystic degenerated
Peritoneal inclusion cyst
Retrorectal develop cyst
Lymphnode cystic degenerated
LAM.

Mimics of cystic lesion

Common

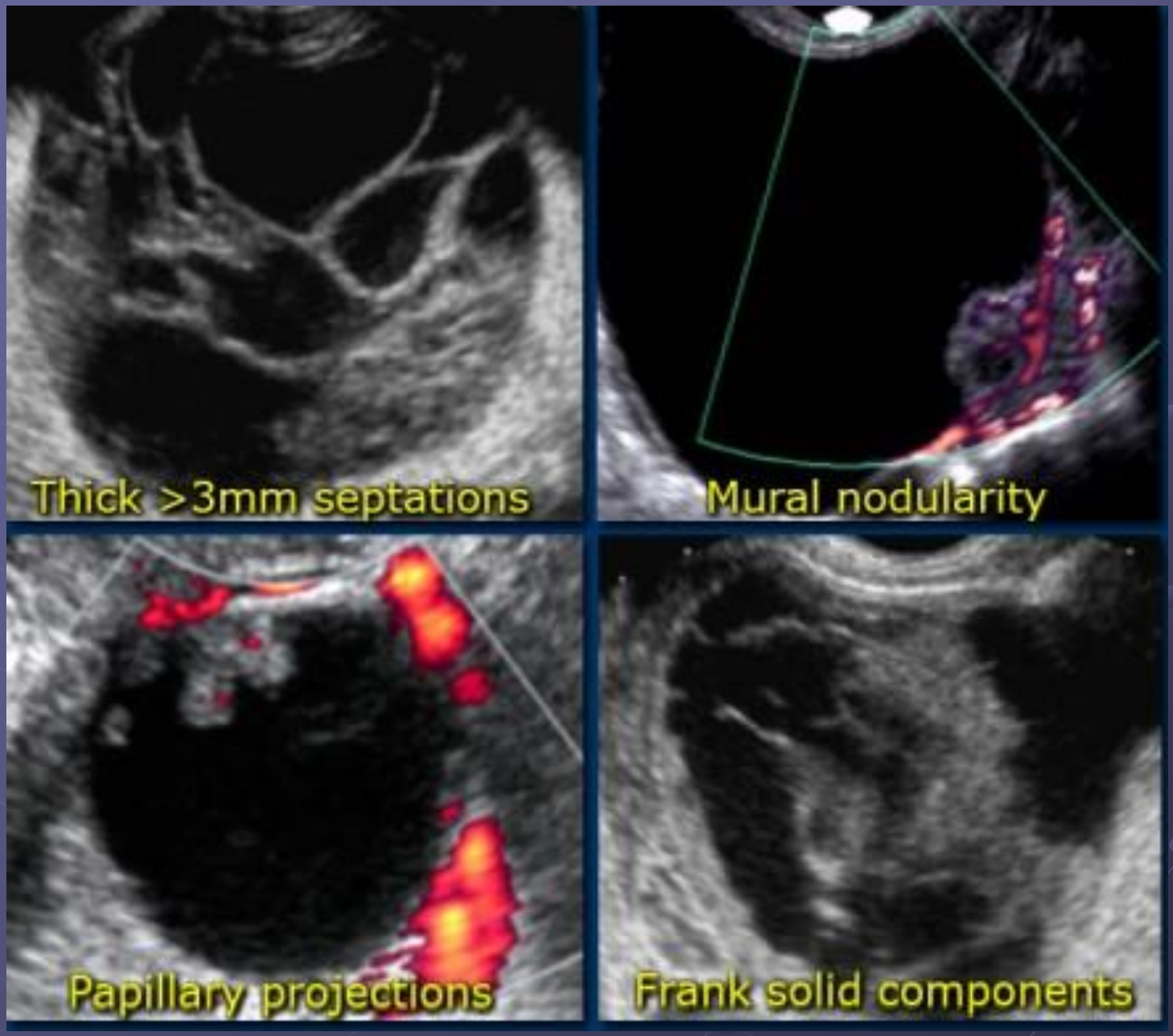
Ascites
Bowel
Pelvic varices
Abscesses other than TOA
Diverticulitis
Iliac aneurysm
Hematoma

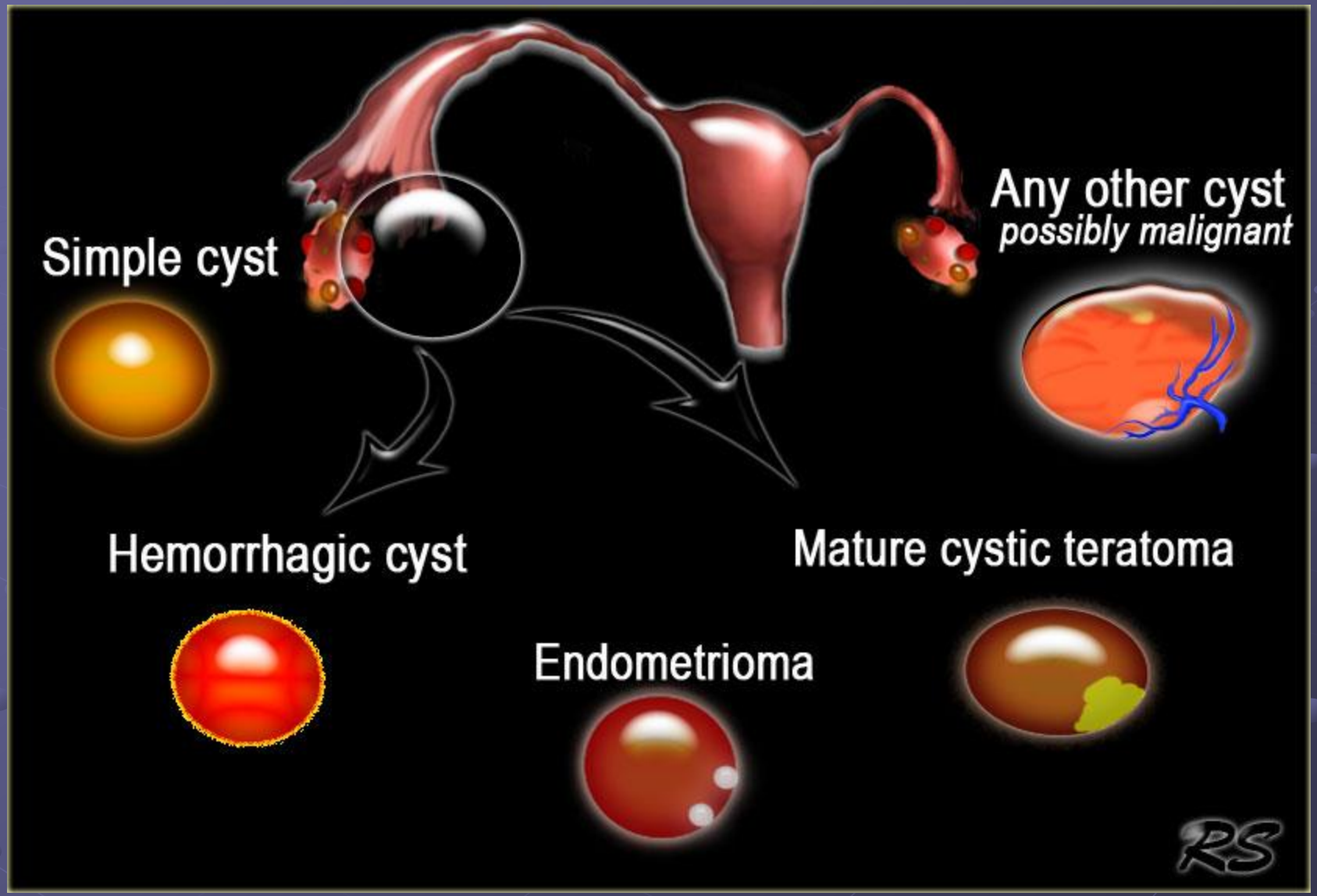
Less common

Mucinous peritoneal carcinomatosis
Pseudomyxoma peritonei
extruded IUD
PCS of pelvic kidney
Pelvic echinococcal cysts

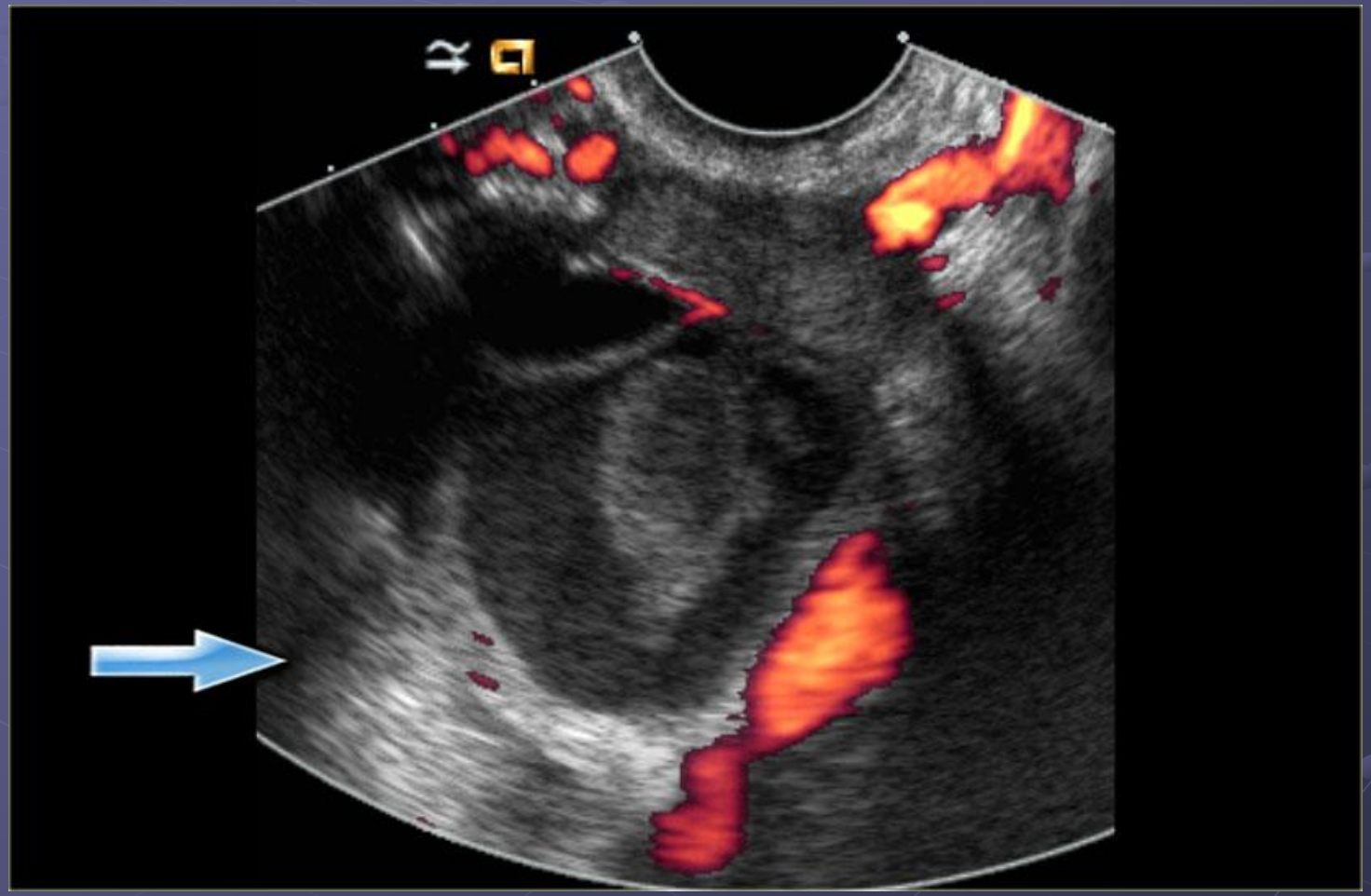
Possible neoplasm

- *Large size*
  - While benign lesions can be very large, the likelihood that a lesion is neoplastic increases with size.
    Also the likelihood that a neoplastic lesion is malignant, increases with the size of the lesion.
- *Vascularized septations*
  - The presence of septations indicates a possible neoplasm. When septations have a thickness of more than 3mm and are well-vascularized - while non-specific - both increase the likelihood that a *Vascularized solid components*
  - neoplasm is malignant.
  - Vascularized nodularities, papillary projections, or frank solid masses all increase the likelihood of a neoplastic nature.
- *Vascularized thick, irregular wall*
  - Lesions with thin walls are more often benign and lesions with thick, irregular walls are more often malignant. However, there is some overlap, making wall thickness a less useful criterion. For example a corpus luteum cyst may also have a thickened, vascularized wall.
- *Secondary findings associated with malignant lesions:*
  - Large quantities of ascites, lymphadenopathy and peritoneal deposits are strongly associated with an increased likelihood of malignancy.

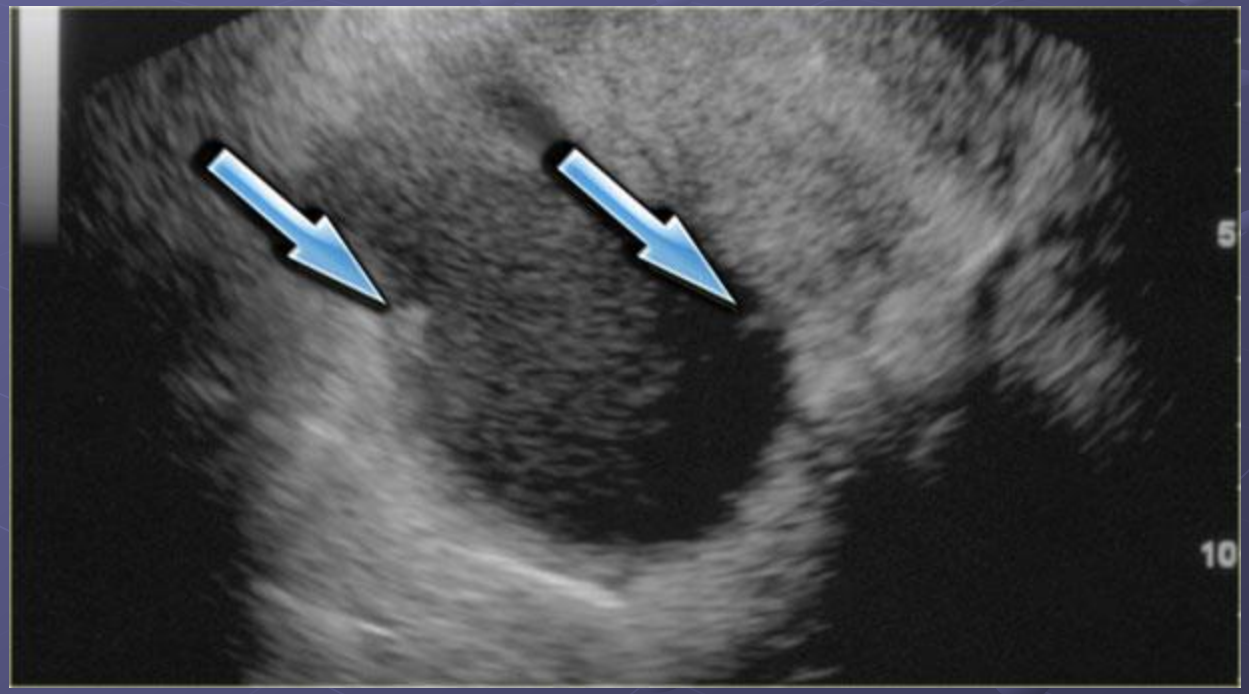

Thick >3mm septations
Mural nodularity
Papillary projections
Frank solid components


Simple cyst
Any other cyst
possibly malignant
Hemorrhagic cyst
Mature cystic teratoma
Endometrioma
RS

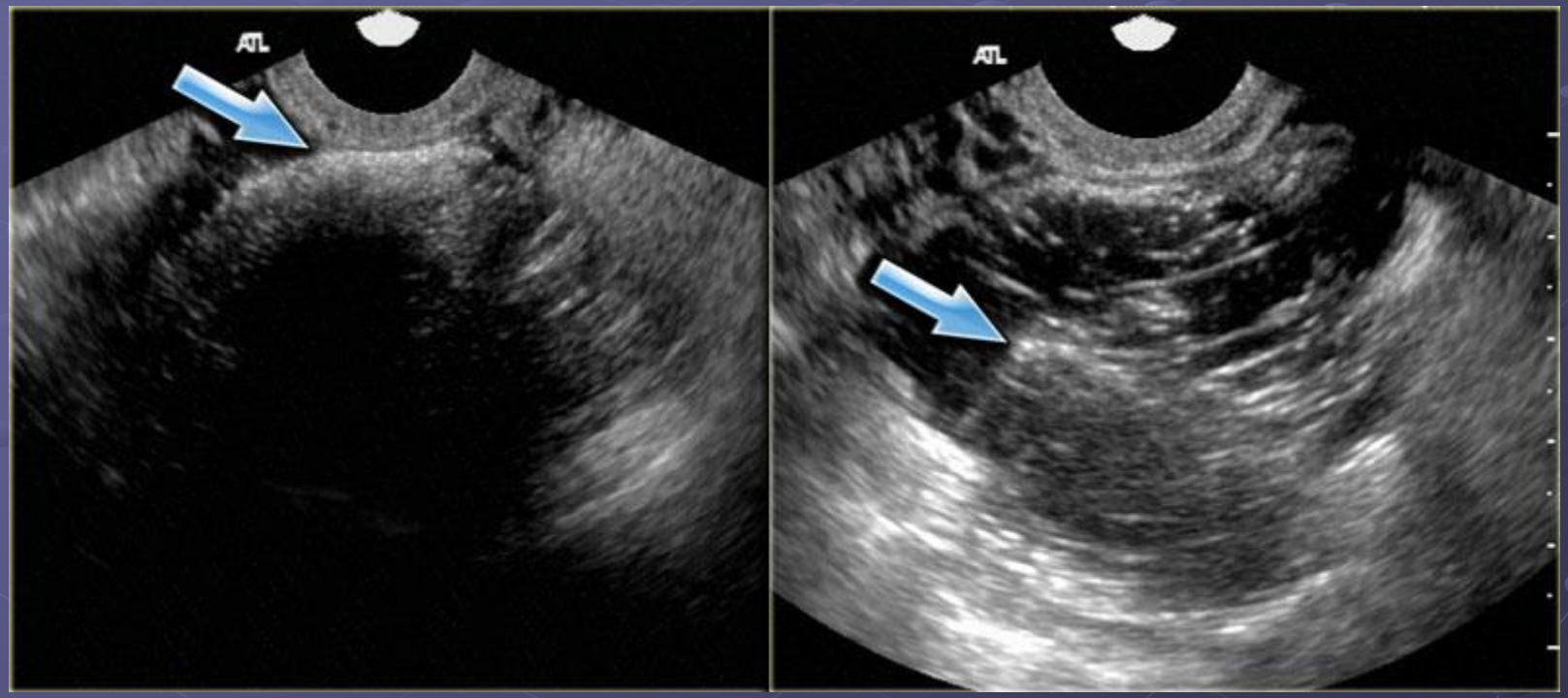
Hemorrhagic cyst

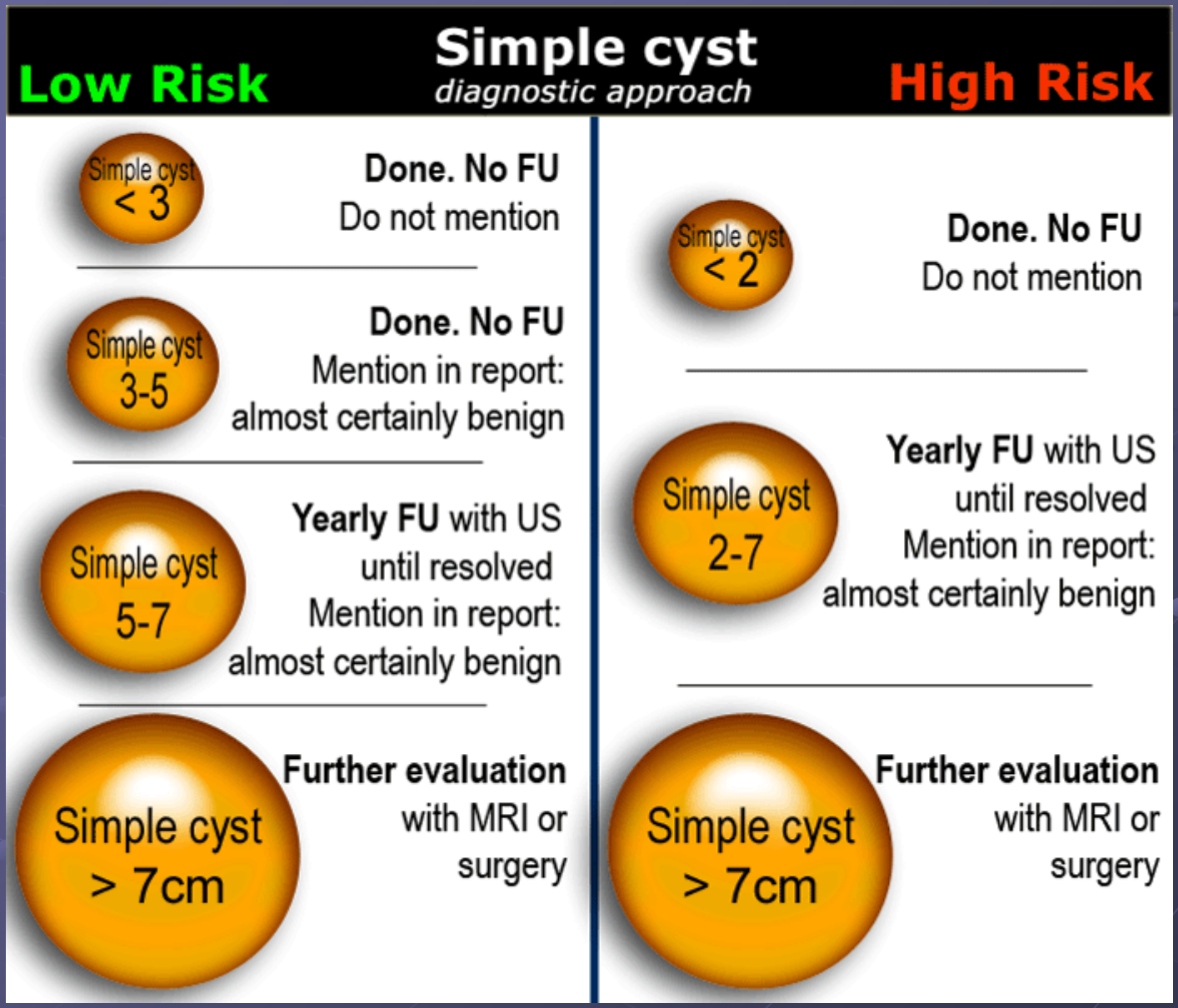


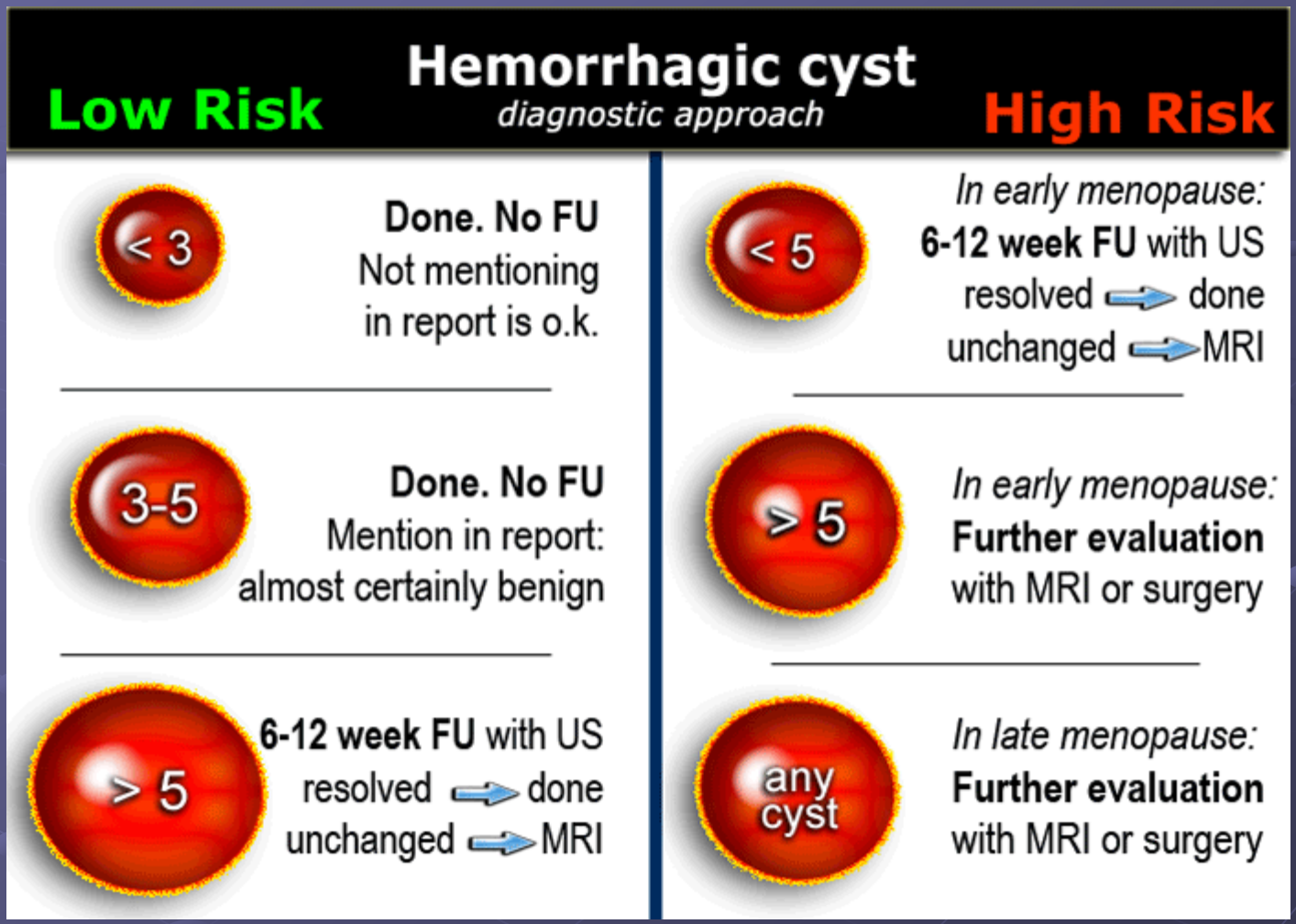
Endometrioma



Teratoma




Low Risk
Simple cyst
diagnostic approach
High Risk
Simple cyst < 3
Done. No FU
Do not mention
Simple cyst 3-5
Done. No FU
Mention in report:
almost certainly benign
Simple cyst 5-7
Yearly FU with US
until resolved
Mention in report:
almost certainly benign
Simple cyst > 7cm
Further evaluation
with MRI or
surgery
Simple cyst < 2
Done. No FU
Do not mention
Simple cyst 2-7
Yearly FU with US
until resolved
Mention in report:
almost certainly benign
Simple cyst > 7cm
Further evaluation
with MRI or
surgery

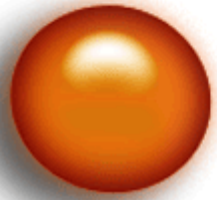

Hemorrhagic cyst
diagnostic approach
Low Risk
High Risk
< 3
Done. No FU
Not mentioning in report is o.k.
3-5
Done. No FU
Mention in report: almost certainly benign
> 5
6-12 week FU with US
resolved → done
unchanged → MRI
< 5
In early menopause:
6-12 week FU with US
resolved → done
unchanged → MRI
> 5
In early menopause:
Further evaluation
with MRI or surgery
any cyst
In late menopause:
Further evaluation
with MRI or surgery

Endometrioma

diagnostic approach

Low Risk

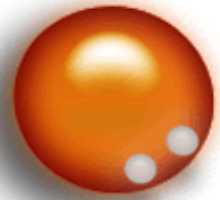
without echogenic foci
may be hemorrhagic cyst



6-12 week FU with US
to rule out hemorrh cyst

---

with echogenic foci
likely endometrioma



Yearly FU with US
or surgical removal

High Risk

without echogenic foci
may be hemorrhagic cyst

6-12 week FU with US
to rule out hemorrh cyst

---

without echogenic foci
may be hemorrhagic cyst

Further evaluation with
MRI or surgical removal

---

with echogenic foci
likely endometrioma

Yearly FU with US
or surgical removal

Mature cystic teratoma

diagnostic approach

Dermoid < 7 cm → **6 - 12 months FU with US**
until resected.
If not resected, continue FU (yearly?)

Incidental cystic ovarian lesion

simple cyst or worrisome

Low Risk

Pre-menopausal

- **Any cyst > 7 cm** → Further evaluation with MRI or surgical

High Risk

Post-menopausal

or

Other riskfactors

- Personal of familial history of breast or ovarian ca
- BRCA-1 or 2 carriers
- Lynch-II HNPCC
- Ashkenazi descent

- Further evaluation with MRI or surgical ← **Any cyst > 7 cm**

Simple Cyst

- anechoic with posterior acoustic enhancement
- unilocular
- thin smooth walls
- no solid components
- no internal flow at Doppler

Low Risk

- **Simple cyst < 3 cm** → Done. No FU not mentioning in report is o.k
- **Simple cyst 3-5 cm** → Done. No FU Mention in report: almost certainly benign
- **Simple cyst 5-7 cm** → Yearly FU with US until resolved. Mention in report: almost certainly benign
- **Simple cyst > 7 cm** → Further evaluation with MRI or surgery

High Risk

- Done. No FU not mentioning in report is o.k ← **Simple cyst < 2 cm**
- Yearly FU with US until resolved. Mention in report: almost certainly benign ← **Simple cyst 2-7 cm**
- Further evaluation with MRI or surgery ← **Simple cyst > 7 cm**

Hemorrhagic Cyst

1. cystic mass that is complex because of
   - either lace-like internal echo's from fibrin strands
   - and/or a solid-appearing part with good through-transmission without internal flow at color Doppler
2. cyst walls of variable thickness, often with circumferential flow

Low Risk

- **Hemorrhagic cyst < 3 cm** → Done. No FU not mentioning in report is o.k
- **Hemorrhagic cyst 3-5 cm** → Done. No FU mention in report: almost certainly benign
- **Hemorrhagic cyst > 5 cm** → 6 - 12 week FU with US resolved ➞ done unchanged ➞ MRI

High Risk

- 6 - 12 week FU with US resolved ➞ done unchanged ➞ MRI ← **in early menopause Hemorrhagic cyst < 5 cm**
- Further evaluation with MRI or surgery ← **in early menopause Hemorrhagic cyst > 5 cm**; **in late menopause Any hemorrhagic cyst**

Endometrioma

- homogeneous and hypoechoic
- diffuse low level echoes
- no internal flow at color Doppler
- no nodules or frank solid masses
- In ~30% echogenic cholesterol deposits are seen within cyst wall

Low Risk

- **without echogenic foci ➞ may be *HOC*** → 6 - 12 week FU with US to rule out HOC
- **with echogenic foci ➞ likely *endometrioma*** → FU with US (yearly (?) or surgical removal

High Risk

- 6 - 12 week FU with US to rule out HOC ← **in early menopause without echogenic foci may be *HOC***
- FU with US (yearly (?) or surgical removal ← **in late menopause without echogenic foci may be *HOC***
- Further evaluation with MRI or surgery ← **in late menopause without echogenic foci may be *HOC***

Mature cystic teratoma

- Hypoechoic cystic mass
- usually unilocular
- bilateral in ~15%
- up to 60% contain calcifications
- characteristically with hyperechoic solid mural nodule (Rokitansky nodule or dermoid plug)
- Fat-fluid level = fat floating on aqueous fluid
- Multiple thin, echogenic lines = floating hair

Low Risk

- **Dermoid < 7 cm** → 6 - 12 months FU with US until resected. If not resected ➞ continue FU (yearly?)

High Risk

- 6 - 12 months FU with US until resected. If not resected ➞ continue FU (yearly?) ← **Dermoid < 7 cm**

Any other cyst

Low Risk

- **Otherwise simple cyst with:**
  - a single thin septum
  - or a single small calcification → 6 - 12 week FU with US: resolved: done unchanged ➞ MRI
- **Any cyst** with either:
  - multiple septations
  - thick septations
  - focal wall thickening
  - any hypoechoic solid component
  - solid component with flow
  - large amount of ascites with no alternative explanation
  - enlarged lymph nodes
  - peritoneal or omental masses → **Surgical resection by oncologic gynaecologist** who may request prior imaging-based staging

High Risk

- Further evaluation with MRI or surgery ← **Otherwise simple cyst with:**
  - a single thin septum
  - or a single small calcification
- **Surgical resection by oncologic gynaecologist** who may request prior imaging-based staging ← **Any cyst** with either:
  - multiple septations
  - thick septations
  - focal wall thickening
  - any hypoechoic solid component
  - solid component with flow
  - large amount of ascites with no alternative explanation
  - enlarged lymph nodes
  - peritoneal or omental masses

Literature:

Management of Asymptomatic Ovarian and Other Adnexal Cysts Imaged at US: Society of Radiologists in Ultrasound Consensus Conference Statement by Deborah Levine et al. September 2010 Radiology, 256, 943-954.

ESUR guidelines for MR imaging of the sonographically indeterminate adnexal mass: an algorithmic approach by Spencer JA et al Eur Radiol. 2010 Jan;20(1):25-35.

MR Imaging of the Sonographically Indeterminate Adnexal Mass by John A. Spencer et al September 2010 Radiology, 256, 677-694

Risk of malignancy in unilocular ovarian cysts: tumors less than 10 centimeters in diameter by Modesitt SC, Pavlik EJ, Ueland FR, DeFrost PD, Kryscio RJ, van Nagell JR Jr. Obstet Gynecol. 2003 Sep;102(3):594-9.