



ULTRASONOGRAFI GINEKOLOGI



PENDAHULUAN



Ultrasonografi pada ginekologi → !!!

Uterus , ovarium & struktur lain di sekitarnya



- Menentukan lokasi massa dirongga pelvis
- Menentukan ukuran
- Membantu menegakkan diagnosa : kista ovarii mioma uteri , teratoma , kista dermoid dan endometriosis



UTERUS



- Posisi , ukuran , bentuk dan tekstur
- USG Transvaginal >> spesifik
- USG Transabdominal lebih baik pada massa tumor
> 5cm
- Syarat USG TA → VU terisi
- Endometrial line → typical uterus

| Umur | Panjang | Anterior-Posterior | Transversa |
|---|----------------|---------------------------|-------------------|
| * Pre pubertas | 1.0 – 1.33 cm | 10 | 5-10 |
| * Post pubertas nulipara | 7.0 cm | 4.0 cm | 4.0 cm |
| * Post pubertas multi-para (rata-rata 1.2 cm > dp post pubertal nulipara) | 8.2 cm | 6.7 cm | 6.7 cm |
| * Post menopause | 3.5 – 6.5 cm | 1.2 - 1.8 cm | 1.2 – 1.8 cm |

Tabel 1. Dimensi uterus normal



- Gambaran endometrium bervariasi sesuai perkembangannya
- Pemeriksaan sonografi khususnya USG Transvaginal dapat memperlihatkan gambaran endometrium sesuai dengan tingkat perkembangannya

ENDOMETRIAL LINE FASE PROLIFERATIF LANJUT





ENDOMETRIAL LINE FASE LUTEAL

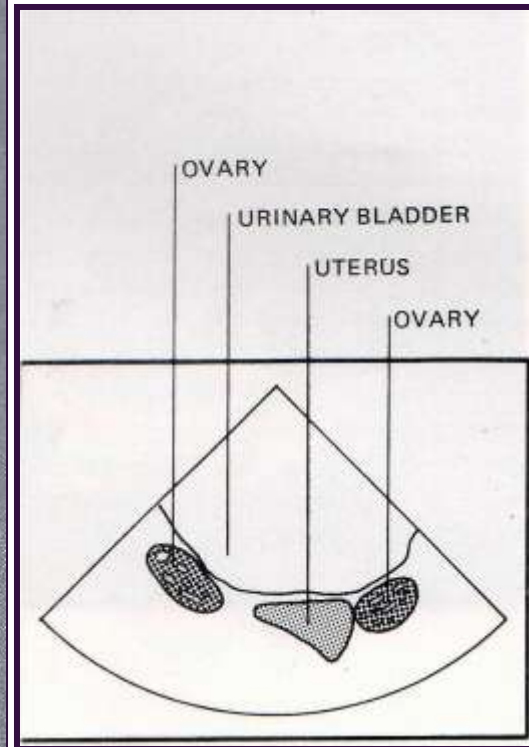
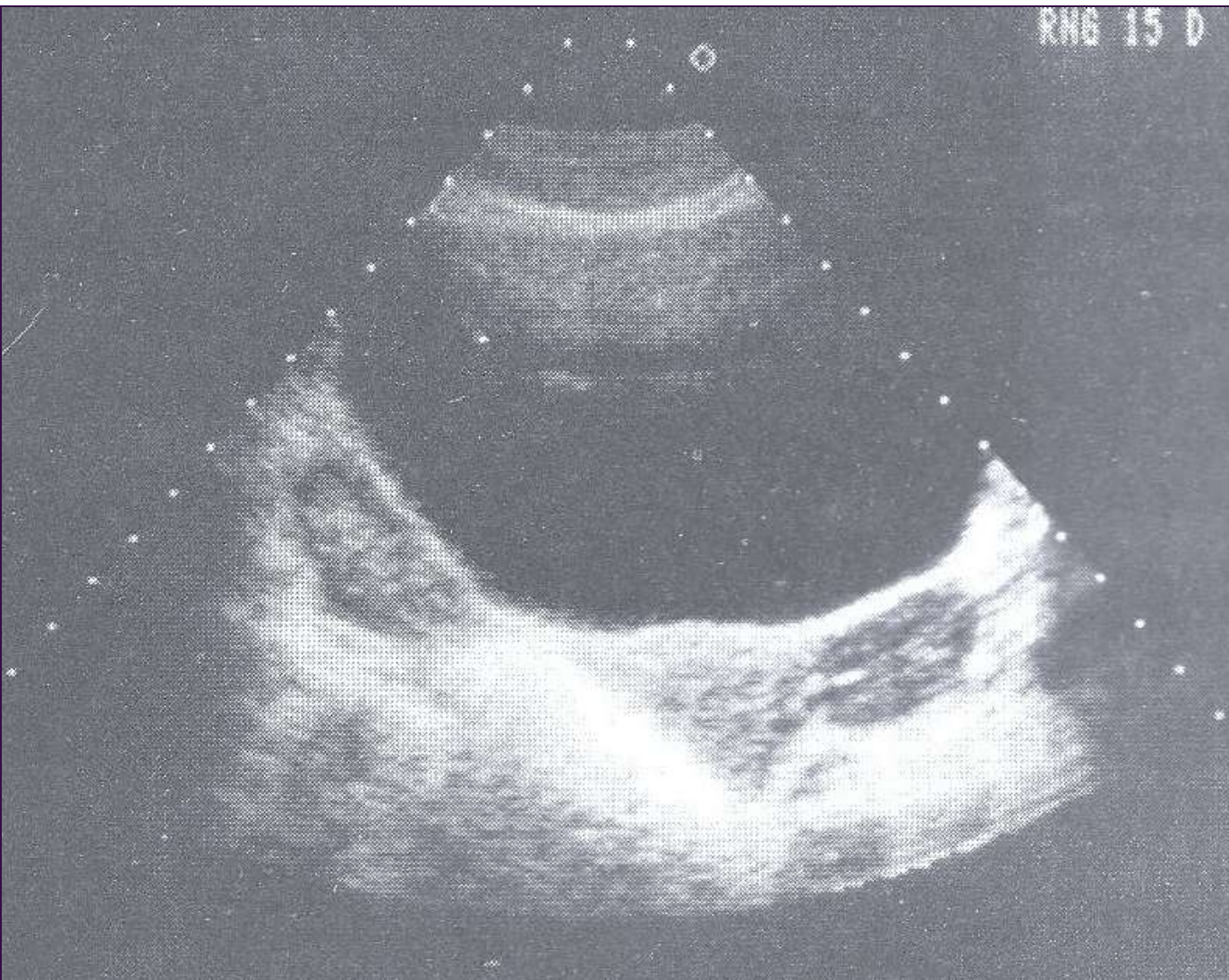




ADNEKSA & OVARIUM



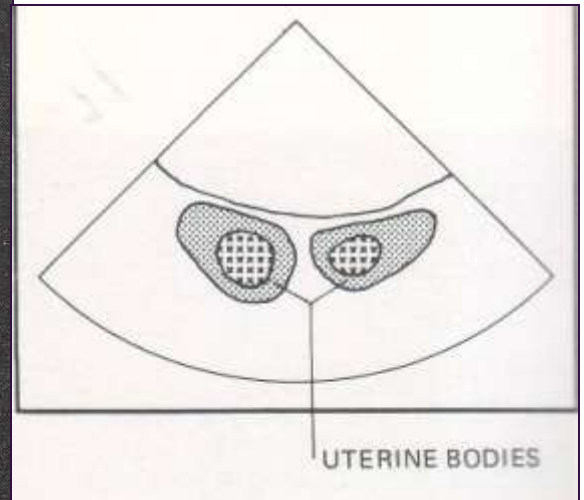
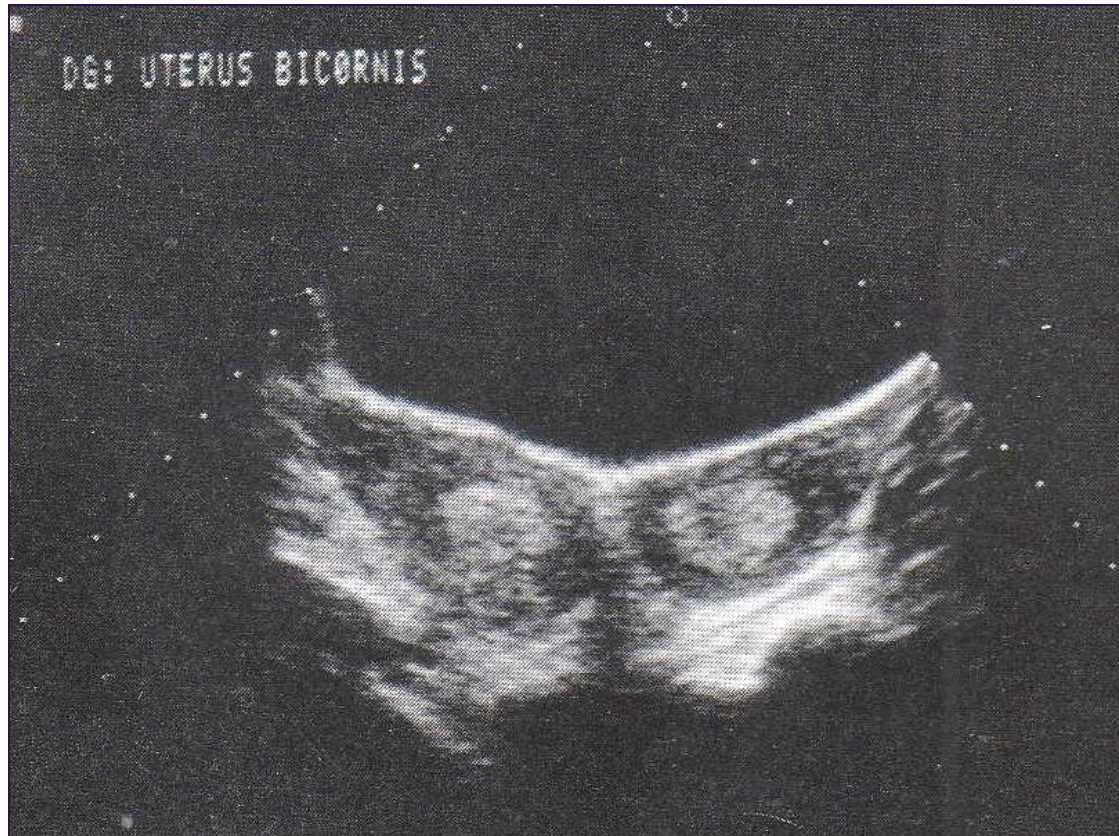
- Dalam keadaan fisiologis ligamentum rotundum dan tuba sulit dibedakan dengan ultrasonografi
- Ovarium → 95 – 99 % terlihat
- Ovarium :
 - Bujur / oval
 - Umumnya tampak hipoecoik.
 - D tranversa 3 cm ,anteroposterior 2 cm dan tinggi 1 cm
 - Volume 2 – 6 ml
 - 2x>> pada fase proliferasi



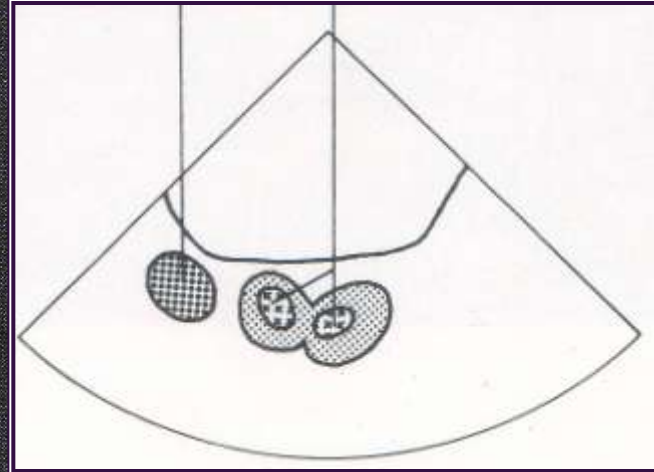
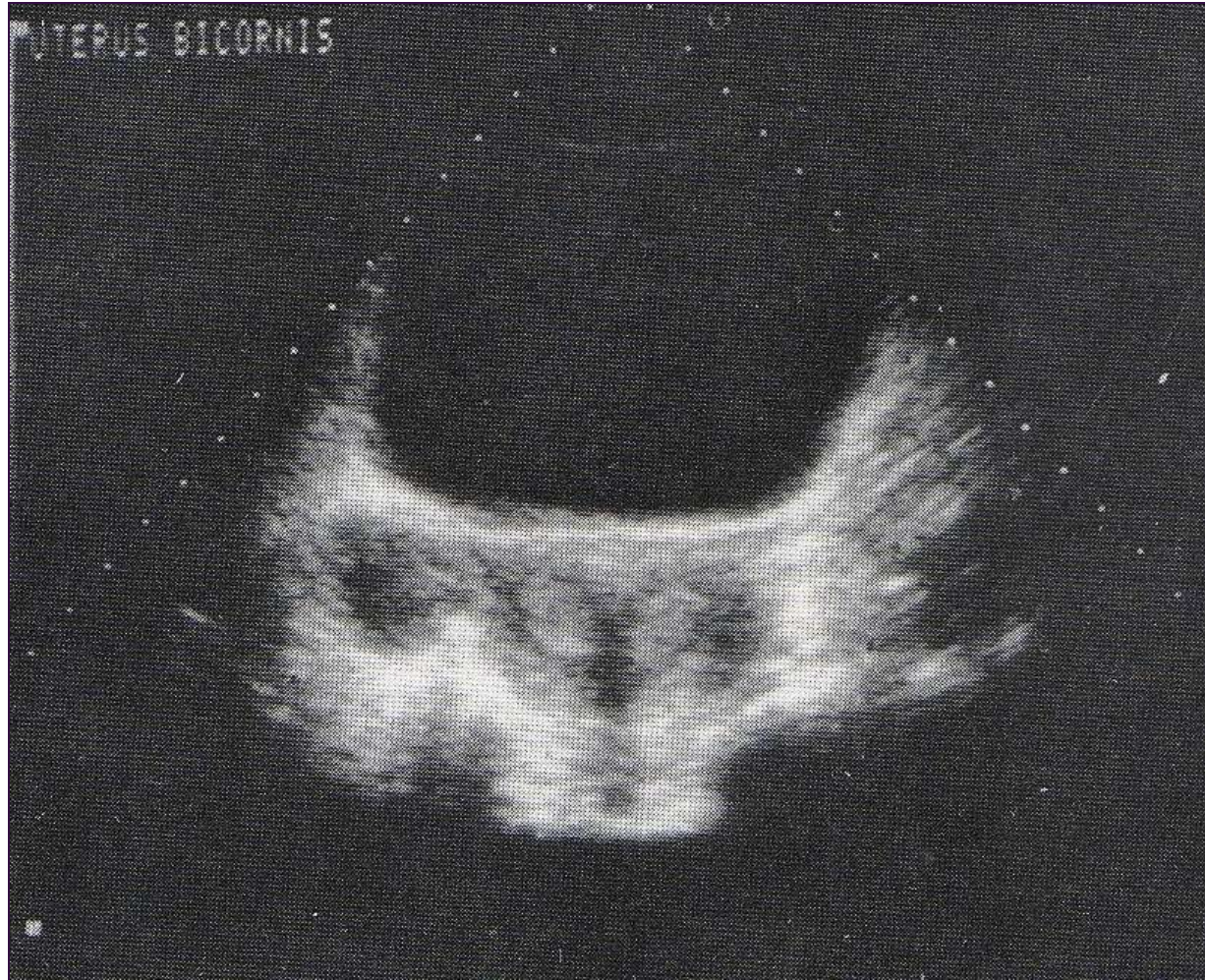
OVARIUM NORMAL



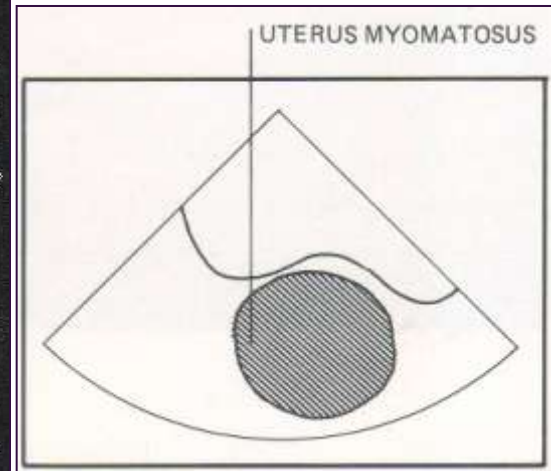
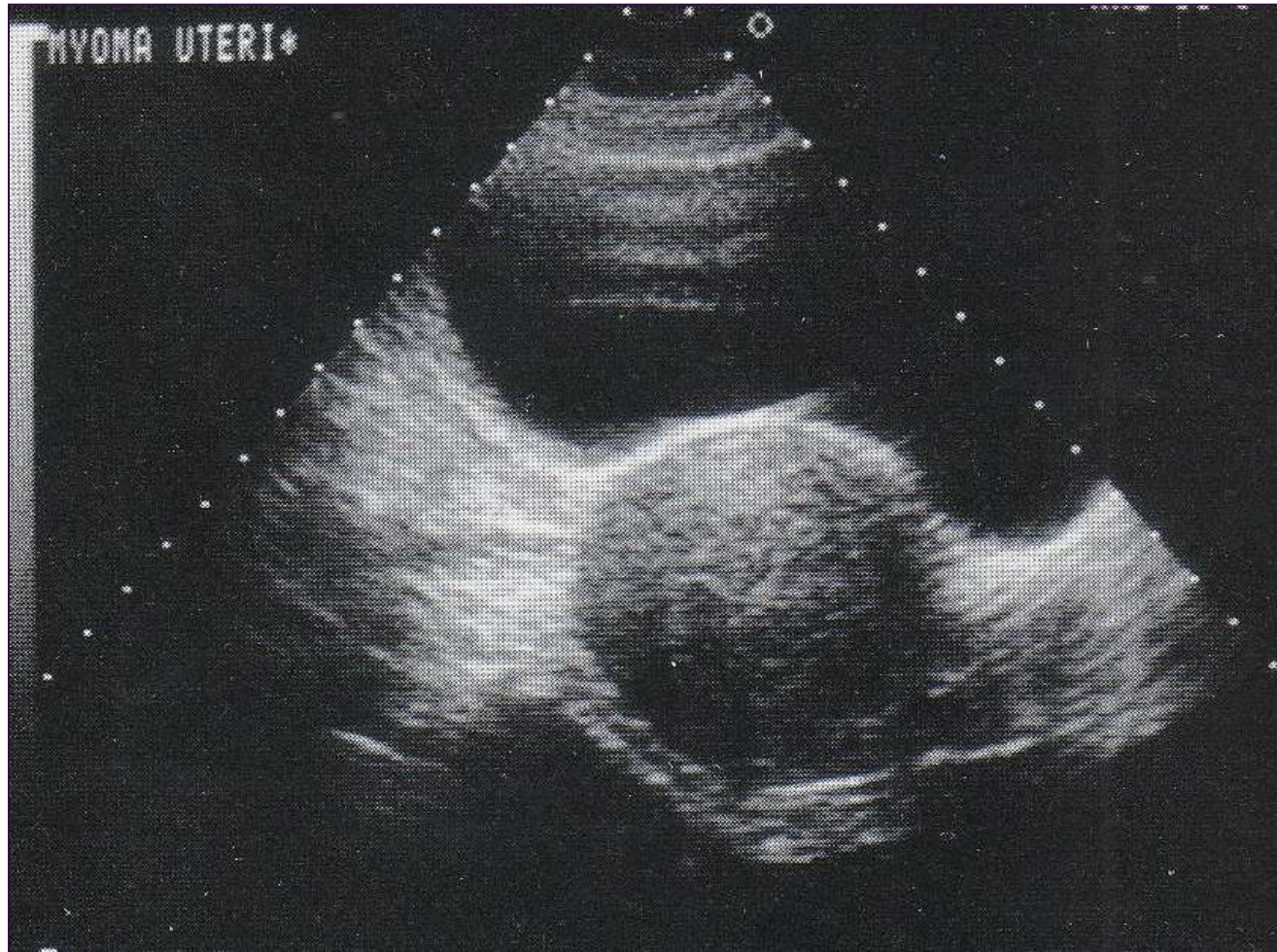
KELAINAN UTERUS



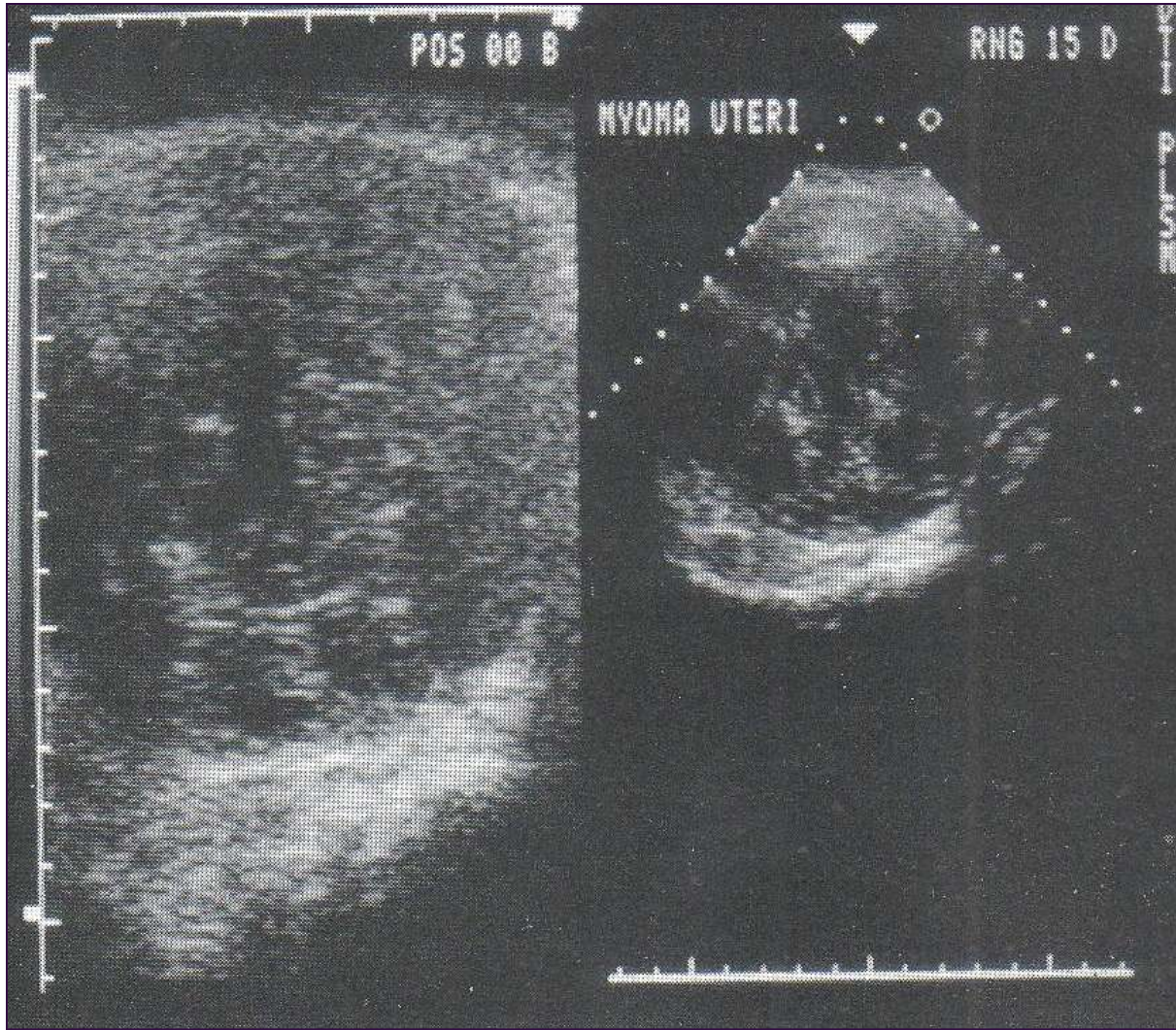
UTERUS BICORNIS



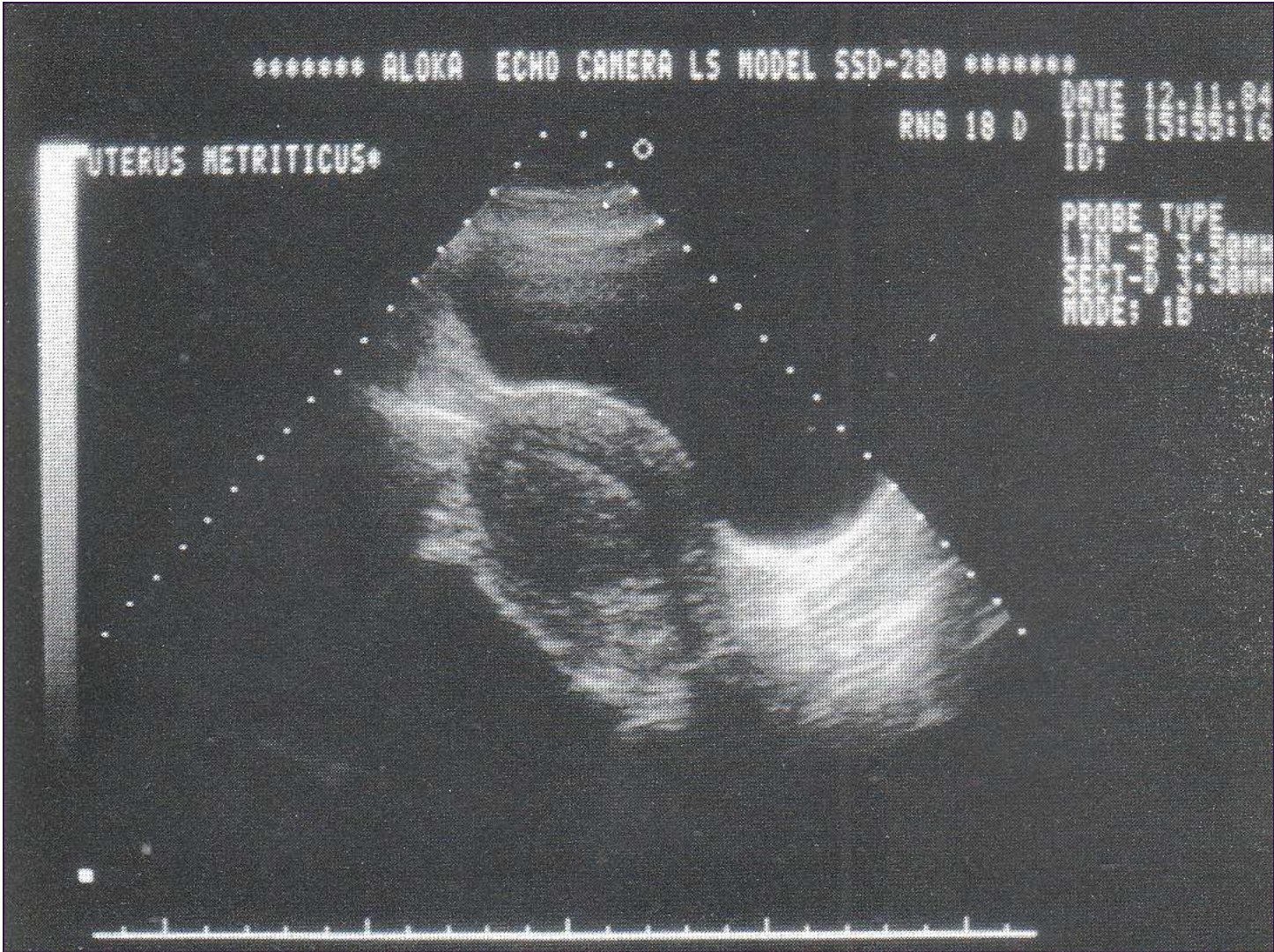
UTERUS BICORNIS



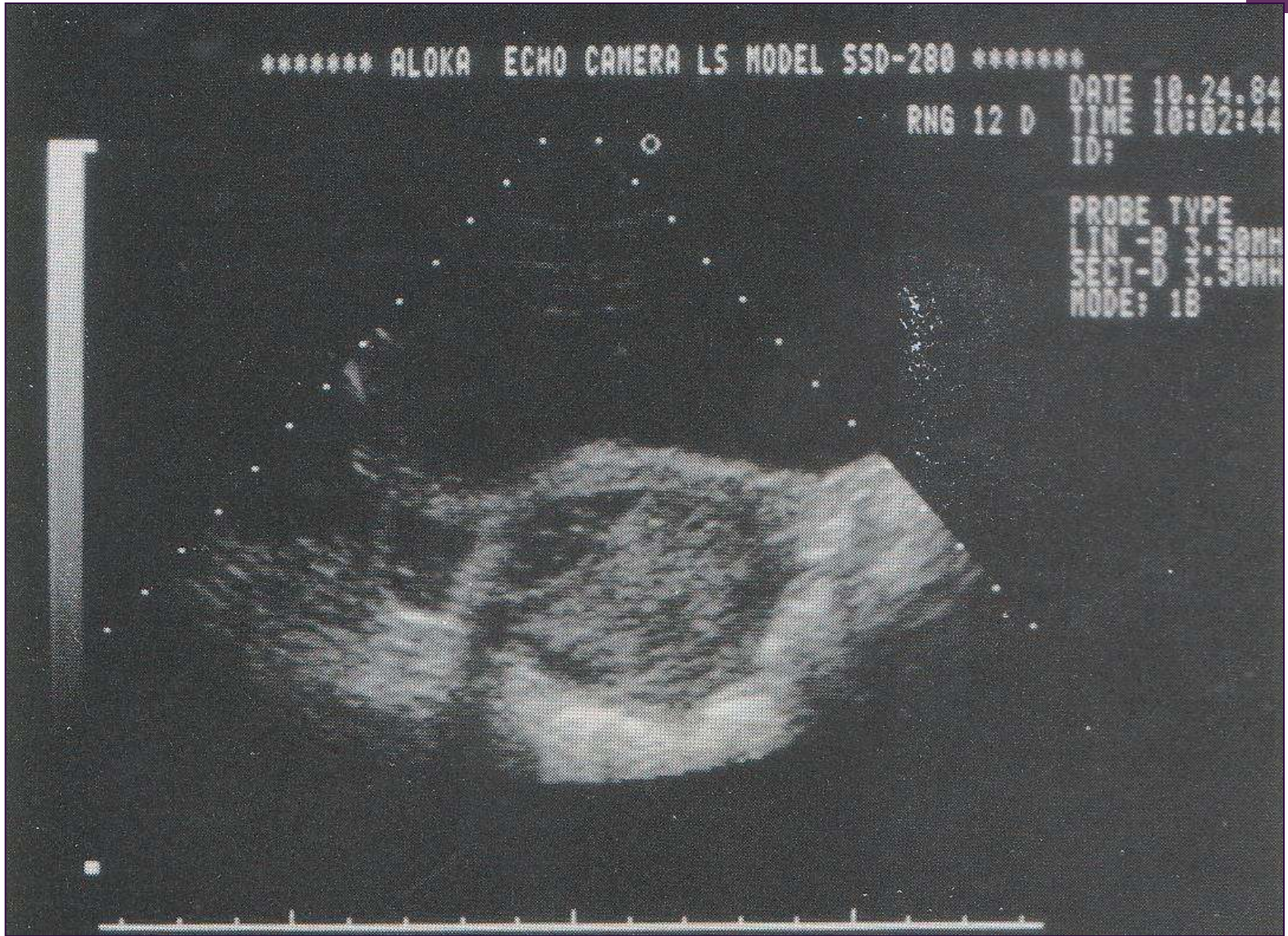
MYOMA UTERI



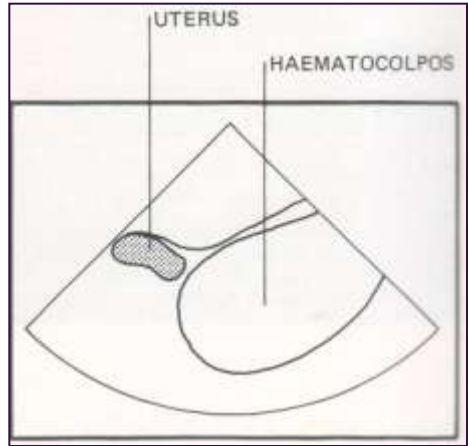
MYOMA UTERI



ADENOMYOSIS



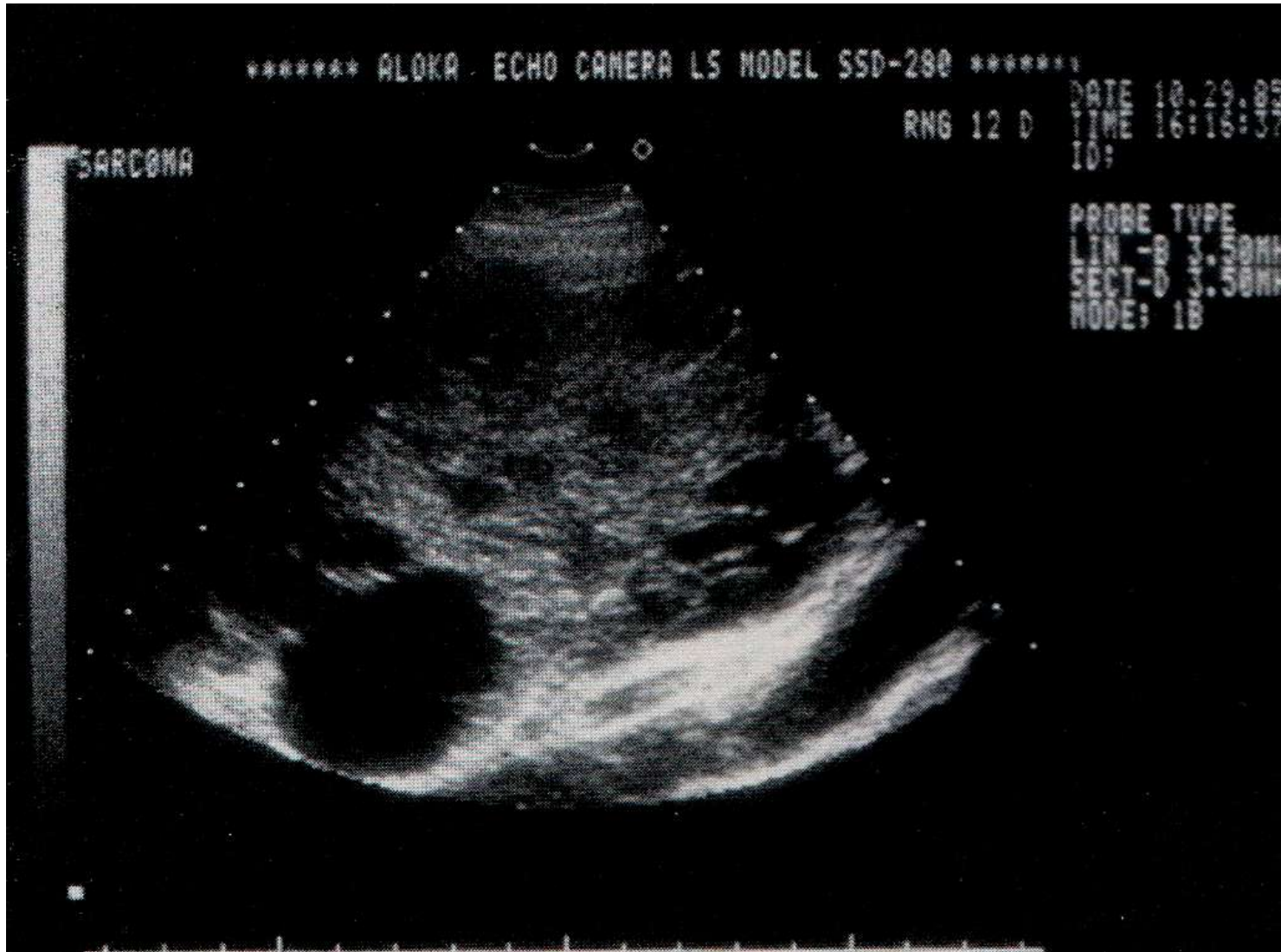
ADENOMYOSIS



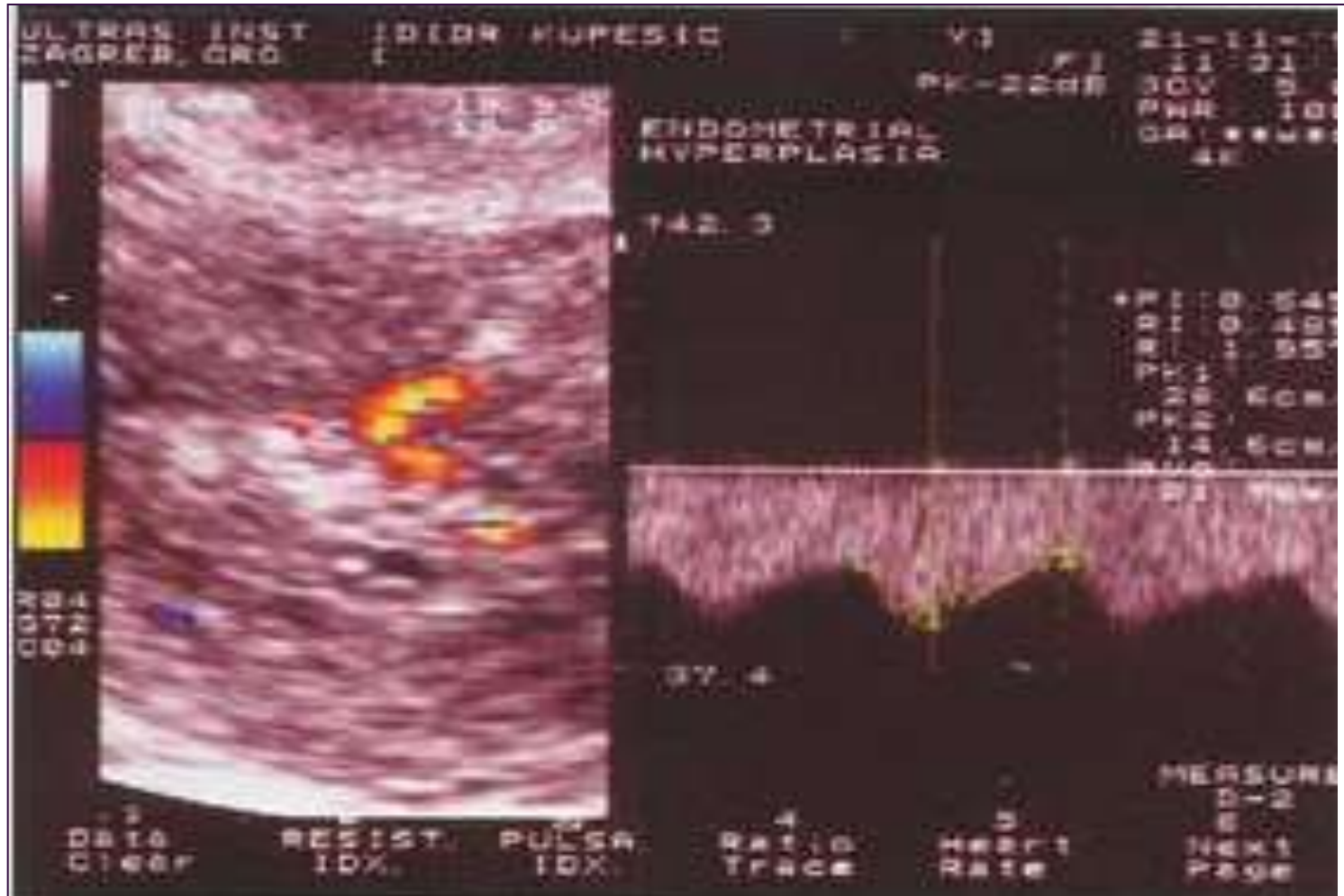
HEMATOCOLPOS



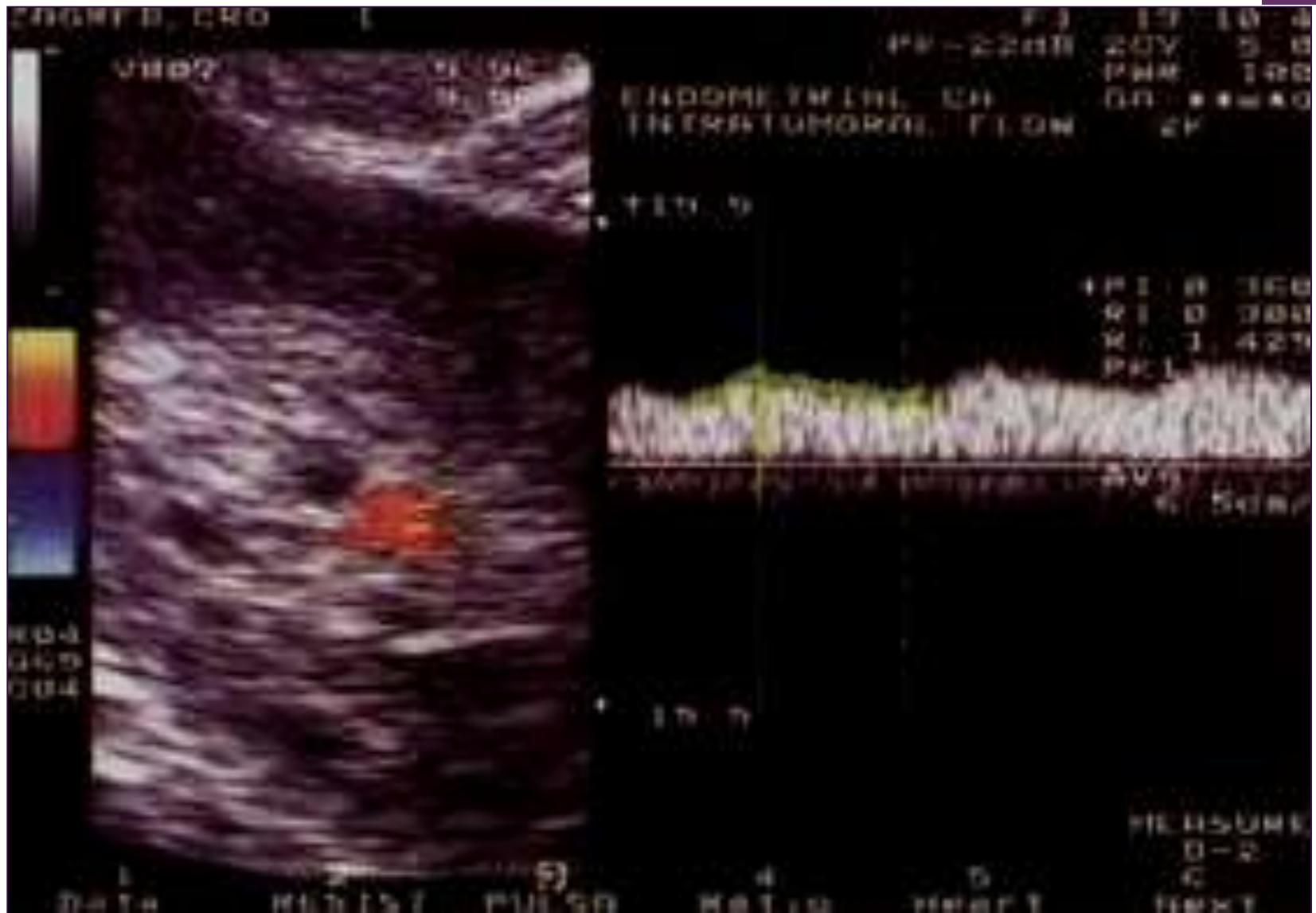
POLIP ENDOMETRIUM



SARCOMA UTERI



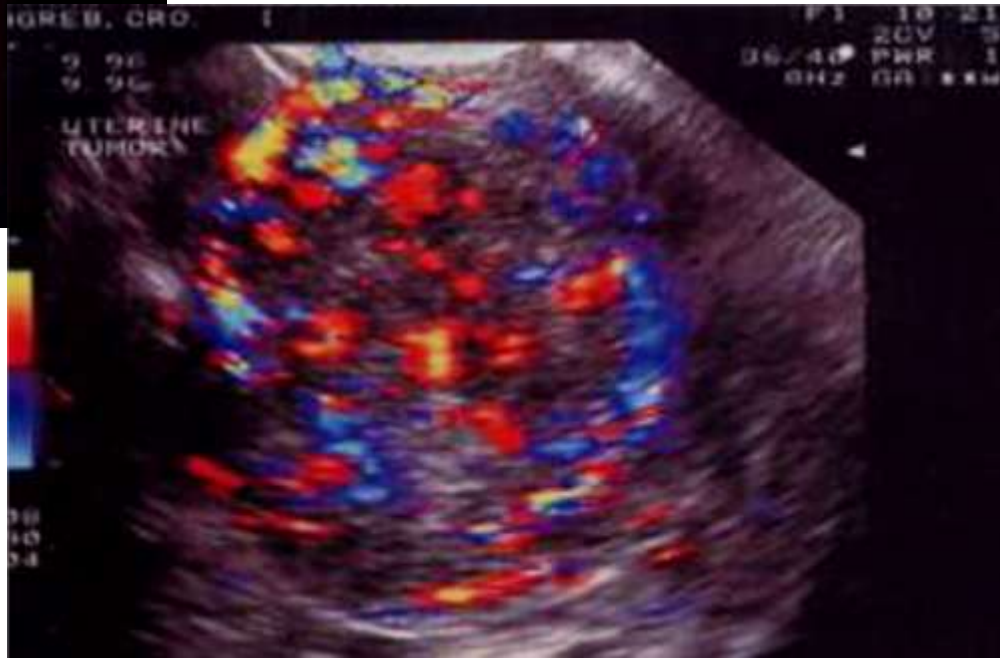
HIPERPLASI ENDOMETRIUM (RI = 0,49)



KANKER ENDOMETRIUM (RI = 0,3)



MIOMA UTERI (RI = 0,74)



SARCOMA UTERI (RI =0,3)

Table 47.2: Sonographic differential diagnoses of pelvic masses^{a,b}

| <i>Cystic</i> | <i>Complex</i> | <i>Solid</i> |
|---------------------------|-------------------------|--------------------------------|
| Completely cystic | Predominantly cystic | Ovarian origin |
| Physiologic ovarian cysts | Cystadenomas | Fibroma |
| Cystadenomas | Tubo-ovarian abscess | Thecoma |
| Hydrosalpinx | Dermoid cyst | Uterine origin |
| Endometrioma | Predominantly solid | Pedunculated subsersal fibroid |
| Paraovarian cyst | Cystadenoma (carcinoma) | |
| Hydatid cyst of Morgagni | Germ cell tumor | |
| Multiple | | |
| Endometriomas | | |
| Multiple follicular cysts | | |
| Septated | | |
| Cystadenoma (carcinoma) | | |
| - mucinous | | |
| - serous | | |

(Adapted from Fleischer AC, Manning FA, Jeanty P, Romero R (Eds). Sonography in Obstetrics & Gynecology (6th ed). New York, McGraw-Hill, 2001;883-912)

^aBased on most common appearance.

^bPelvic masses with a spectrum of sonographic appearances are mentioned in more than one category.

| | | |
|----------------------------------|----------------------------|---|
| Volume | < 10 cm ³ | 0 |
| | > 10 cm ³ | 2 |
| Cyst wall thickness/structure | smooth < 3 mm | 0 |
| | smooth > 3 mm | 1 |
| | papillarities < 3 mm | 1 |
| | papillarities > 3 mm | 2 |
| Septa | no septa | 0 |
| | thin septa < 3 mm | 1 |
| | thick septa > 3 mm | 2 |
| Solid parts | solid area < 1 cm | 1 |
| | solid area > 1 cm | 2 |
| Echogenicity | sonolucency/low level echo | 0 |

Table 47.1: Preoperative investigation and risk assessment for possible malignancy assessment in the diagnosis and treatment of ovarian tumors

| <i>Standard investigation</i> | <i>Risk for malignancy</i> | <i>Advanced investigation</i> |
|---|-----------------------------------|--|
| <p>Anamnesis:</p> <ul style="list-style-type: none"> reproductive data (parity, abortions), menstrual history, oral contraceptive use, infertility treatment, hormonal replacement therapy, earlier operations (ovary) | | |
| <p>Age:</p> <ul style="list-style-type: none"> premenopausal postmenopausal | <p><i>Low</i> <i>High</i></p> | |
| <p>Family history of ovarian and/or breast cancer:</p> <ul style="list-style-type: none"> negative positive | <p><i>Low</i> <i>High</i></p> | <p>Genetic counseling</p> |
| <p>Symptoms (if occur):</p> <ul style="list-style-type: none"> abdominal distension, fullness or pressure in the abdomen or pelvis, abdominal or lower back pain, frequent urination or urgency, constipation, lack of energy, lack of appetite, weight loss | <p><i>High</i></p> | <p>Exclude an extraovarian abdominal disease (X-rays, CT, MRI)</p> |
| <p>Bimanual palpation:</p> <ul style="list-style-type: none"> smooth, round, mobile, unilateral, < 10 cm uneven, non-mobile, bilateral, hard, with adhesions, > 10 cm | <p><i>Low</i> <i>High</i></p> | |
| <p>Transvaginal gray scale sonography (2D US)</p> <p><i>Volume</i></p> <ul style="list-style-type: none"> < 20 cm³ – premenopausal < 10 cm³ – postmenopausal > 20 cm³ – premenopausal > 10 cm³ – postmenopausal | <p><i>Low</i> <i>High</i></p> | <p><i>Three-dimensional sonography (3D US) in comparison to 2D US superior in:</i></p> <ul style="list-style-type: none"> - showing characteristics of internal cyst walls - identifying the extent of capsular infiltration of tumors - calculating ovarian volume |



- calculating ovarian volume

Morphology

- smooth cystic wall, thin septa, no solid parts, anechoic
- intracystic growth, papillary projections, thick septa, solid parts, mixed echogenicity

Low

High

Transvaginal color and power Doppler:

Blood flow parameters

- $PI > 1.0$, $RI > 0.42$
- $PI < 1.0$, $RI \leq 0.42$

Low

High

Three-dimensional power Doppler (3D PD)

Qualitative analysis of tumor blood vessels:

- position
- structure
- branching pattern

Location of blood flow

- peripheral
- central

Low

High

Tumor markers:

- $CA\ 125 < 35\ U/mL$
- $CA\ 125 > 35\ U/mL$

Low

High

Second generation CA 125,
CA 15-3, CA 19-9



KISTA FOLIKULER

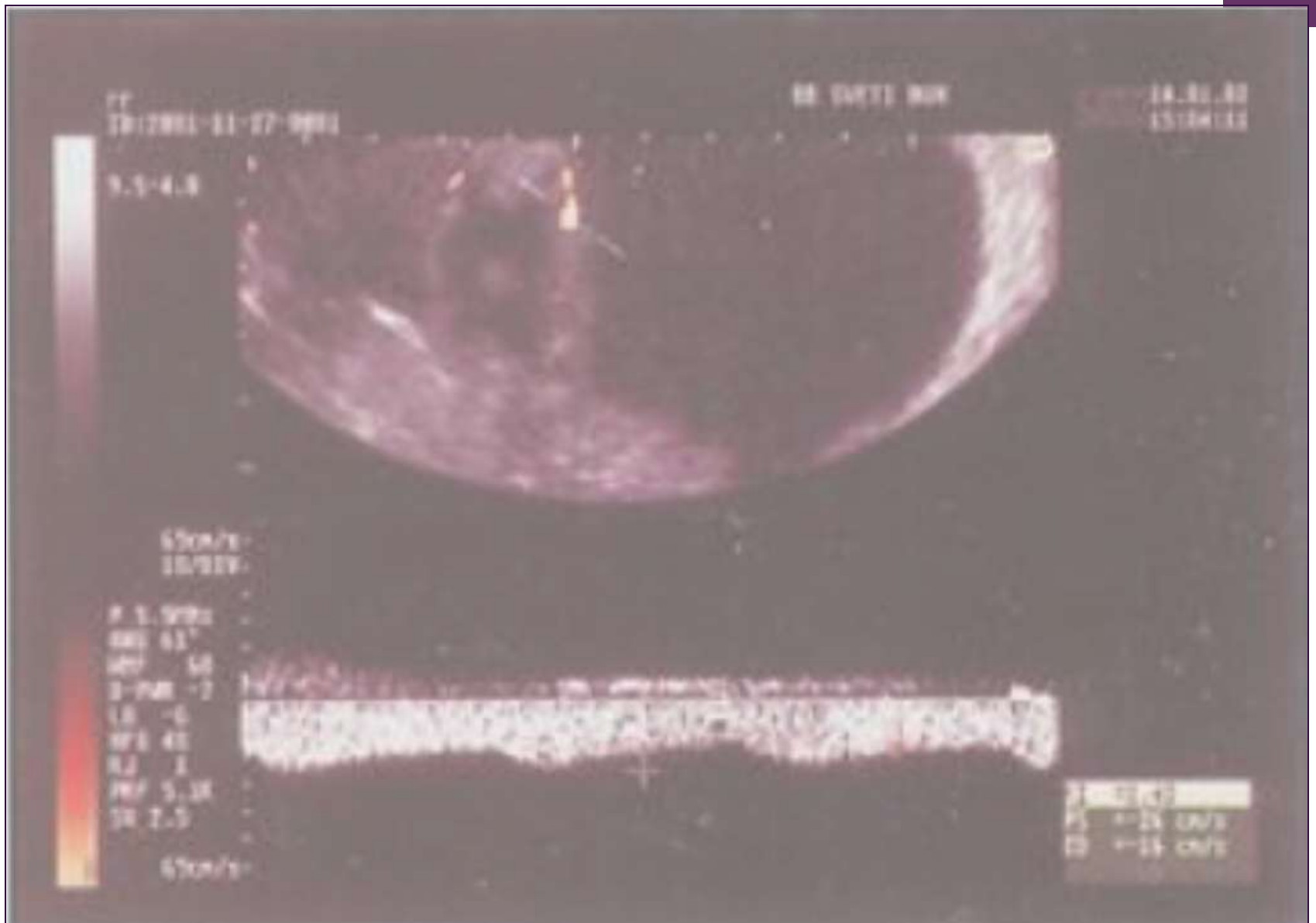


Ground glass appereance

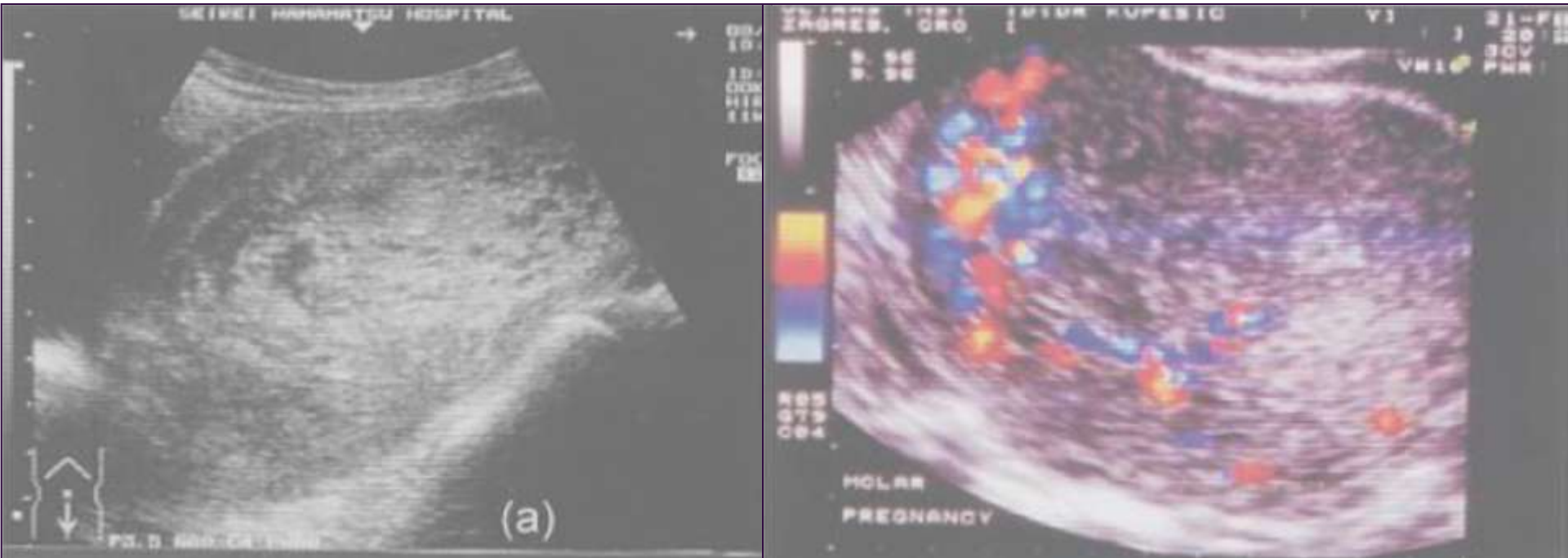
KISTA ENDOMETRIOSIS



MASSA KOMPLEK



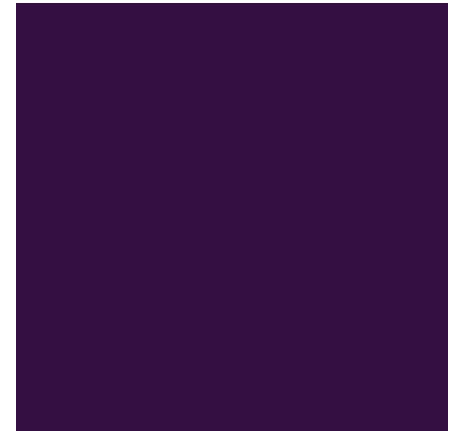
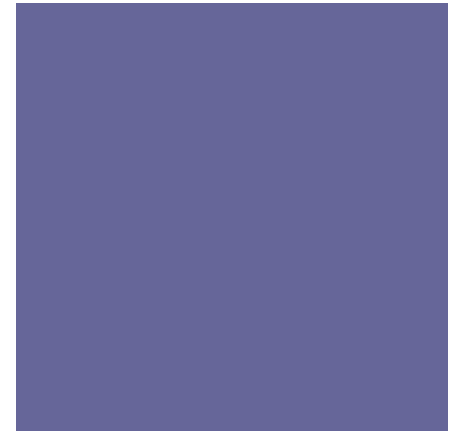
Massa komplex (RI =0,4 , Malignancy)



MOLA HYDATIDOSA



CORIOCARCINOMA



***PITFALLS* DALAM USG GINEKOLOGI**



KESALAHAN DALAM USG PENYAKIT TROFOBLAST



Gambaran USG :

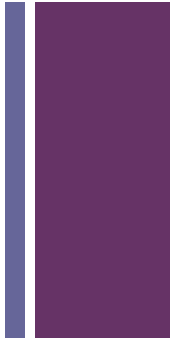
- massa ekogenik intrauterin yang membaaur diantara gambaran punggata sonolusen.
- Kista lutein, massa kistik multilokuler yang terletak di sebelah superior fundus uteri atau sebagian kecil terletak di *cul-de-sac*.

+ Hati – hati...

- Degenerasi hidrops pada plasenta
- Sisa hasil konsepsi yang masih mengalami perdarahan
- Tumor solid ovarium

Sering dikira gambaran mola.

Perlu pemeriksaan **β hCG** darah.





KESALAHAN USG DALAM KELAINAN PATOLOGI UTERUS



- Uterus didelphis sering disalahartikan dengan *uterine fibroid*.
- Perlu pemeriksaan potongan sagital dan transversal yang teliti atau diperiksa pada saat menstruasi.

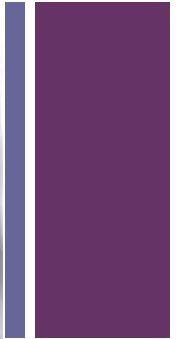
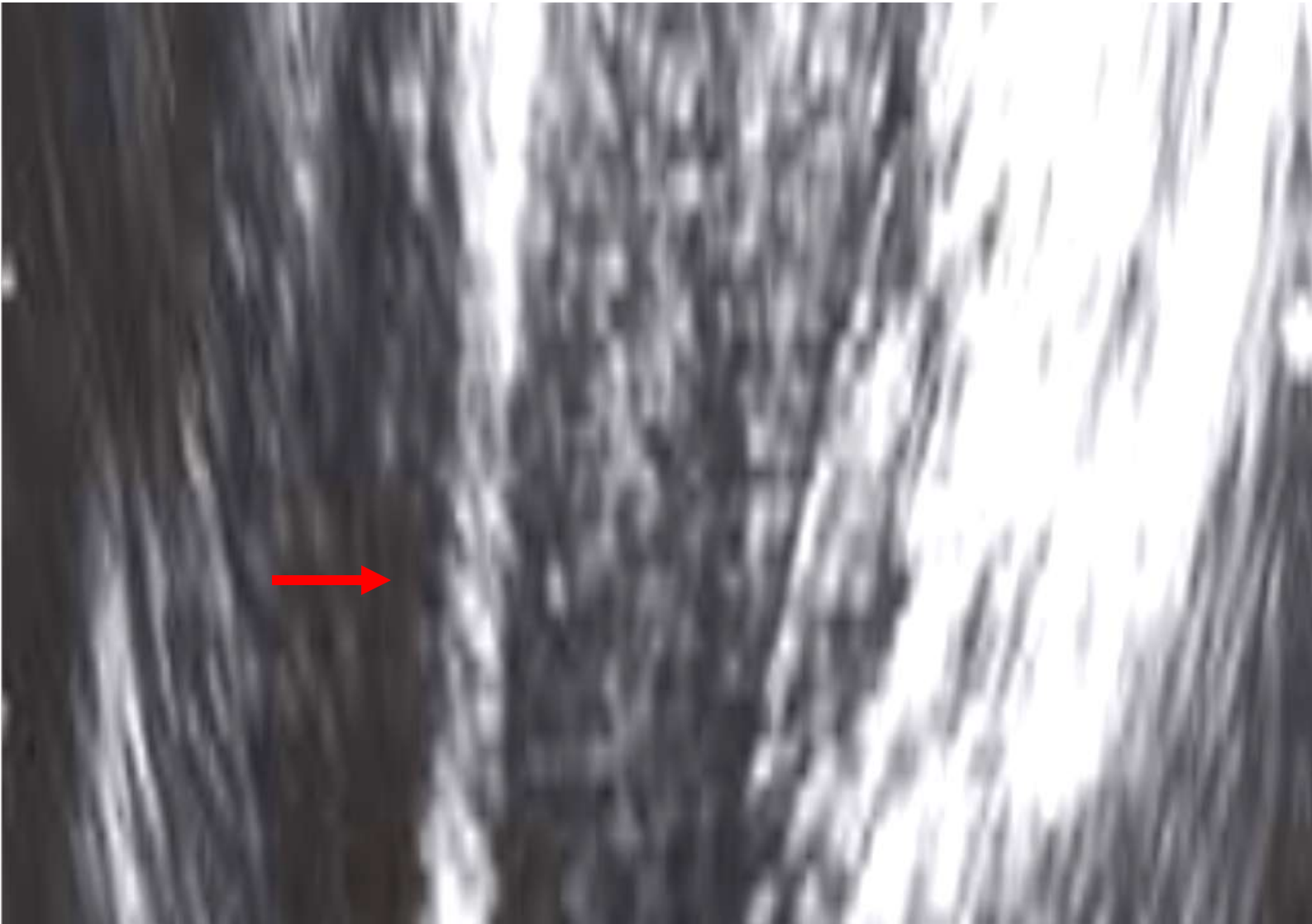


Uterine fibroid dapat disalahartikan dengan :

- uterus retroversi
- salah satu sisi uterus bikornus
- massa ovarium solid
- massa di kolon



Enhancement di sebelah distal endometrium pada fase sekresi sering menyebabkan kesalahan pengukuran ketebalan endometrium sehingga dapat dikira hiperplasia endometrium atau massa intramural.



Enhancement pada endometrium di sisi fundus menyebabkan kesalahan pengukuran ketebalan endometrium.



KESALAHAN USG DALAM KISTA OVARIUM

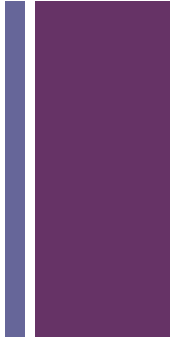


Vesika urinaria sering dikira kista ovarium unilokuler.

Divertikulum pada vesika urinaria, vagina yang melebar karena himen imperforata atau distensi kolon yang besar sering dikira kista ovarium multilokuler.

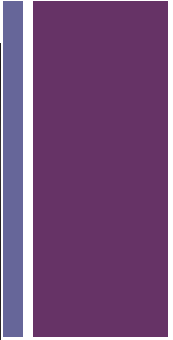


KESALAHAN USG DALAM KISTA OVARIUM



Folikel matur yang berukuran 30 mm atau corpus luteum pada fase sekresi sering dikira neoplasma ovarium.

Perlu follow up pada satu atau dua siklus haid berikutnya atau dilakukan pemeriksaan doppler

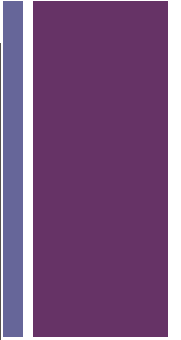


Folikel matur yang dikira kista ovarium unilokuler



Perdarahan corpus luteum sering dikira kehamilan ektopik atau endometrioma.

***Shadowing* pada massa fibroid akan menyebabkan kesalahan pengukuran massa tumor**



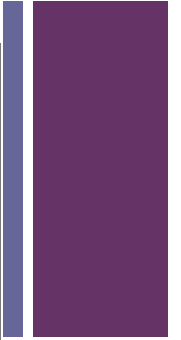
Kista yang mengalami perdarahan sering dikira tumor padat.



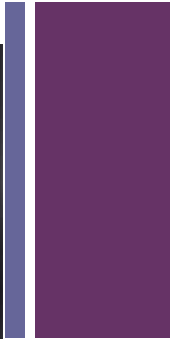
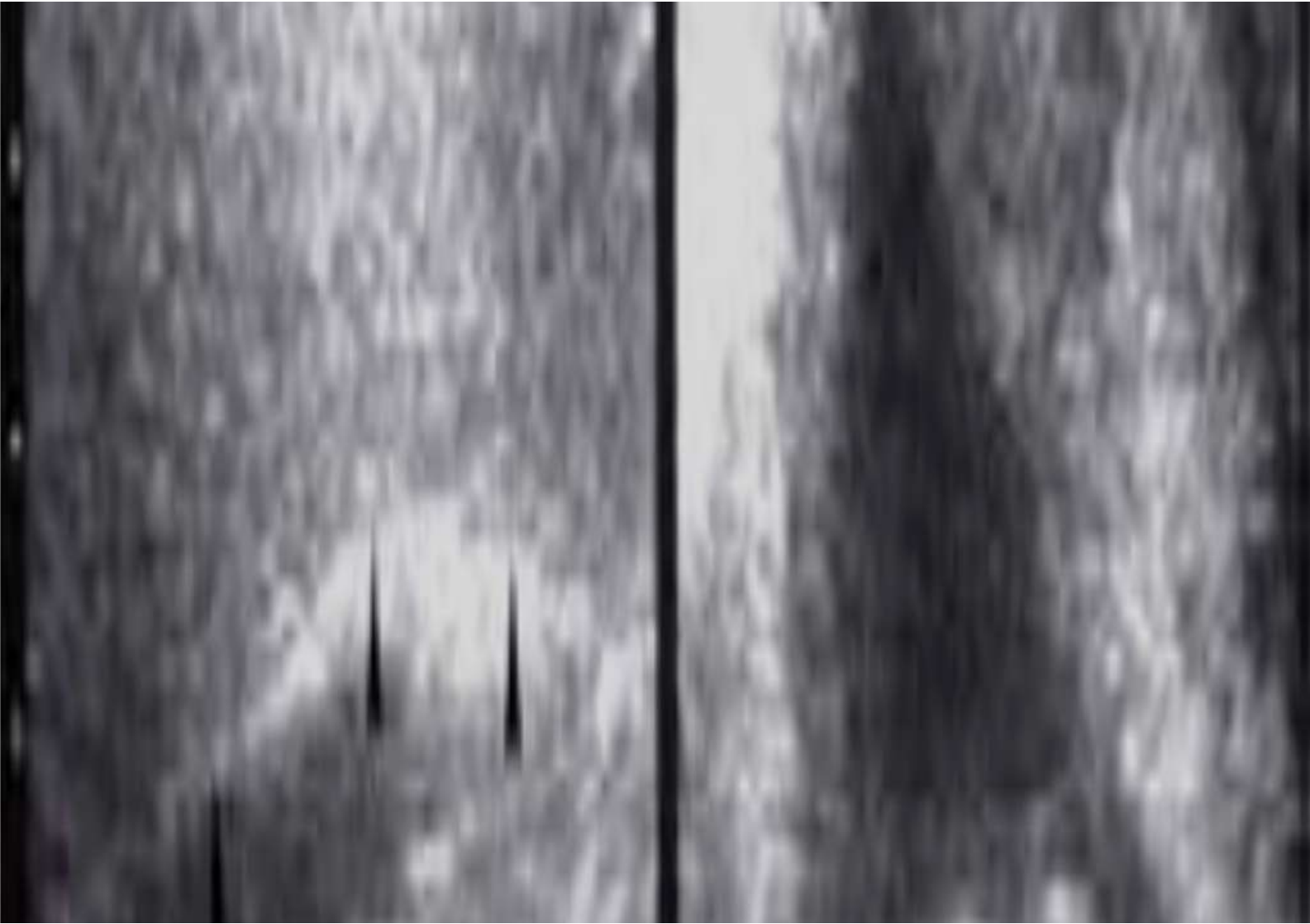
Adanya gas pada abses dapat menyebabkan gema dipantulkan sehingga dikira teratoma matur kistik.

Massa teratoma matur kistik yang ditutupi oleh usus akan menyebabkan tidak terlihat dengan pemeriksaan TAUS → PERLU TVUS





Adanya gas pada abses dapat menyebabkan gema dipantulkan sehingga dikira teratoma matur kistik.



Teratoma matur kistik yang ekogenisitasnya sama dengan usus disekitarnya sering menyebabkan tidak dikenali pada saat TSA



**Mioma uteri subserosum bertangkai sering dikira
massa di ovarium.**



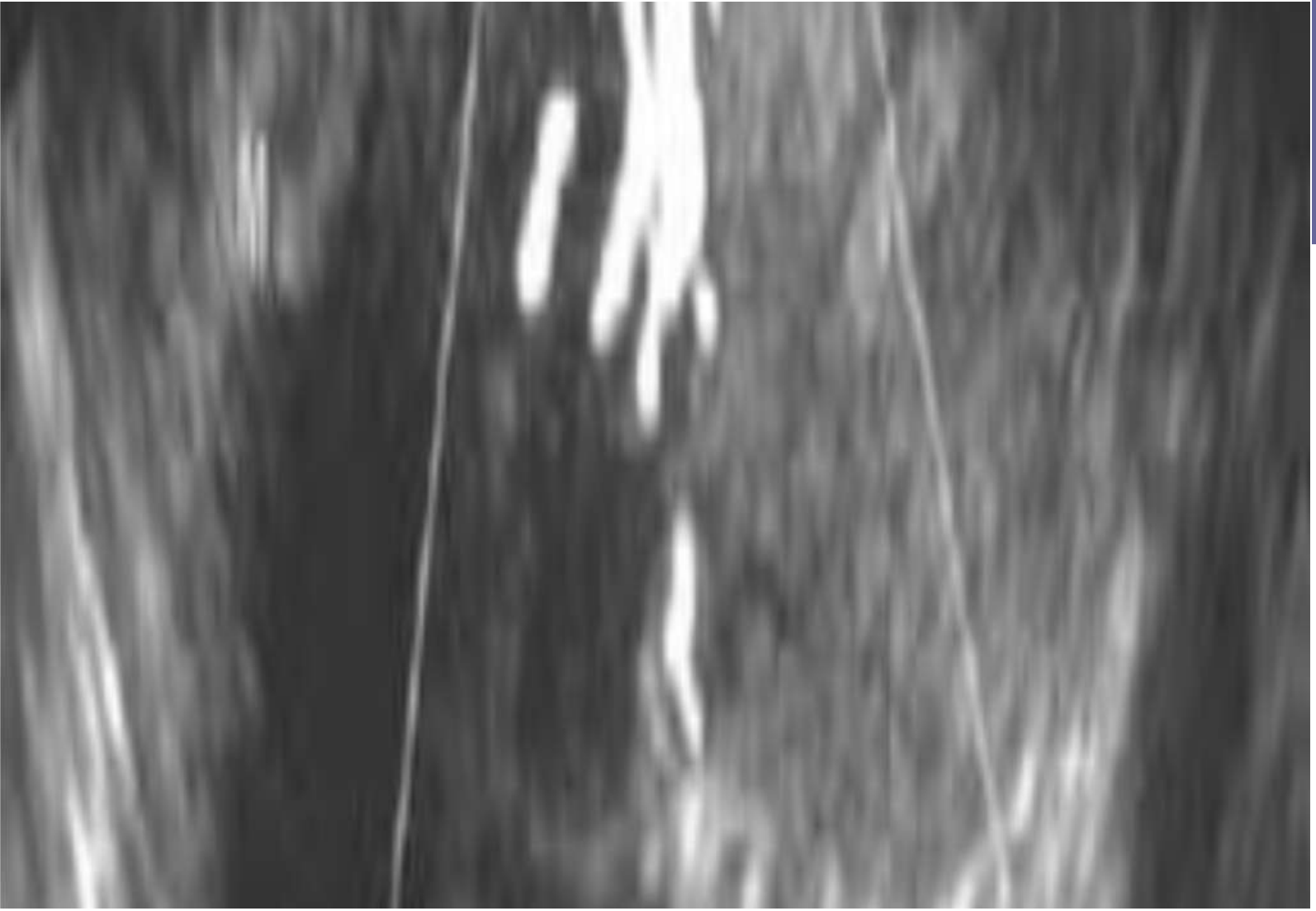
USG DOPPLER



Menunjukkan vaskularisasi di tangkai



Leiomioma (M) yang dikira neoplasma dari ovarium



Pemeriksaan doppler akan dapat mengidentifikasi tangkai dari uterine fibroid



Leiomioma yang mengalami degenerasi kistik dapat dikira massa dari ovarium.



Terima kasih