Endometriomas

- Endometriomas - also known as chocolate cysts - develop when superficial endometriotic lesions on the surface of the ovary invaginate.
- Blood produced by such an implant during each menstrual cycle cannot escape and will accumulate within the ovary, forming a cyst known as an endometrioma.
- Present as complex cystic masses, often thick-walled with a homogeneous content.
- On transvaginal ultrasound, endometriomas may be seen as thick-walled cysts with low level echoes.
- On the left a transvaginal ultrasound image and the corresponding laparoscopic image during cystectomy.

MRI

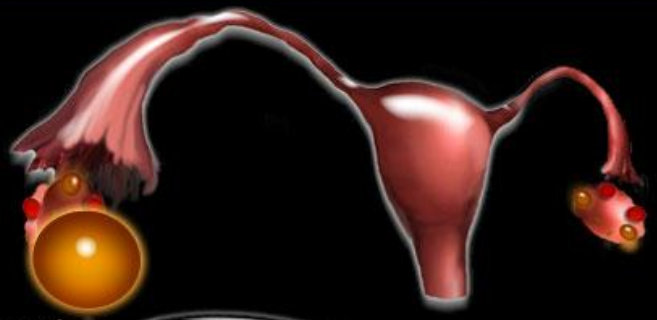
- Present as solitary or multiple masses with a homogeneous hyperintense signal intensity on T1- and T1-fatsat sequences.
- The T1-fatsat helps differentiate endometriomas from mature cystic teratomas, which usually contain fat.
- On T2WI, endometriomas may range from having a low signal intensity (also known as shading) to an intermediate or high signal intensity.
- Low signal intensity reflects the hemoconcentration of a cyst.
- Endometriomas generally have a thick, fibrous capsule with low signal intensity on T2, caused by hemosiderin-laden macrophages

DDX:

- Hemorrhagic functional cysts
- Fibrothecoma,
- Cystic mature teratoma
- Cystic ovarian neoplasm
- Ovarian abscess.

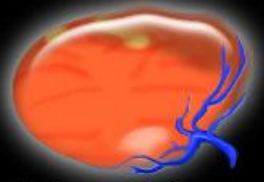
Simple cyst

anechoic
post acoust enhancement
unilocular
thin smooth walls
no solid components
no internal flow at Doppler



Any other cyst

possibly malignant



multiple or thick septations
focal wall thickening
any solid component ± flow
ascites - no alternative explanation
enlarged lymph nodes
peritoneal or omental masses

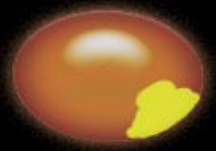
Hemorrhagic cyst

Complex cystic mass with:
lace-like echo's (fibrin strands)
and/or solid-appearing part
with good through-transmission
no internal flow at color Doppler
cyst walls of variable thickness
often with circumferential flow

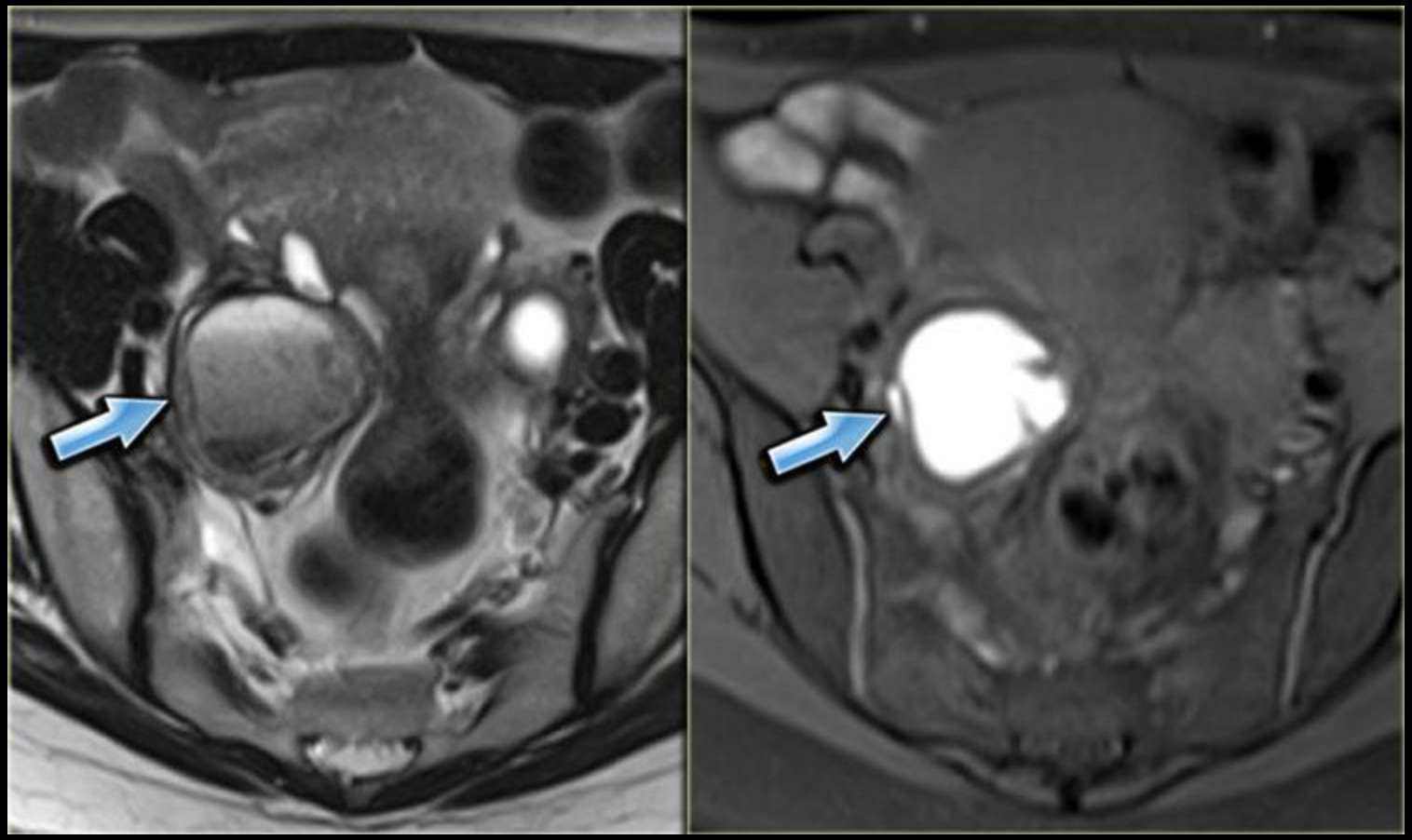
Endometrioma

Homogeneous hypoechoic
diffuse low level echoes
no internal flow at color Doppler
no nodules or frank solid masses
In 30% echogenic cholesterol
deposits within cyst the wall

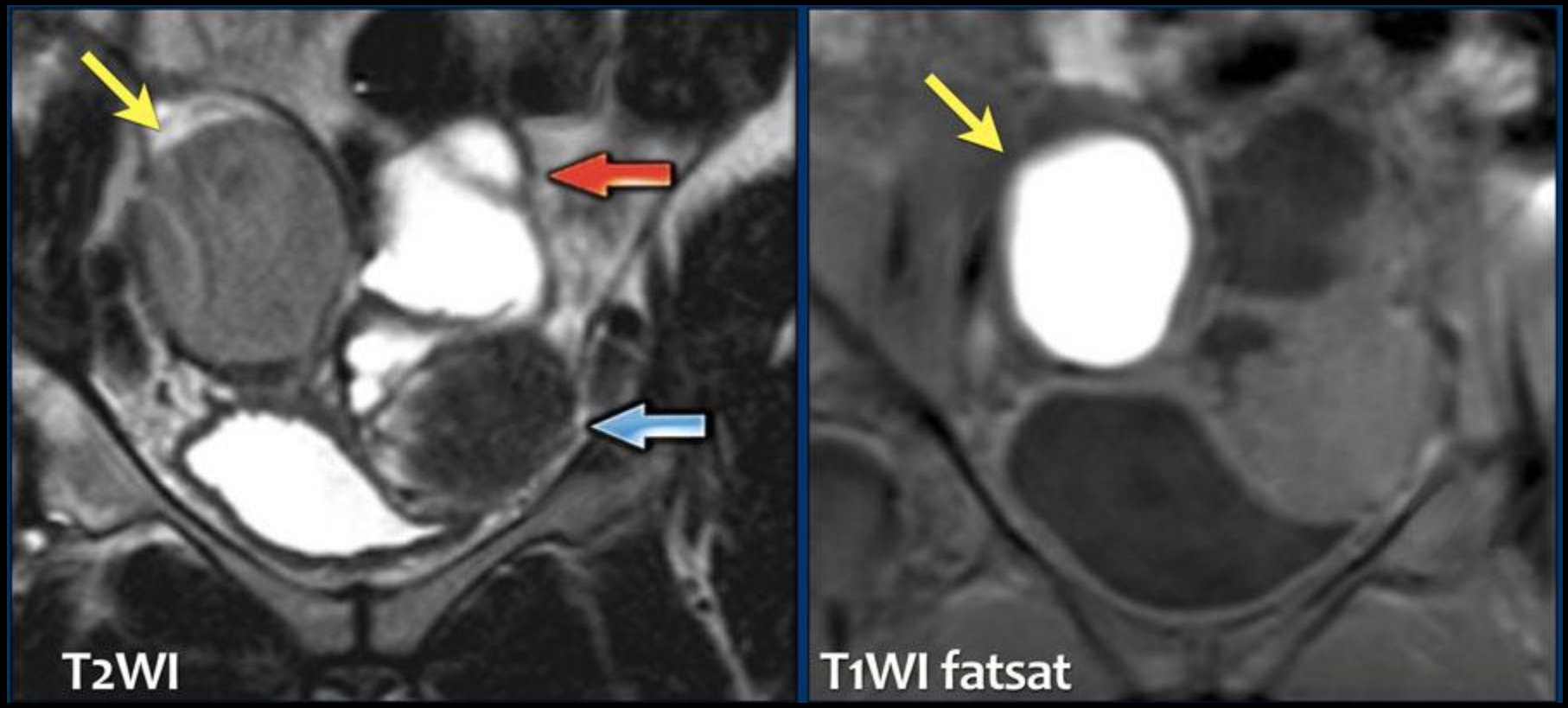
Mature cystic teratoma



Hypoechoic cystic mass
90% unilocular
bilateral in 15%.
60% contain calcifications.
Rokitansky nodule
fat-fluid level
multiple thin echogenic lines

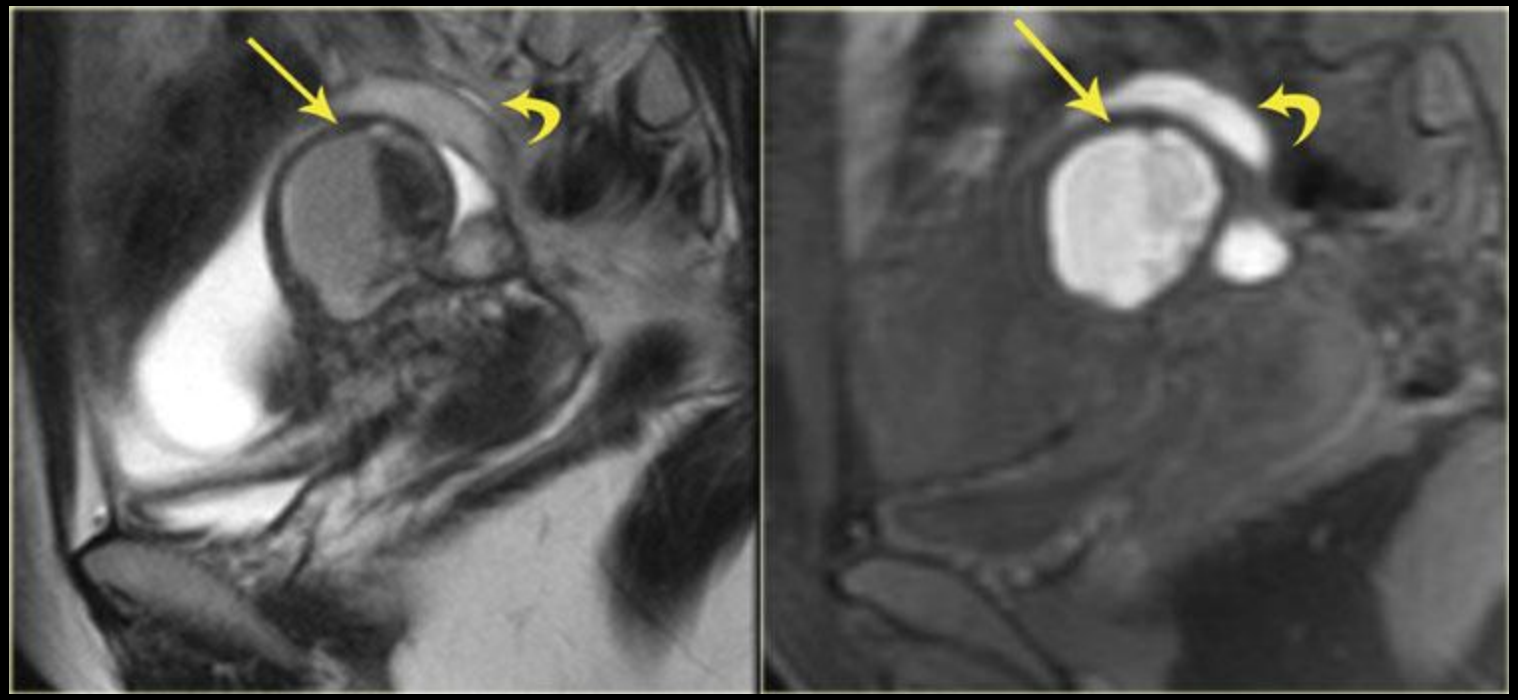


- T2- and fatsat T1-images of an endometrioma with hypointensity on T2 (shading), fluid-fluid levels on T2 (left)
- Hyperintense blood on T1WI with fatsat (right).

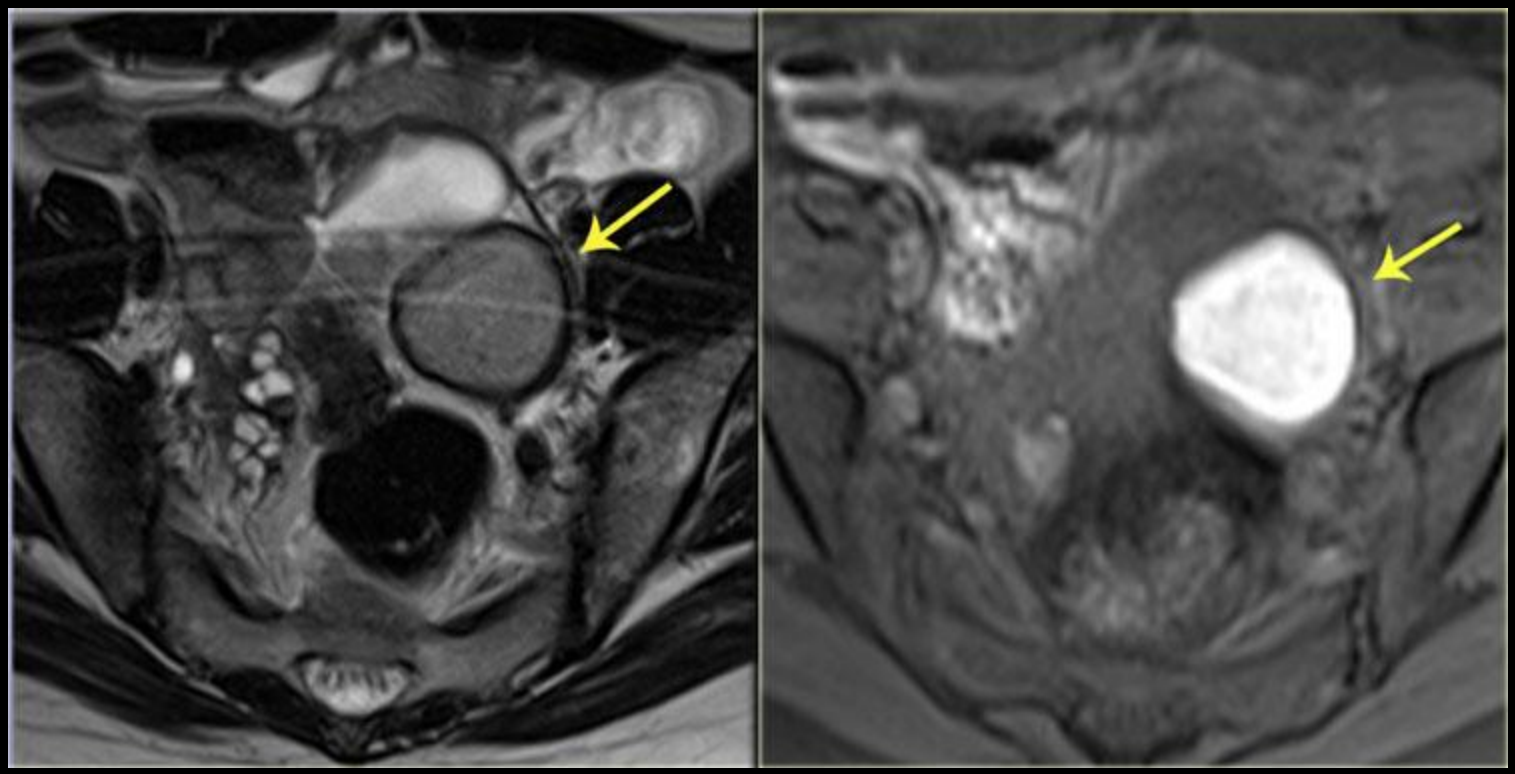


- Endometrioma of the right ovary (yellow arrow).
- Intermediate signal on T2 and high signal intensity on T1-fatsat.
- In addition there is:
  - Hydrosalpinx with high signal on T2WI and low signal on T1-fatsat (red arrow).
  - Leiomyoma with low signal intensity on T2WI and intermediate signal on T1-fatsat (blue arrow).

Endometrial cyst



- The T2- and fatsat T1-images show a cyst with a bloodclot (hypointense on T2, intermediate on T1).
- Sometimes these clots are accompanied by fibrotic tissue at histopathology.
- They may be recognized as irregularly shaped, hypointense lesions (on T2) found in the dependent portion of the endometrial cysts.
- In this case there is also a hematosalpinx (curved arrow).



- T2- and Fatsat T1-images on the left show an endometrial cyst of the left ovary.
- The wall of the cyst is hypointense on T2WI and T1WI caused by hemosiderin.