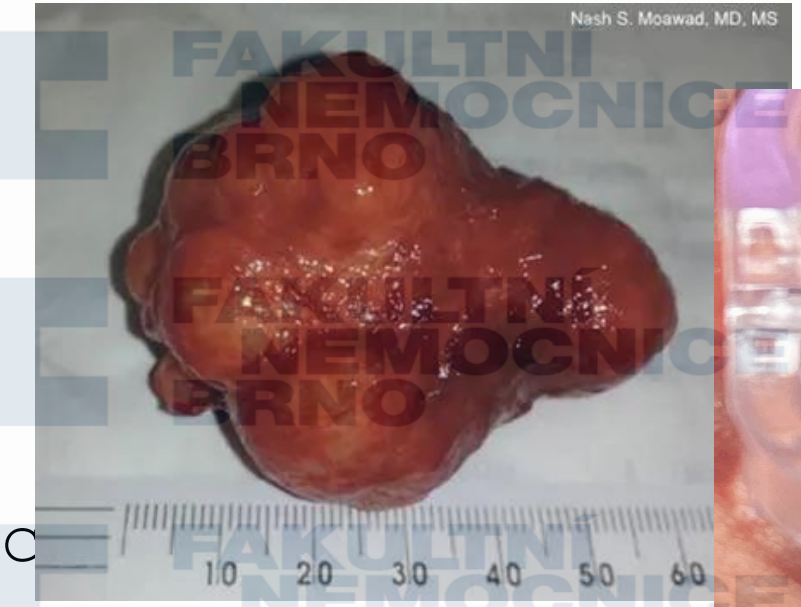
MR u nádorů dělohy

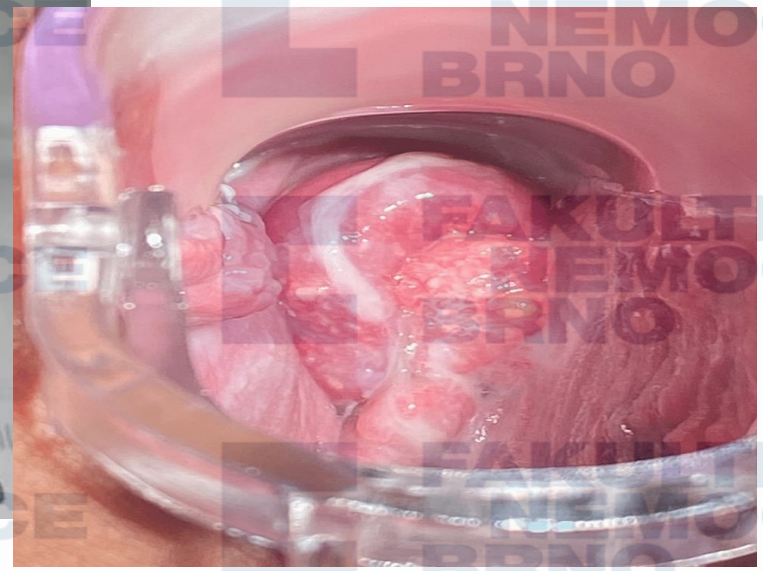
Lukáš Lambert

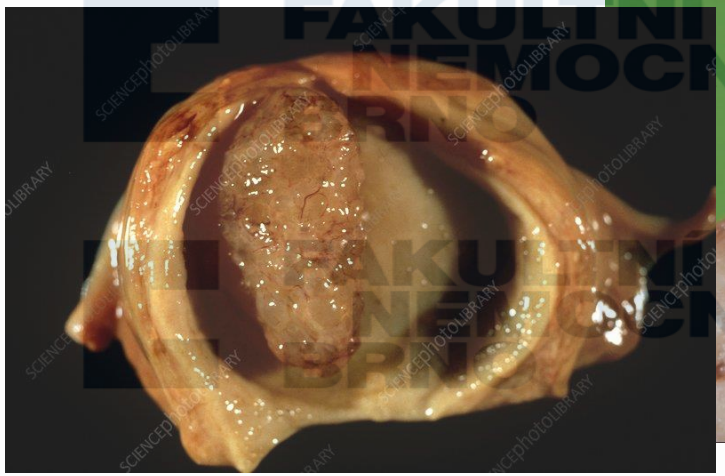
20 min

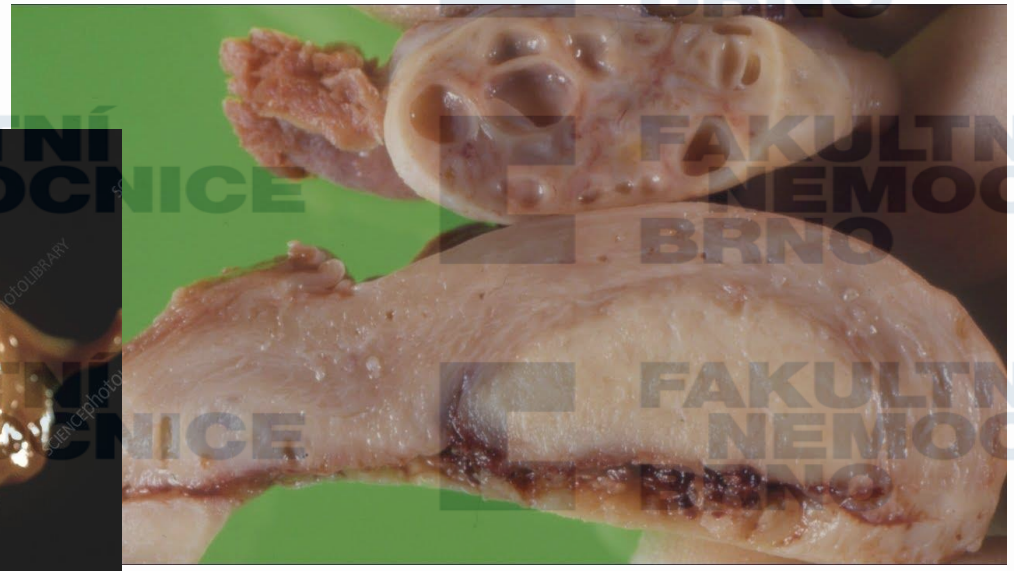
Nejčastější

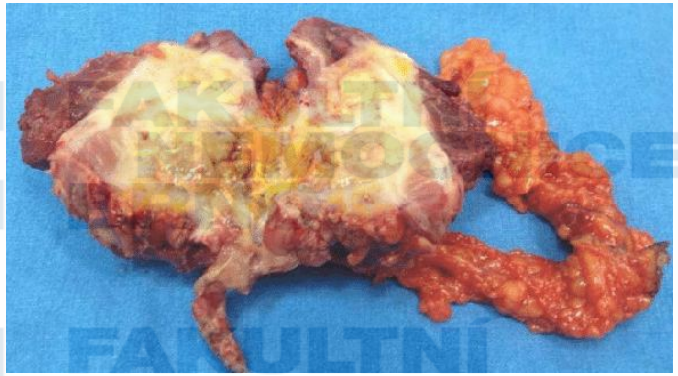
- Myom (LMS, STUMP)
- Karcinom hrdla
- Endometriální karc
- Endometriální polyp
- Aktinomykóza
- Adenomyóza









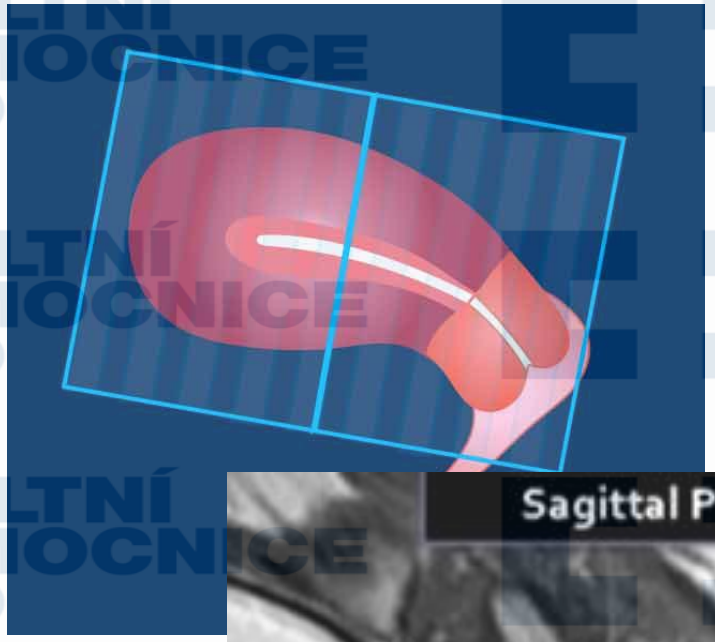


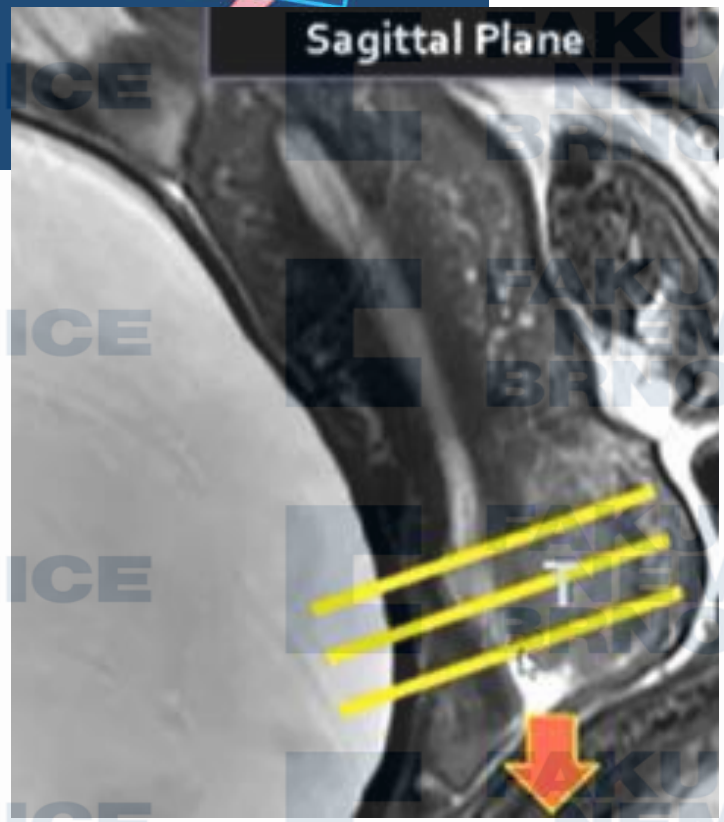
Vyšetření

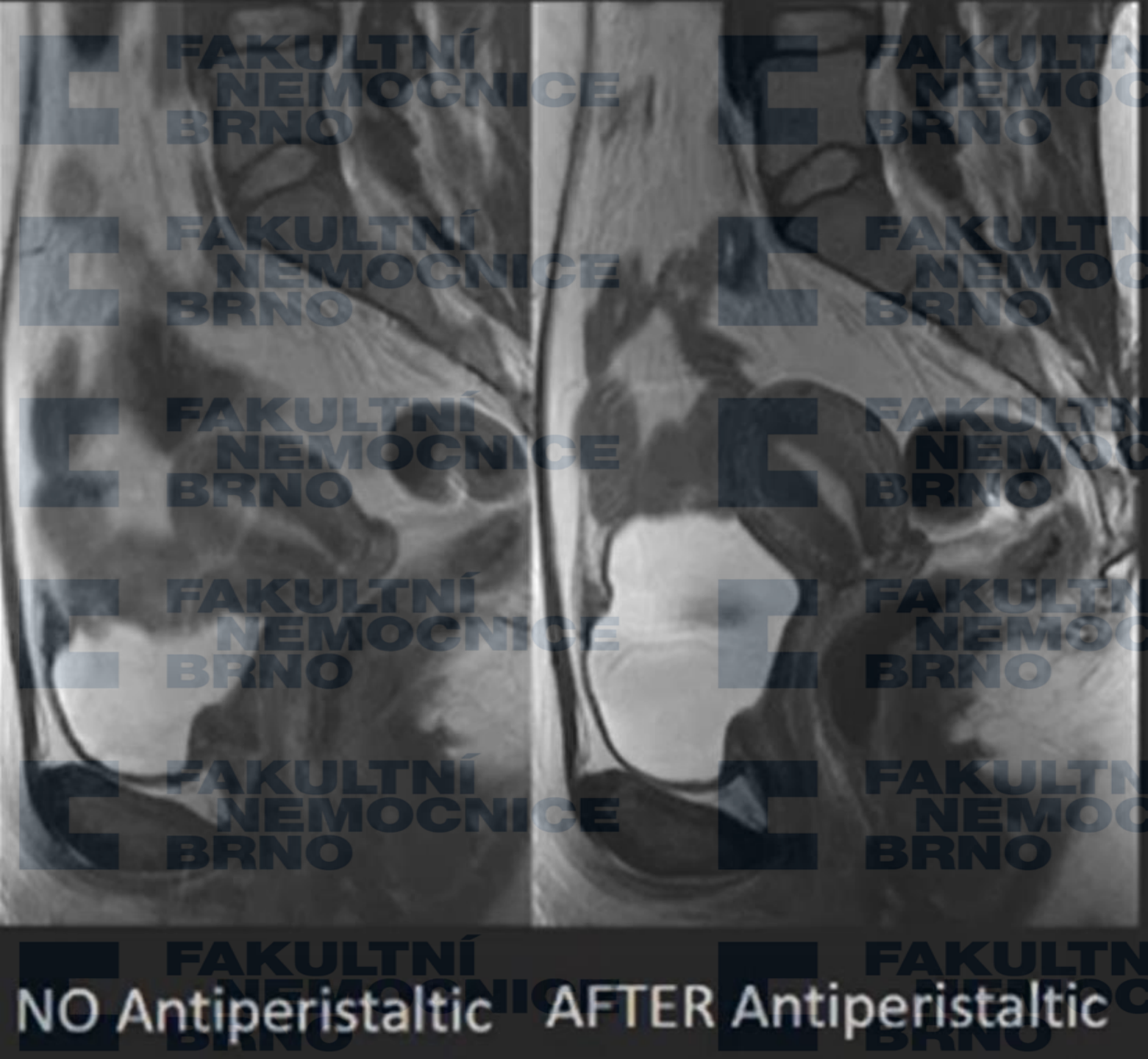
- Klasické sekvence:
  - T1 – W: TRA
  - T2: TRA, SAG, TRA-obl, (COR-obl)
  - DWI: TRA
  - DCE: TRA
  - T1Gd – W: TRA, TRA-obl, (COR-obl)

  - Pánev + RP (ledviny)
- Nalačno
- Buscopan

ZM:
- Charakter (maligní)
- Rozsah (stage)



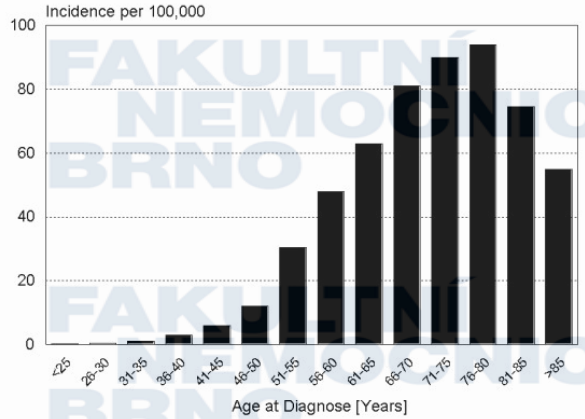


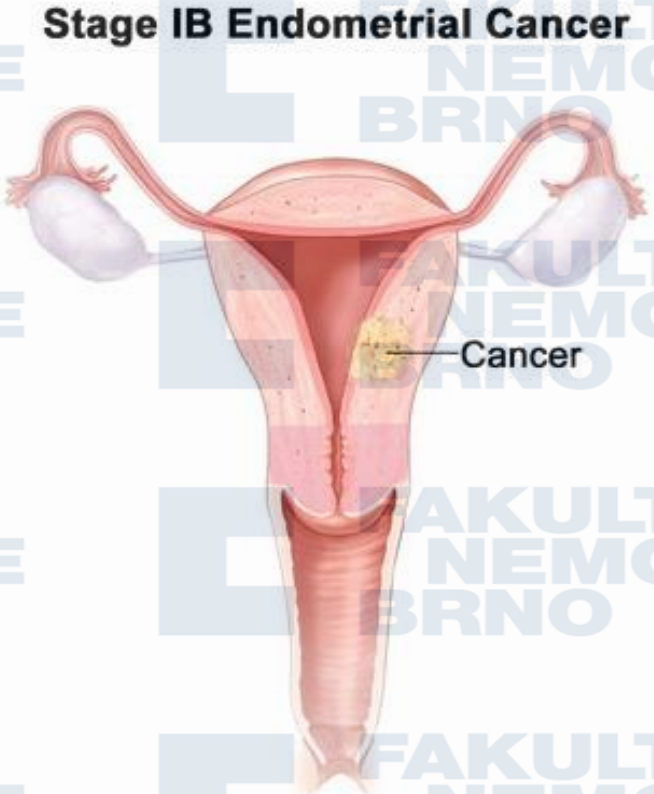


- Peristaltika
  - Spasmolytikum
  - Nejíst
- Dýchat do hrudníku
- Vaginální gel (?)

Endometriální karcinom

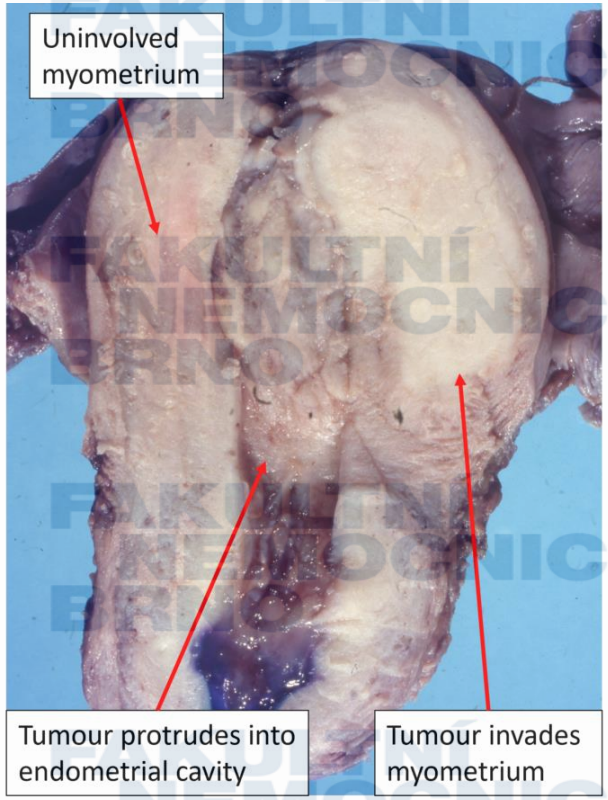
- 4. nejčastější nádor ženského geni
- 90% nádorů z endome
- 80% dg. v stage I
  - IA – abd. hysterektomie TAH
  - IB – + lymfadenektomie (dg.) – risk 3
  - IC – + radikální lymfadenektomie – ri

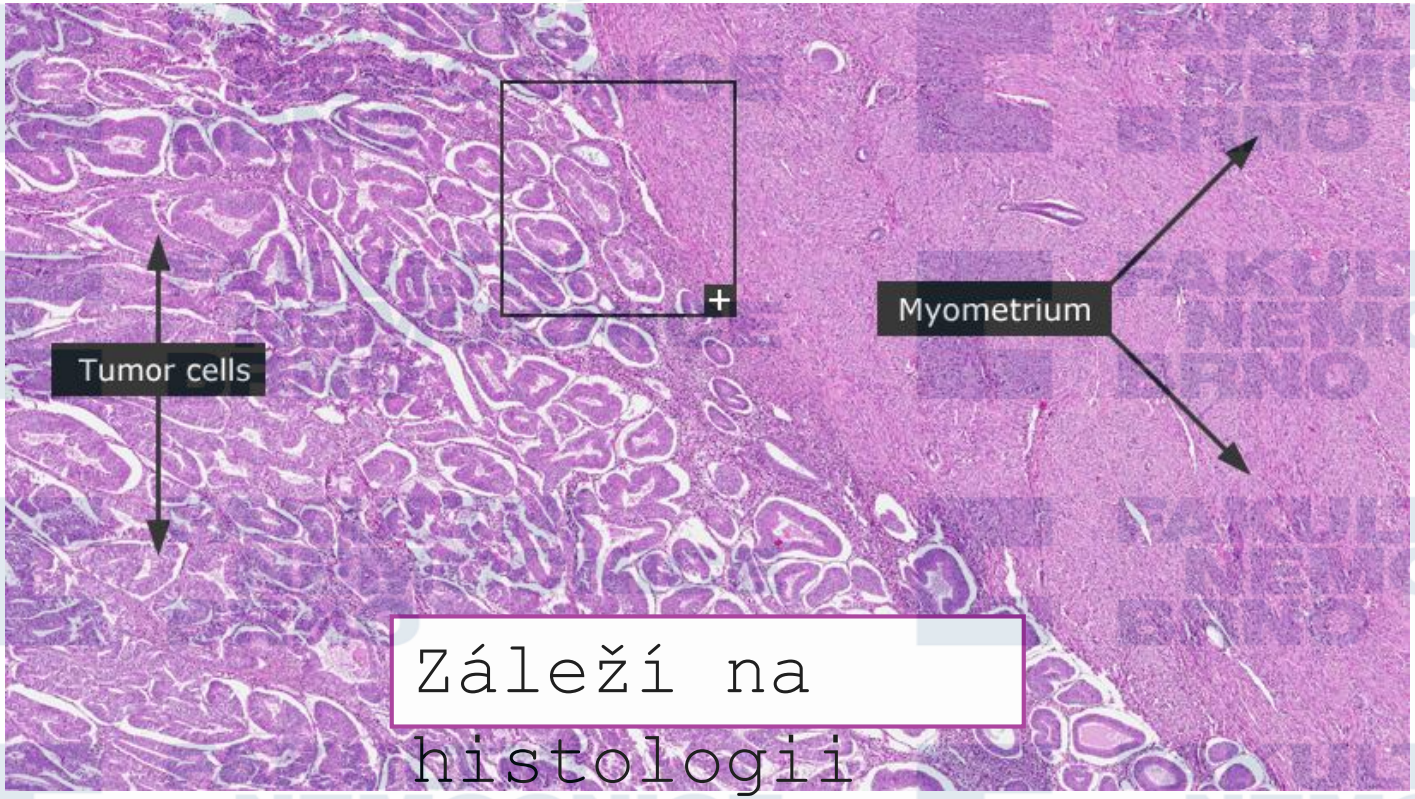




FIGO staging of endometrial cancer: 2023

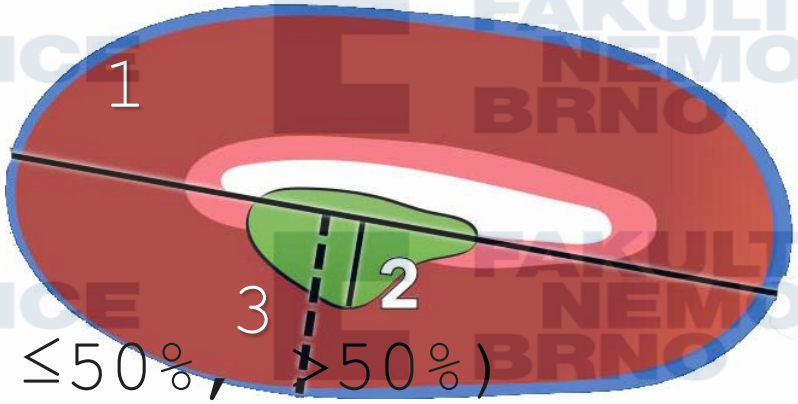
Jonathan S. Berek[1] | Xavier Matias-Guiu[2] | Carien Creutzberg[3] | Christina Fotopoulou[4] | David Gaffney[5] | Sean Kehoe[6] | Kristina Lindemann[7] | David Mutch[8] | Nicole Concin[9,10] | Endometrial Cancer Staging Subcommittee, FIGO Women's Cancer Committee



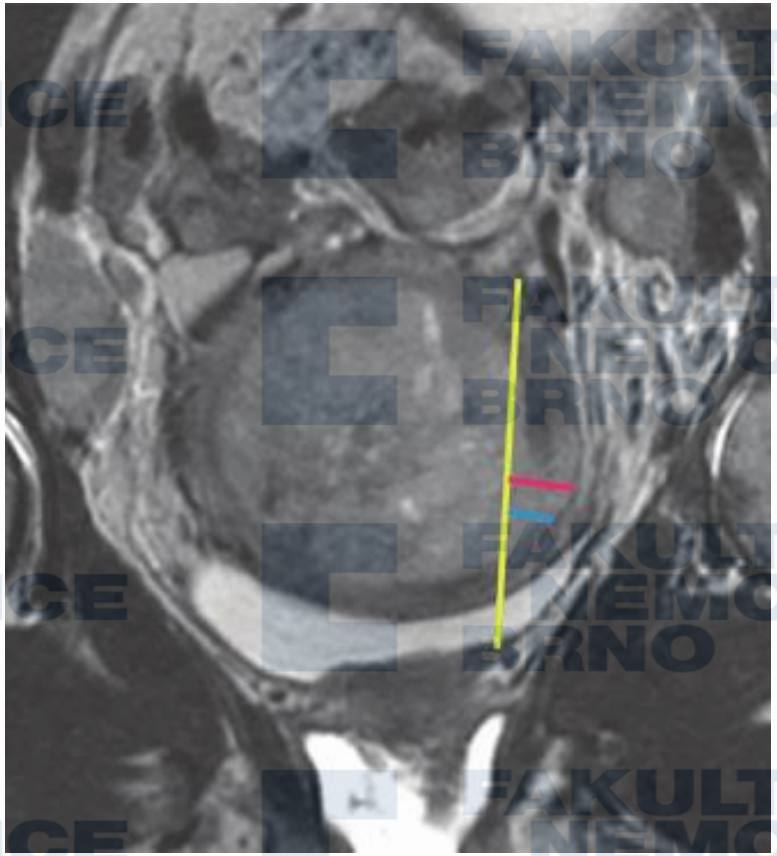


Stage	Description
Stage I	Confined to the uterine corpus and ovary[c]
IA	Disease limited to the endometrium OR non-aggressive histological type, i.e. low-grade endometroid, with invasion of less than half of myometrium with no or focal lymphovascular space involvement (LVSI) OR good prognosis disease
	IA1 Non-aggressive histological type limited to an endometrial polyp OR confined to the endometrium
	IA2 Non-aggressive histological types involving less than half of the myometrium with no or focal LVSI
	IA3 Low-grade endometrioid carcinomas limited to the uterus and ovary[c]
IB	Non-aggressive histological types with invasion of half or more of the myometrium, and with no or focal LVSI[d]
IC	Aggressive histological types[e] limited to a polyp or confined to the endometrium
Stage II	Invasion of cervical stroma with extrauterine extension OR with substantial LVSI OR aggressive histological types with myometrial invasion
IIA	Invasion of the cervical stroma of non-aggressive histological types
IIB	Substantial LVSI[d] of non-aggressive histological types
IIC	Aggressive histological types[e] with any myometrial involvement
Stage III	Local and/or regional spread of the tumor of any histological subtype
IIIA	Invasion of uterine serosa, adnexa, or both by direct extension or metastasis
	IIIA1 Spread to ovary or fallopian tube (except when meeting stage IA3 criteria)[c]
	IIIA2 Involvement of uterine subserosa or spread through the uterine serosa
IIIB	Metastasis or direct spread to the vagina and/or to the parametria or pelvic peritoneum
	IIIB1 Metastasis or direct spread to the vagina and/or the parametria
	IIIB2 Metastasis to the pelvic peritoneum

Co hodnotíme



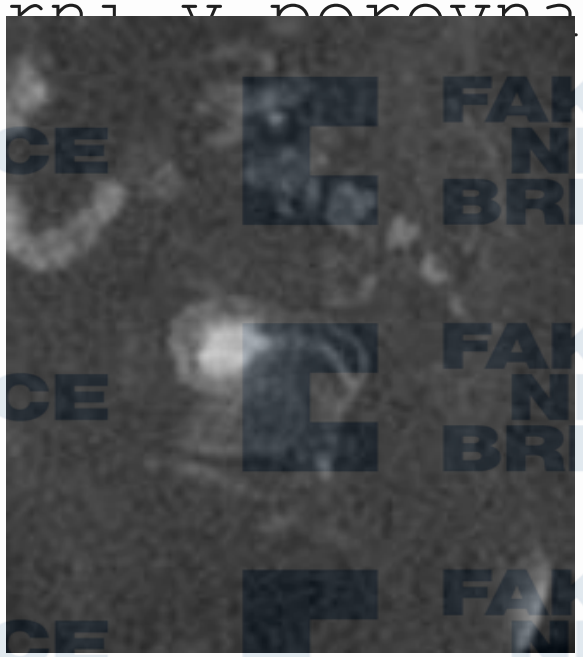
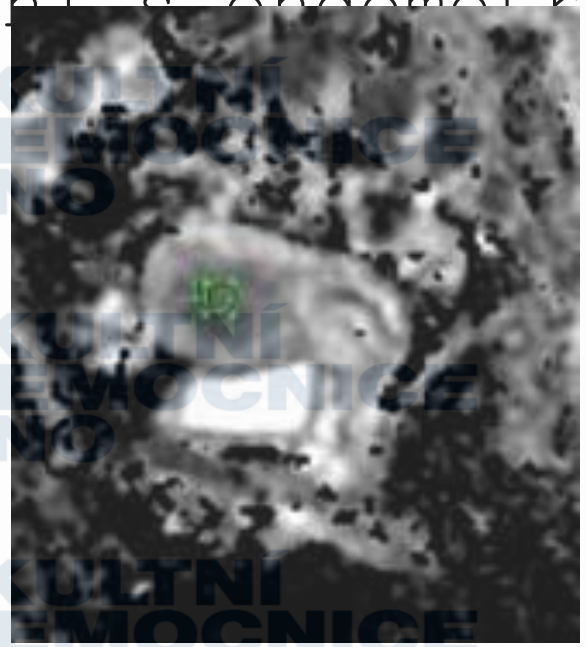
- Hloubka invaze do myometria (0, ≤50%, >50%)
- Lymfovaskulární invaze (LVSI)
- Invaze do hrdla
- Invaze do okolí (tuba, ovarium,
- Uzliny



- Velikost nádoru

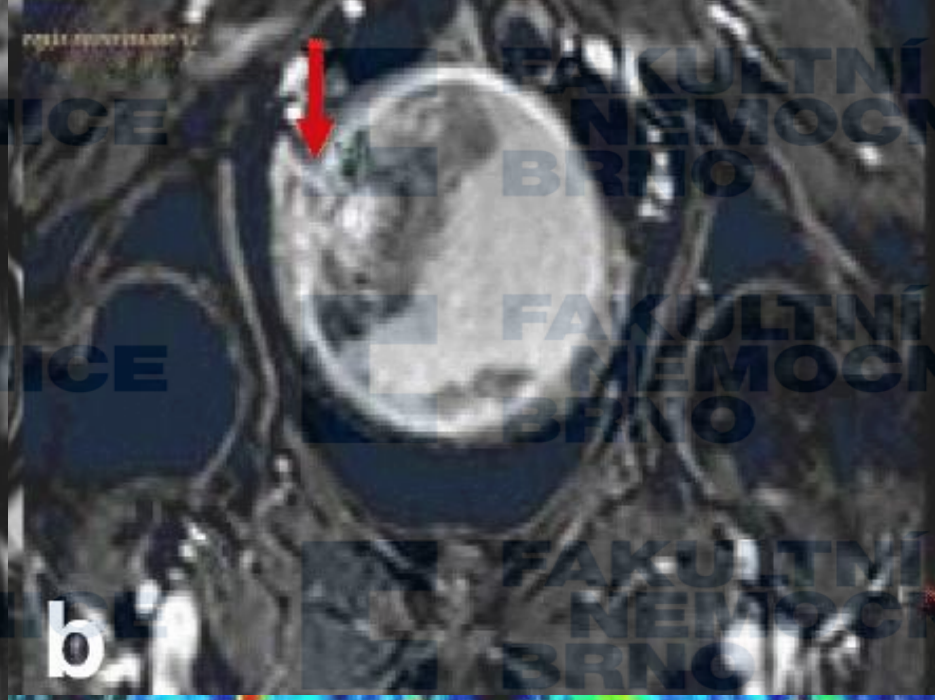
Charakteristika na MRI

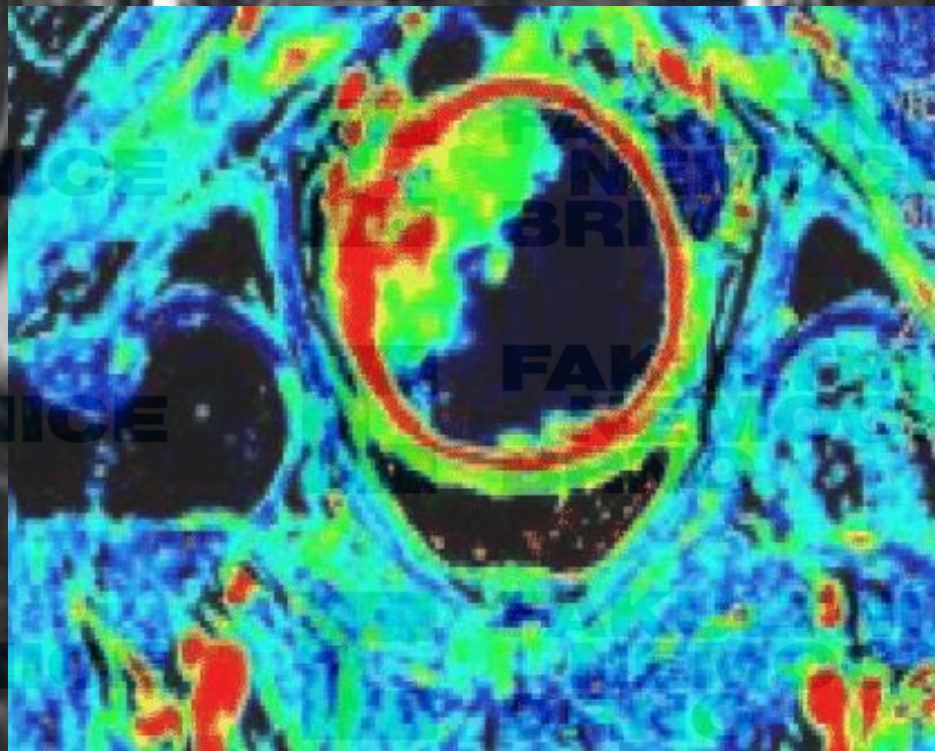
- Vyšší signál na T2 než myometrium / junkční zóna
- Restrikce difúze
- Hypovaskulární v porovnání s endometriem a

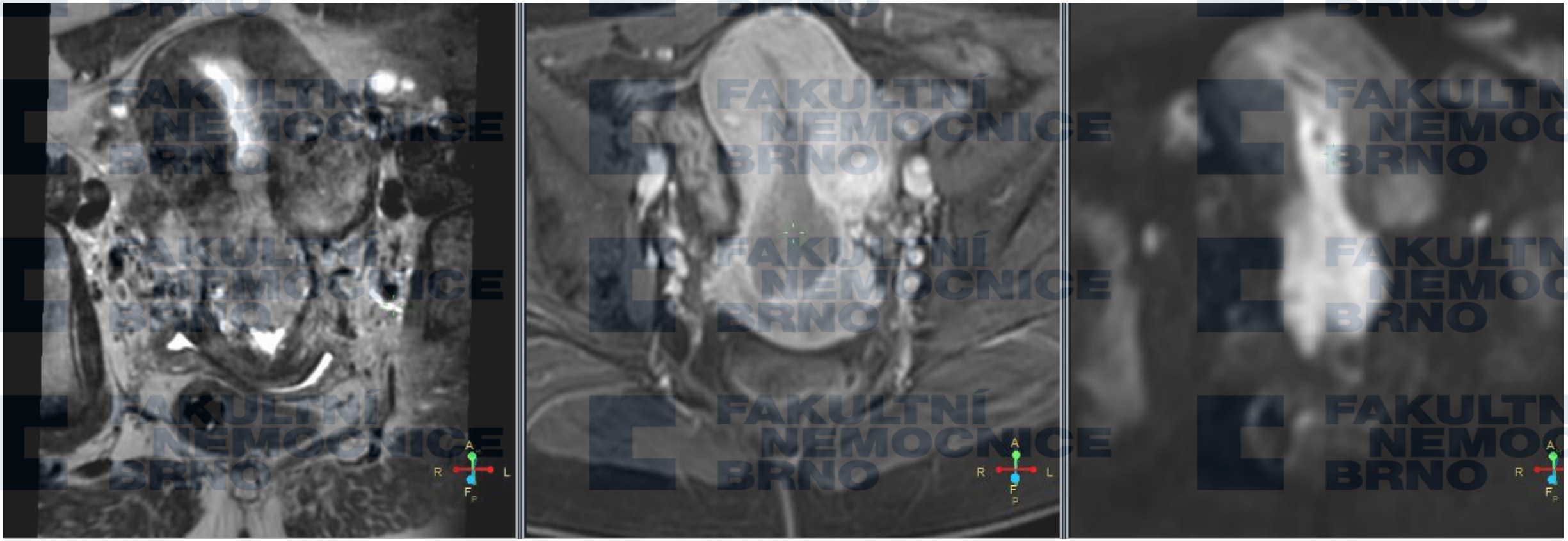


a

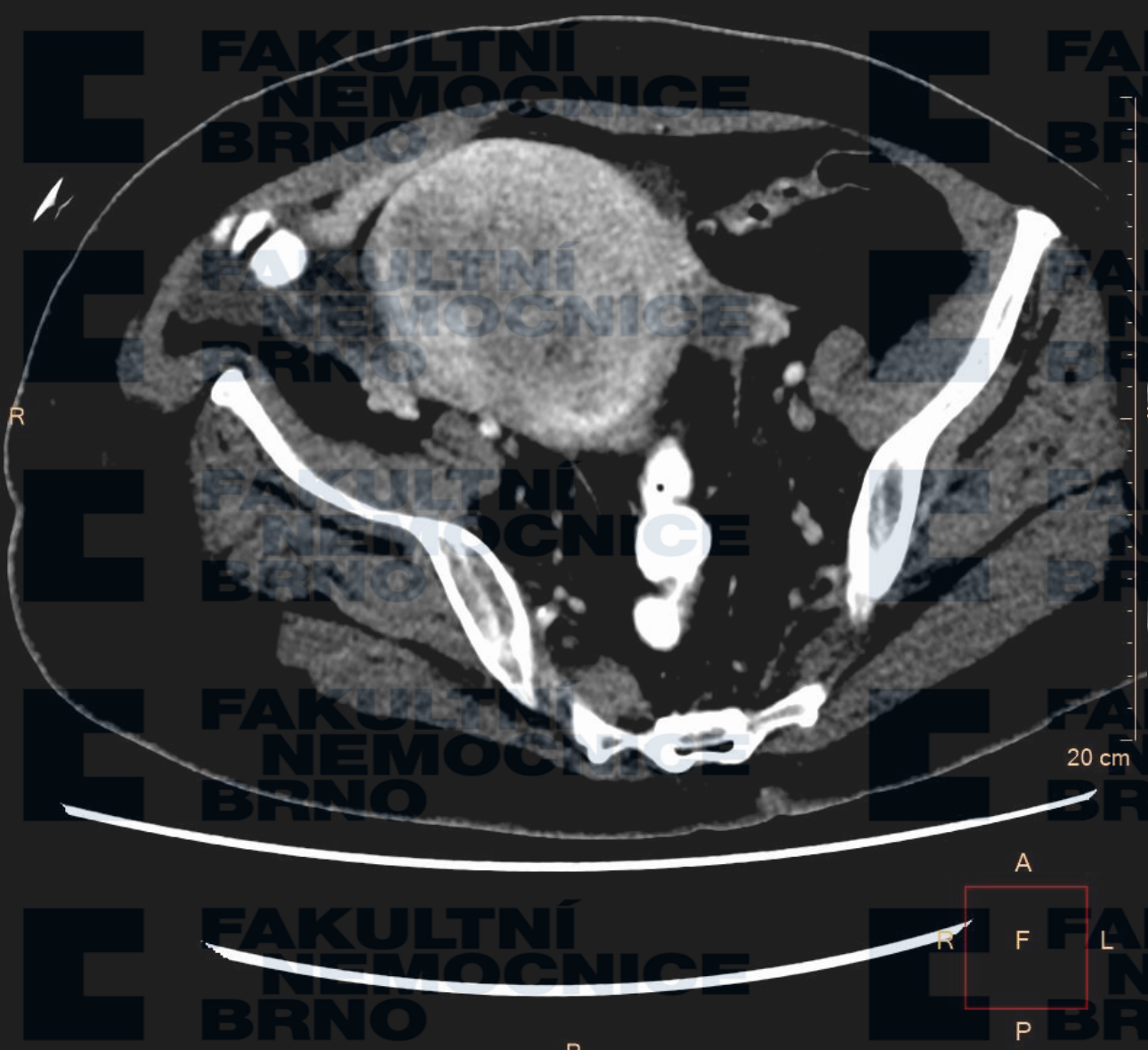

b

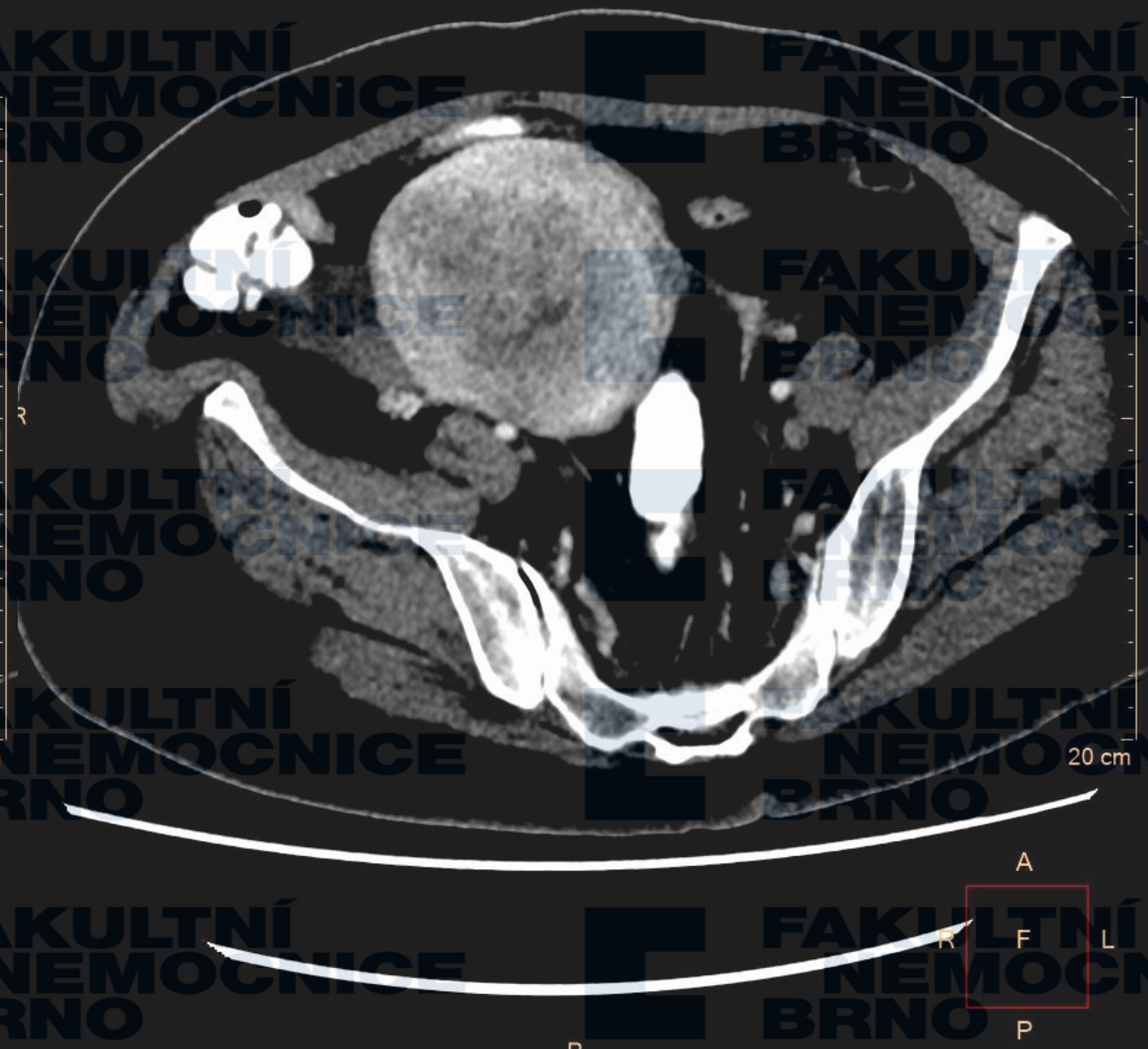


Stage 2 – invaze hrdla

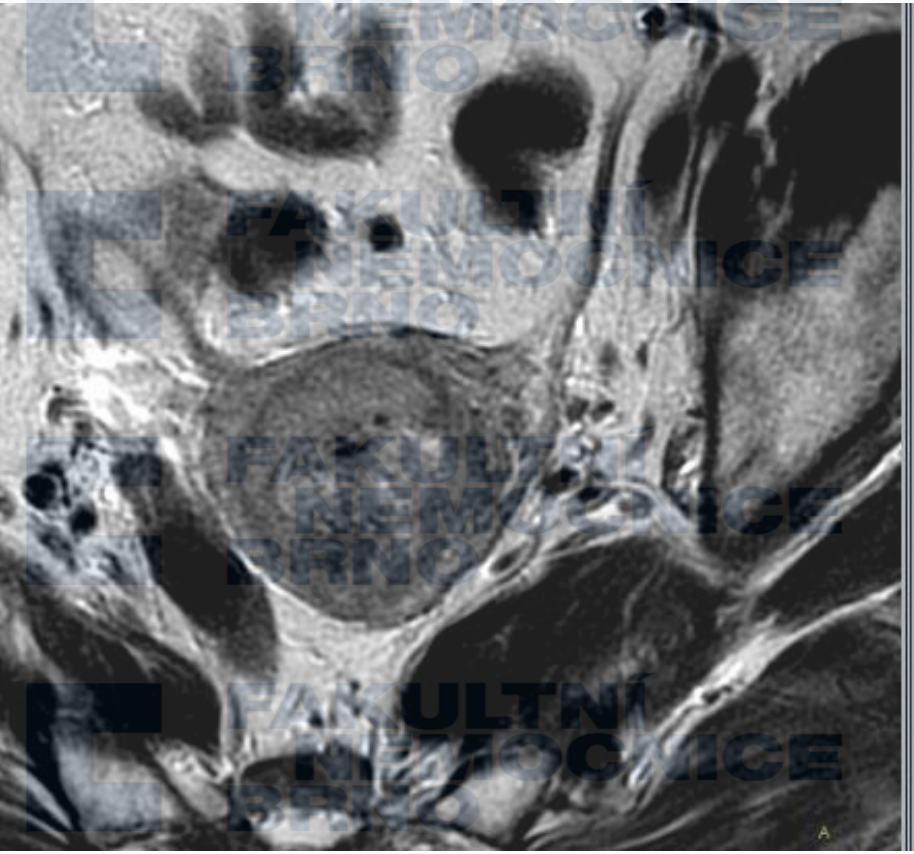


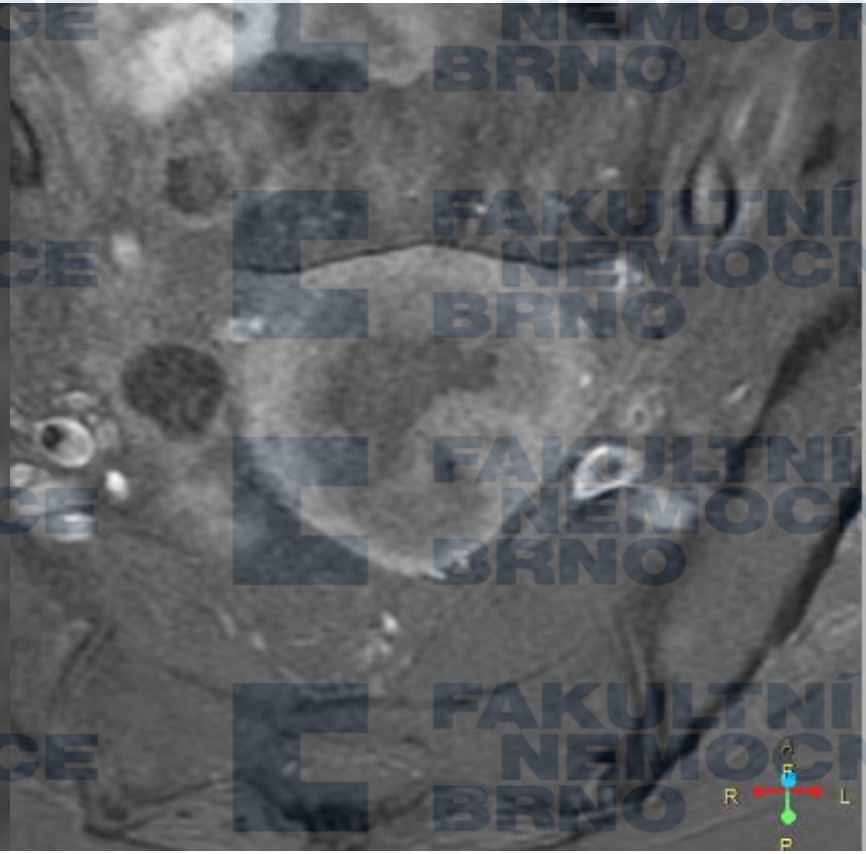
Stage IB



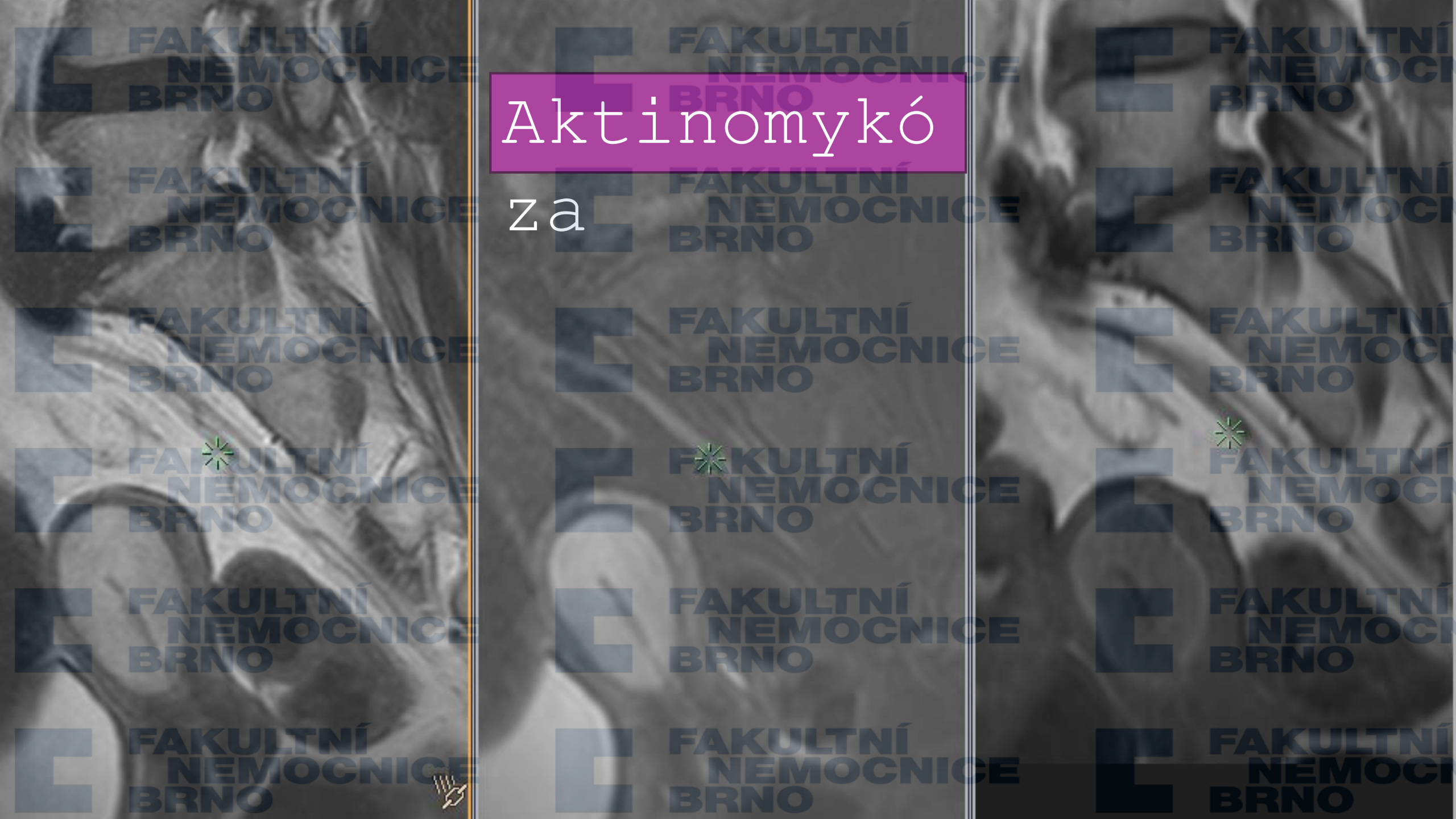


Stage IB



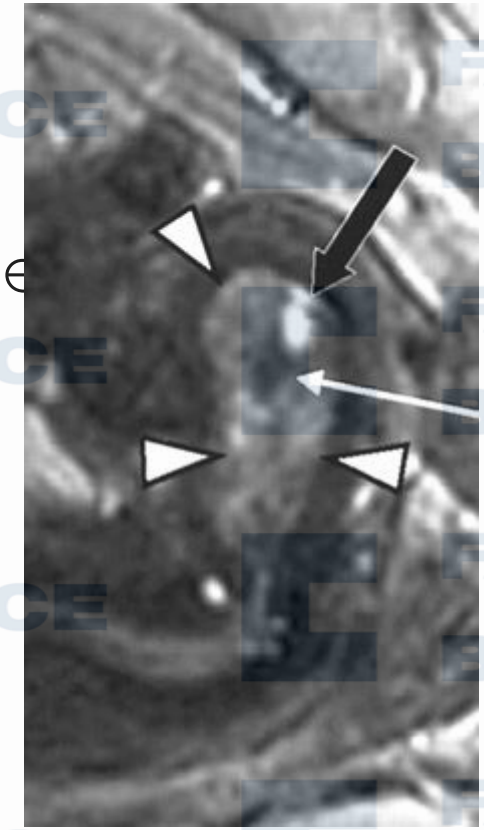


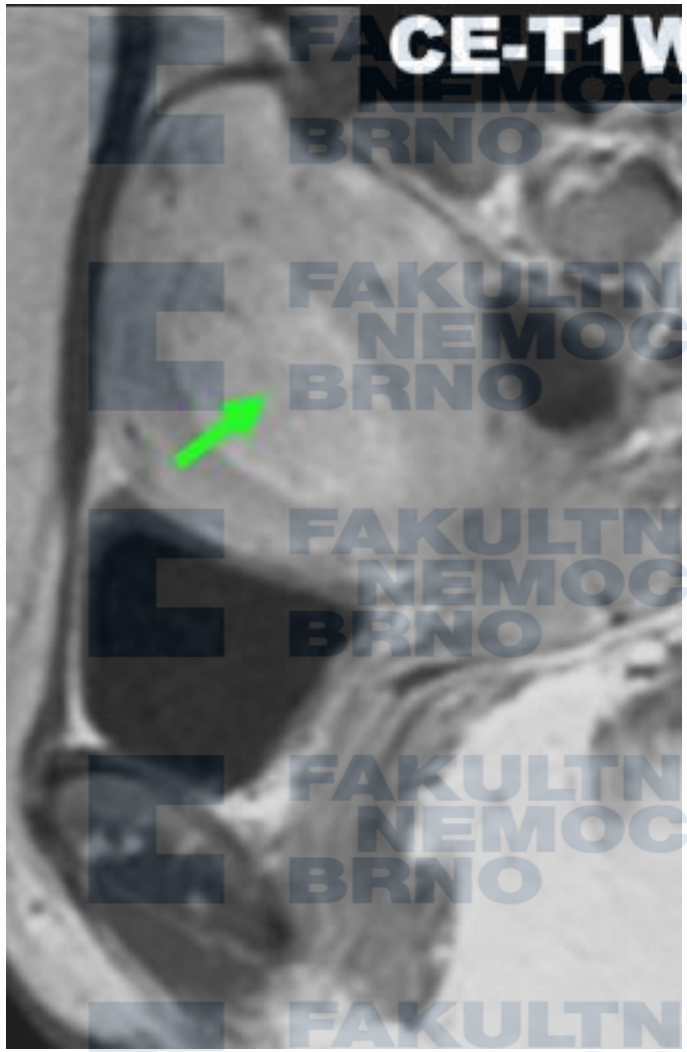
Hyperplázie endometria

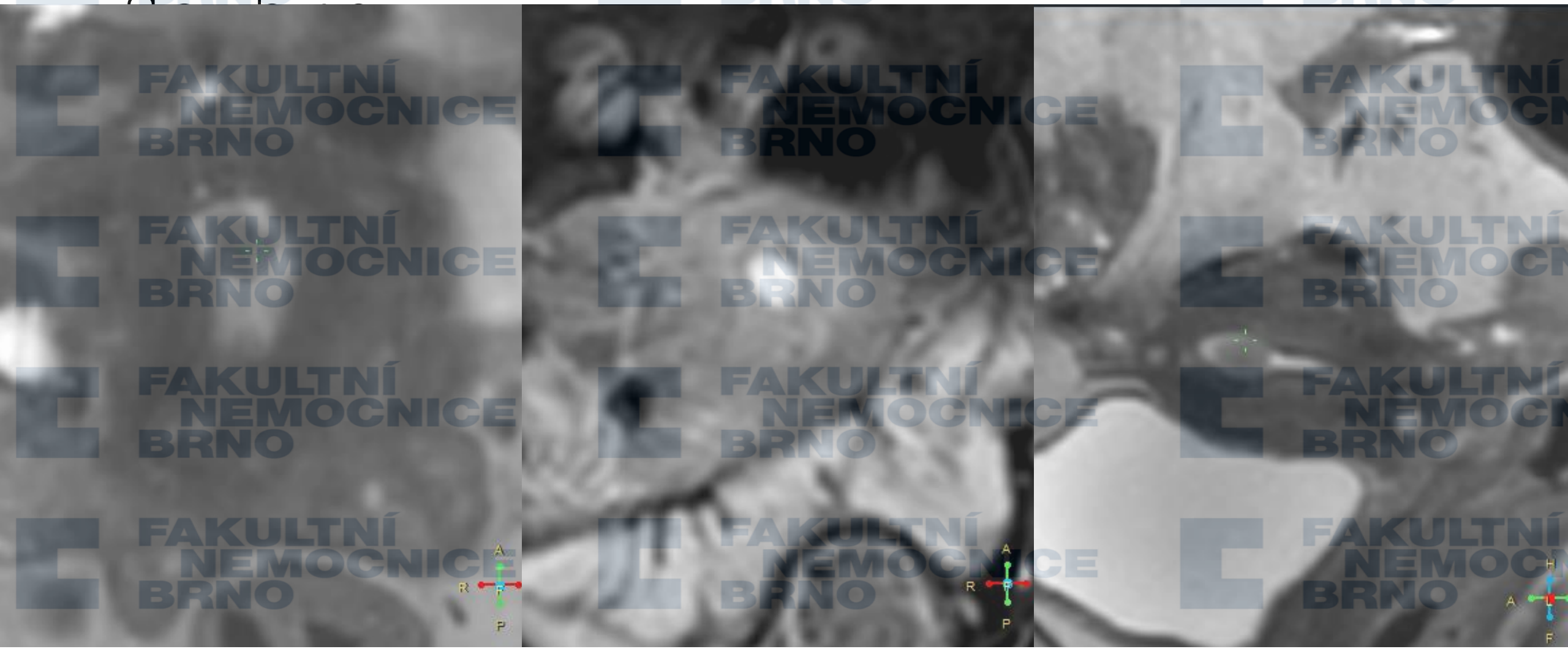

Aktinomykó
za

Endometriální polyp

- Centrální fibrózní jád
  - T2 hyposignální
- Cysty
- Není invaze
- Výrazné syce






A
R
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A
R
P
H
A
L
R

Ca hrdla děložního

FIGO	Description
I	Carcinoma is strictly confined to the cervix (extension to the uterine corpus should be disregarded)
IA	Invasive carcinoma that can be diagnosed only with microscopy, with maximum depth of invasion < 5 mm
IA1	Stromal invasion < 3 mm in depth
IA2	Stromal invasion ≤ 3 mm and <5 mm in depth
IB	Invasive carcinoma confined to the uterine cervix, with measured deepest invasion ≥ 5 mm
IB1	Tumor measures < 2 cm in greatest dimension
IB2	Tumor measures ≤ 2 cm and < 4 cm in greatest dimension
IB3	Tumor measures ≥ 4 cm in greatest dimension
II	Carcinoma invades beyond the uterus, but has not extended onto the lower third of the vagina or to the pelvic wall
IIA	Limited to the upper two-thirds of the vagina without parametrial involvement
IIA1	Tumor measures < 4 cm in greatest dimension
IIA2	Tumor measures ≥ 4 cm in greatest dimension
IIB	With parametrial involvement but not up to the pelvic wall
III	Carcinoma involves the lower third of the vagina and/or extends to the pelvic wall and/or causes hydronephrosis or nonfunctioning kidney and/or involves pelvic and/or para-aortic lymph nodes
IIIA	Involves the lower third of the vagina, with no extension to the pelvic wall
IIIB	Extension to the pelvic wall and/or hydronephrosis or nonfunctioning kidney from tumor
IIIC	Involvement of pelvic and/or para-aortic lymph nodes, irrespective of tumor size and extent
IIIC1	Pelvic lymph node metastasis only
IIIC2	Para-aortic lymph node metastasis
IV	Carcinoma has extended beyond the true pelvis or has involved (biopsy-proven) the mucosa of the bladder or rectum
IVA	Spread to adjacent pelvic organs
IVB	Spread to distant organs

- Invaze stromatu: 3 / 5 mm
- Velikost nádoru: 2 / 4 cm
- Invaze parametrií
- Invaze do vaginy: horní / dolní třetina

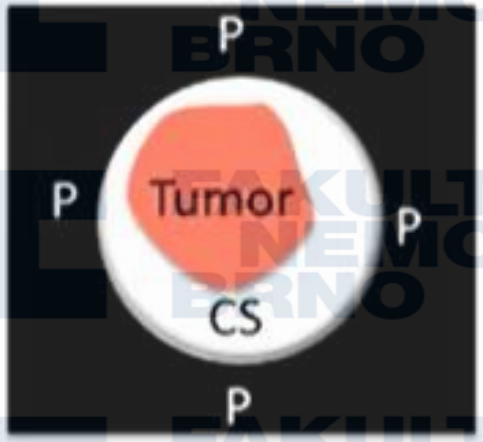
- Invaze do okolí
- Hydronefróza
- Uzliny

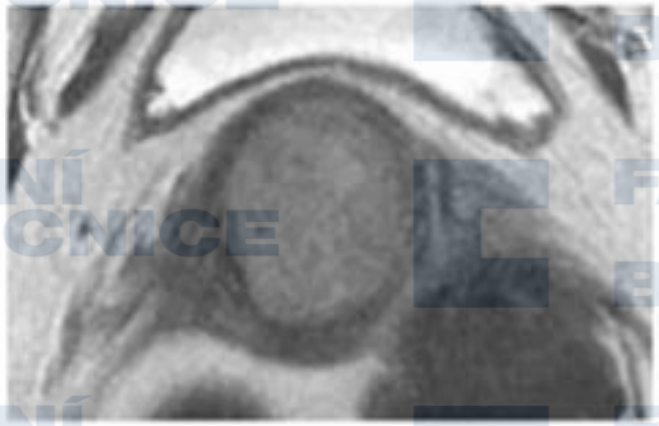
Léčba

- Primárně chirurgi
- Fertility sparing
- Plánování RT
- Riziko rekurence

What to look for on MRI?

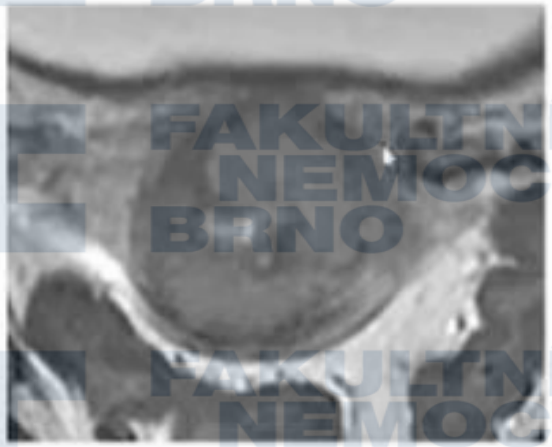
2. IIB or not IIB: that is the question

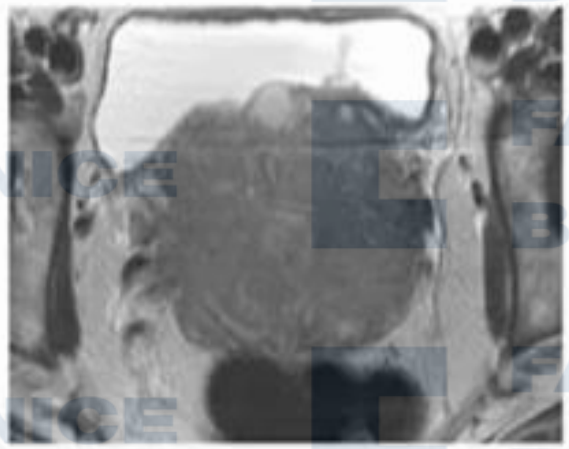




Intact low SI Stromal Ring
=
NO parametrial invasion

- NPV≈94-100%





Accuracy

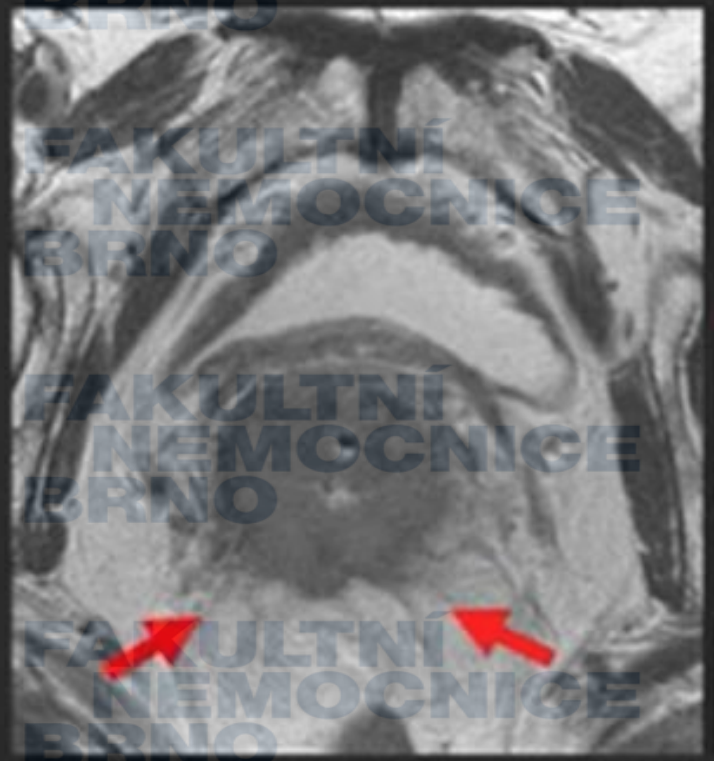
96% (small tumors) vs.

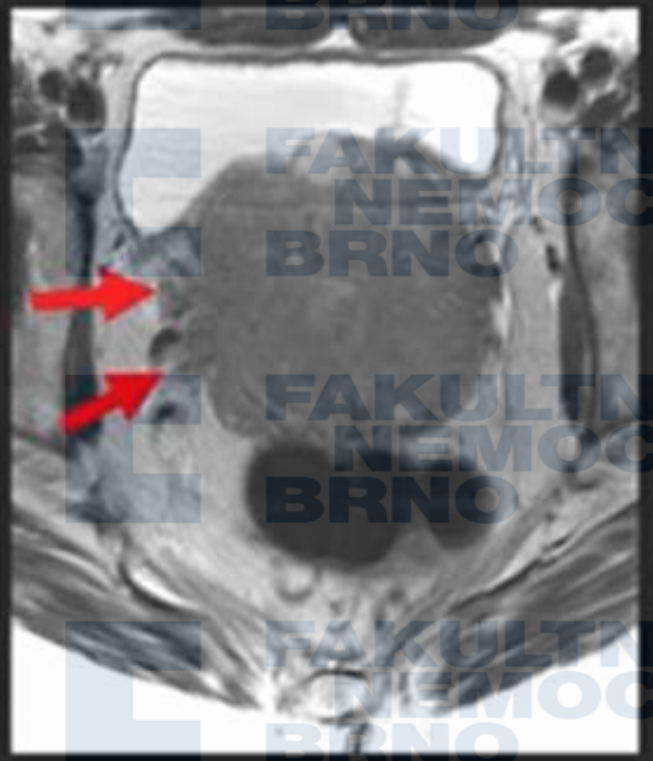
70% (large tumors)

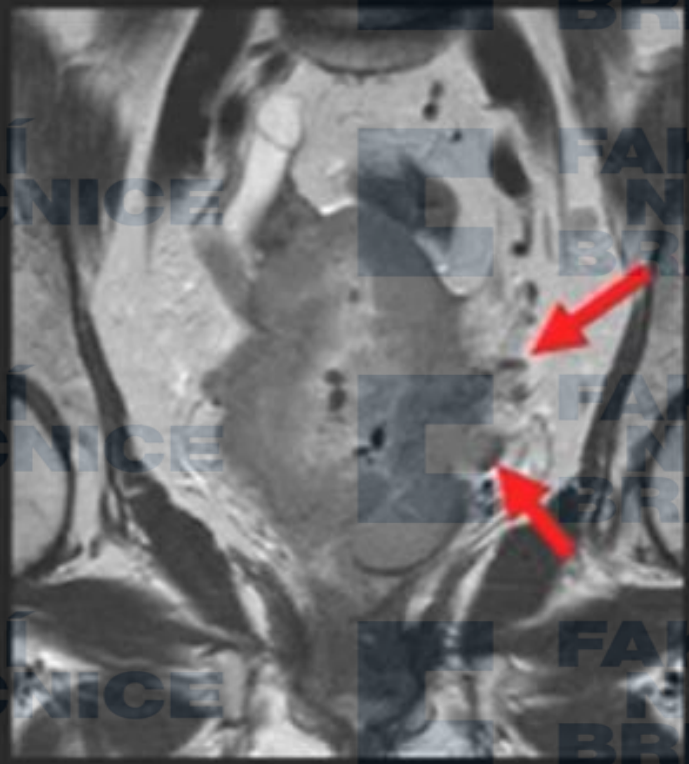
- Caveat: Cervical stromal edema

Types of parametrial invasion

Full depth stromal invasion &

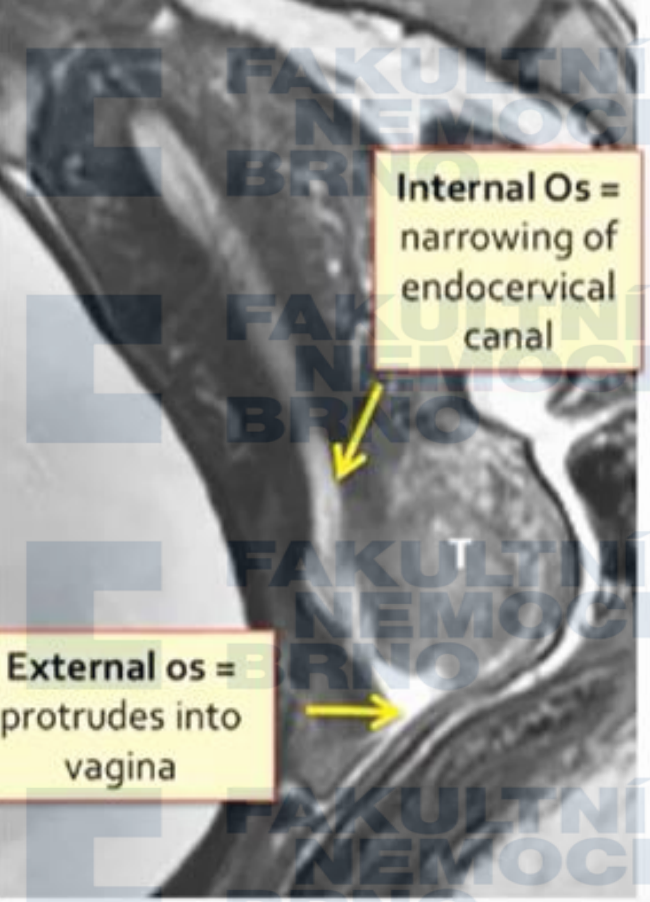


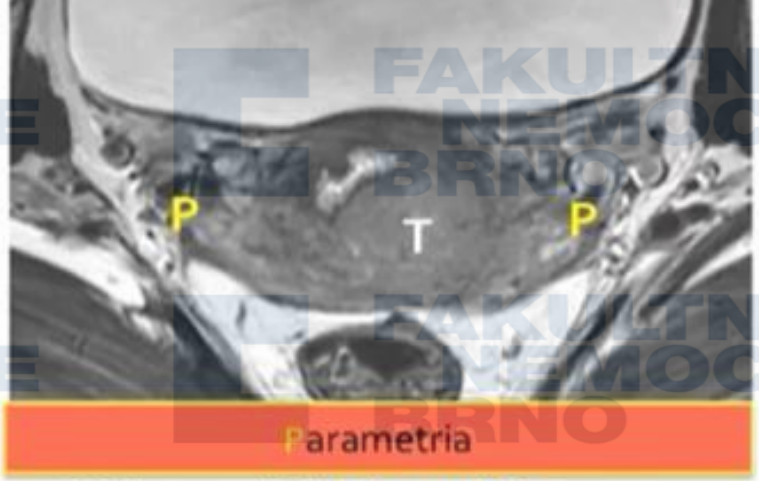




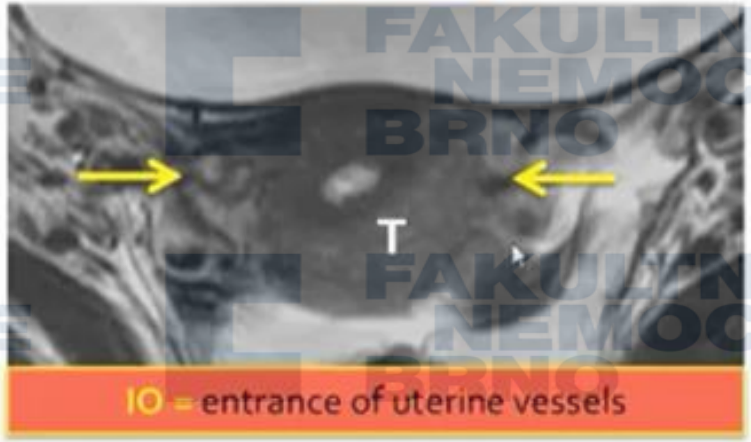
Spiculated TU/PA interface

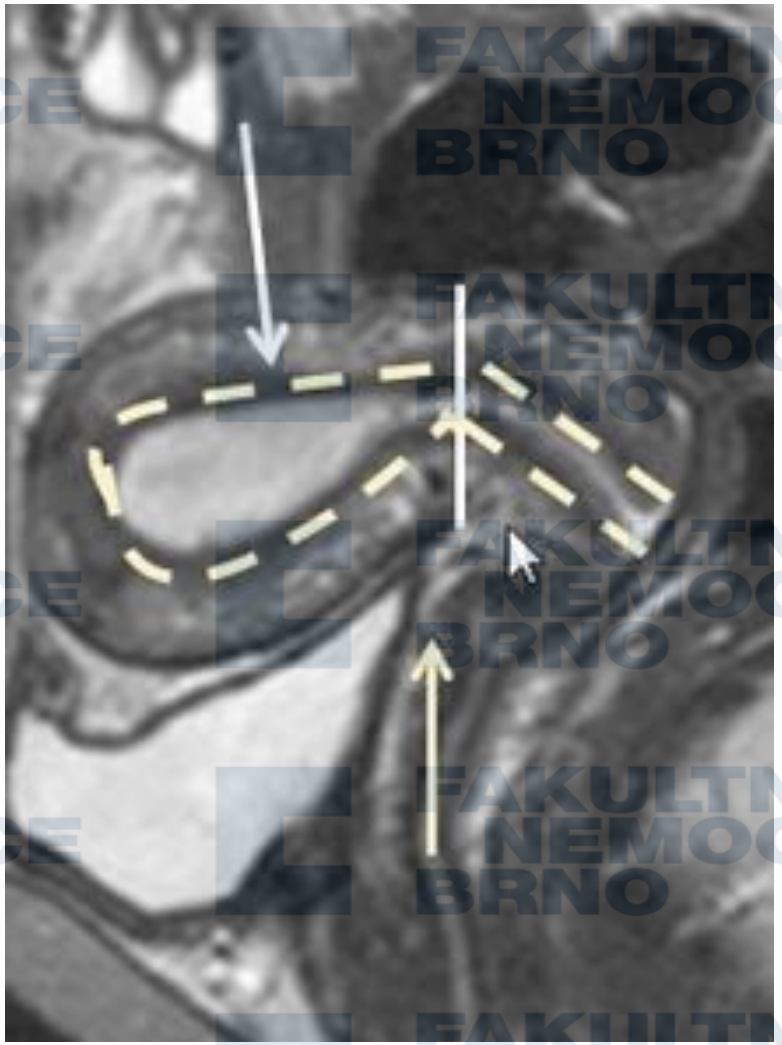
Soft tissue extension



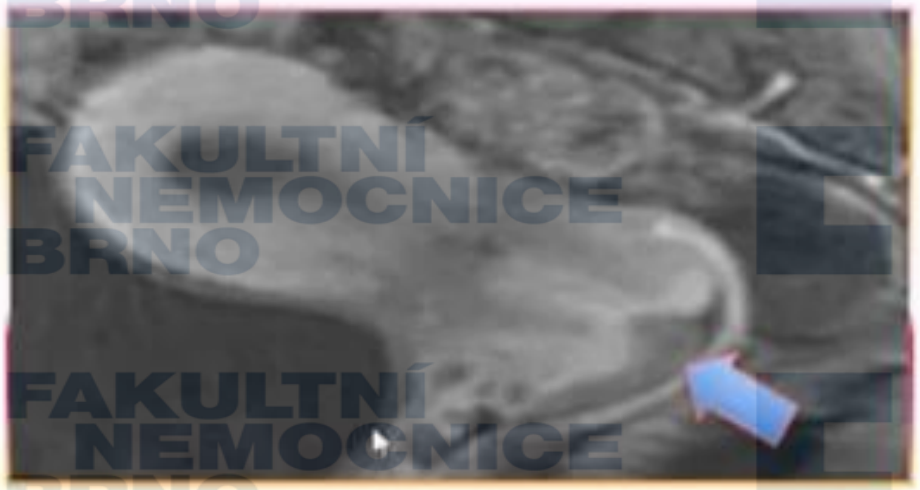


Oblique axial: Internal Os

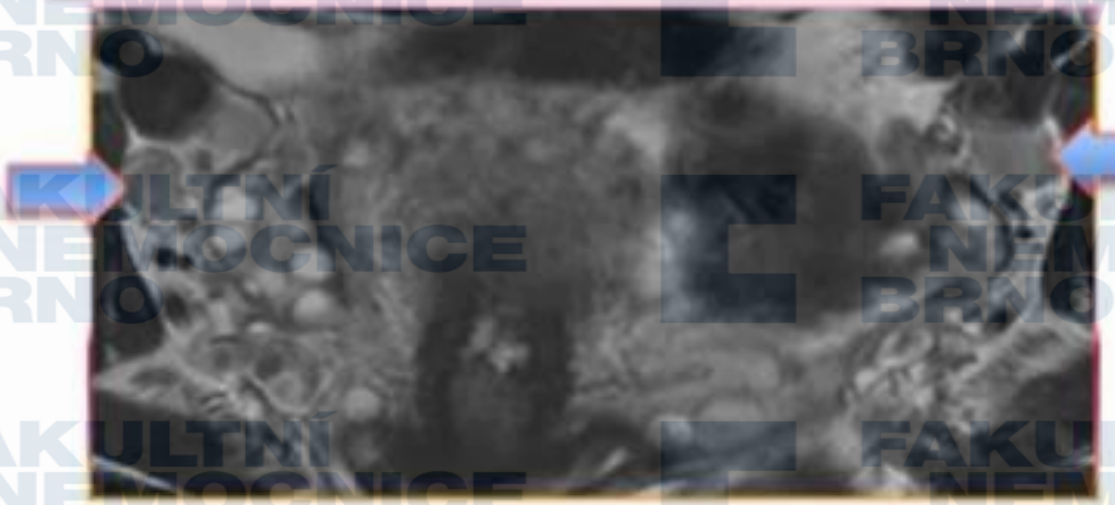




Nodal Metastases

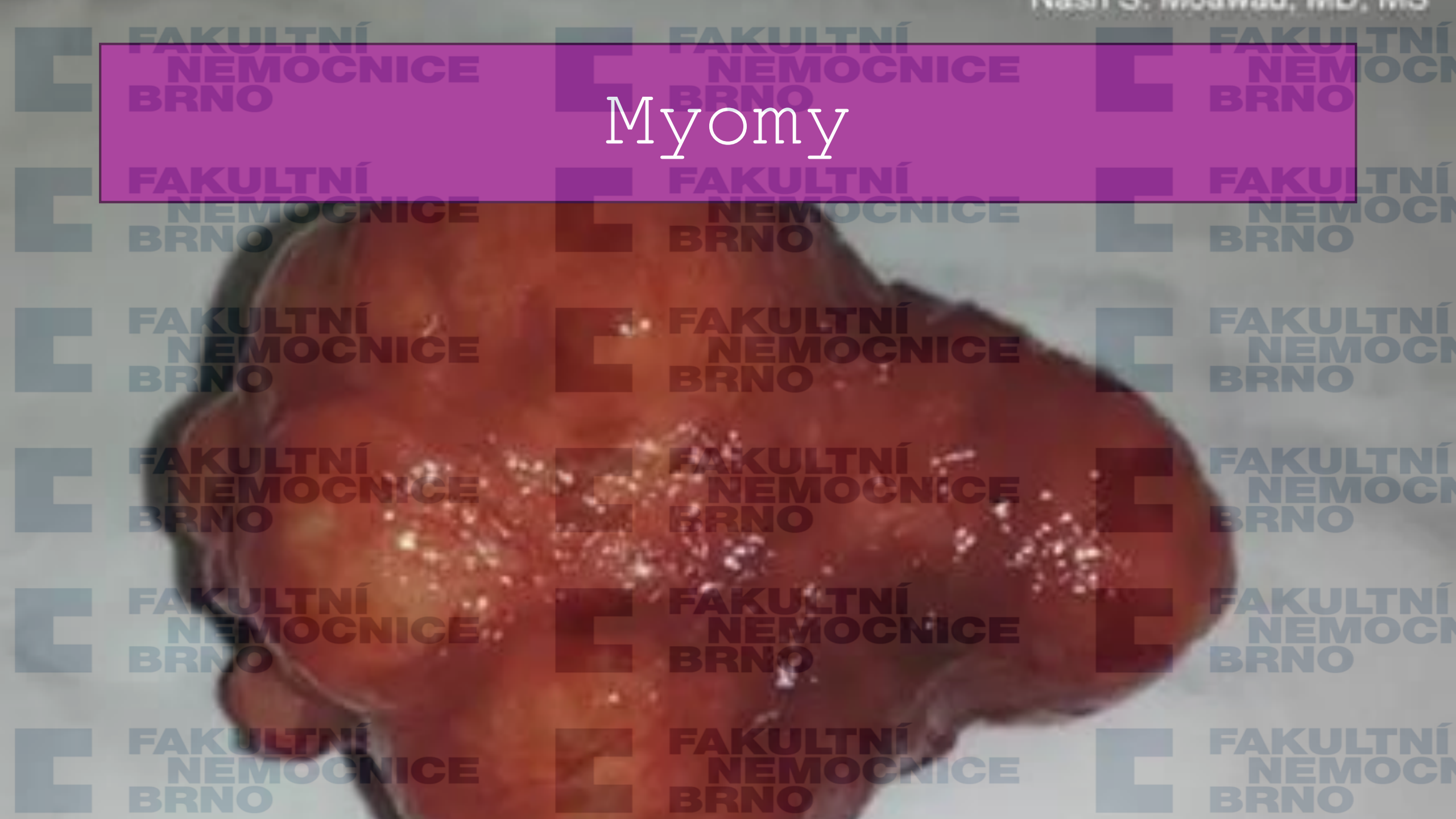


Nodal involvement =
Important prognostic factor



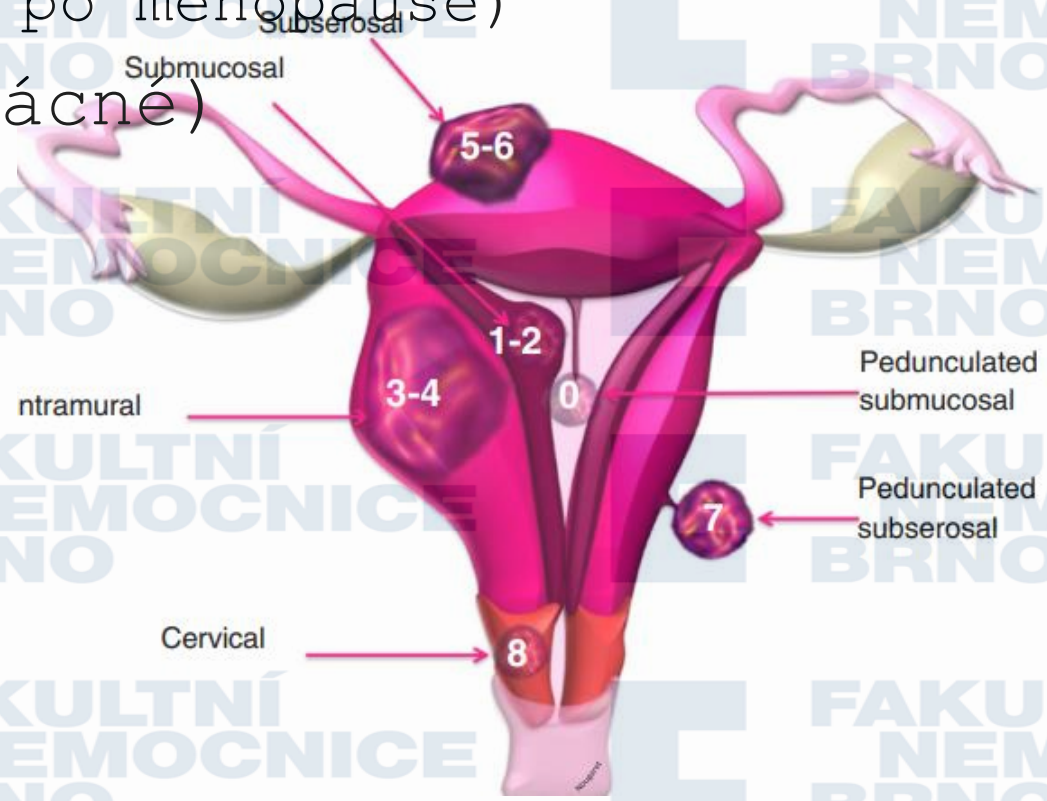
limited assessment with anatomic, DWI and DCE MRI

Myomy



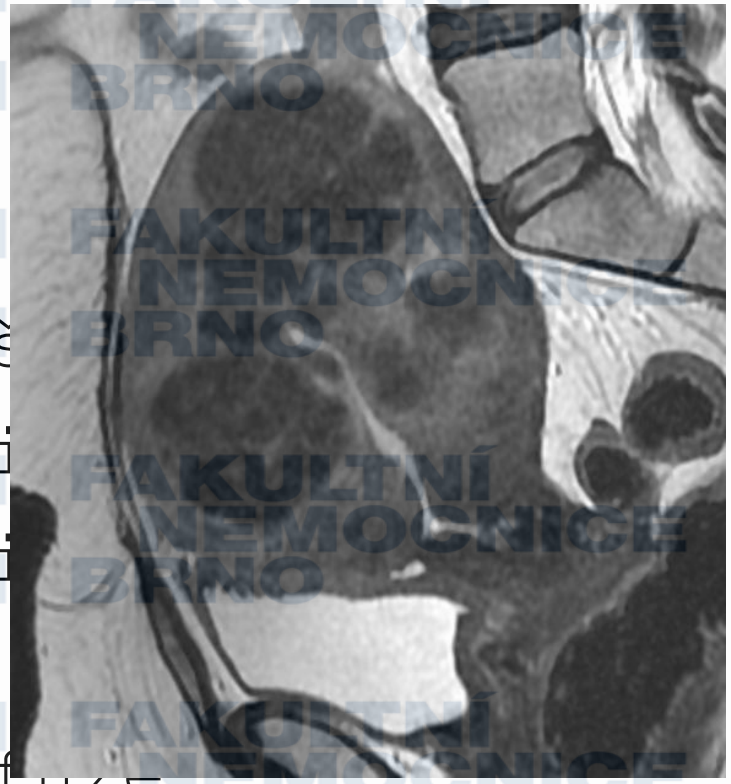
Myomy

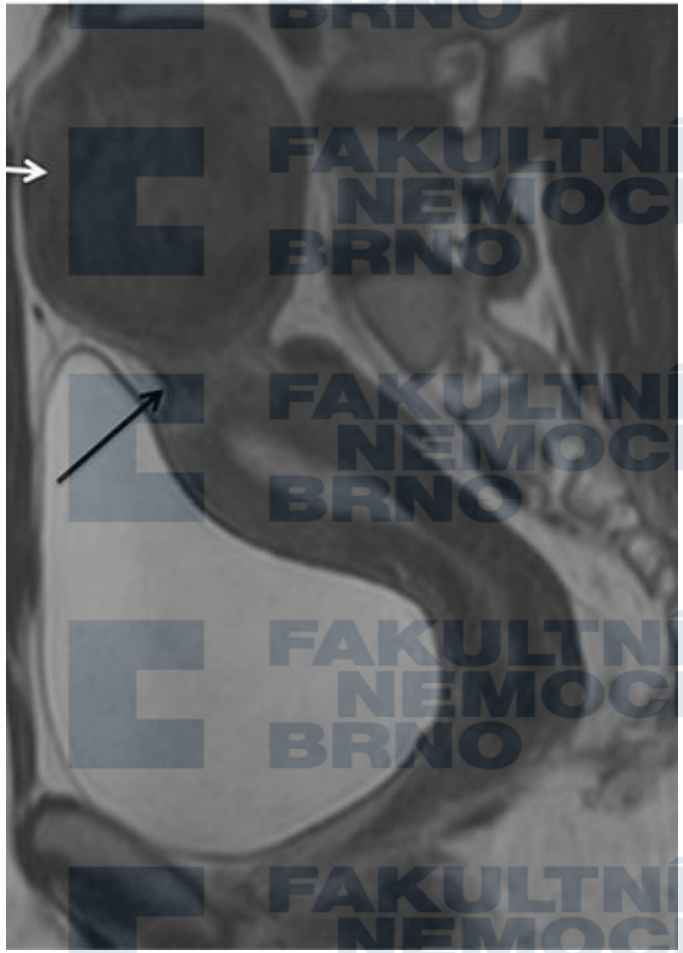
- Myom
  - Benigní nádor z hladké svaloviny + vazivo
  - Počet roste s věkem (>70% po menopause)
- Myom vs. LMS / STUMP (vzácné)
- Přeměna
  - Cystická degenerace
  - Červená degenerace
  - Myxoidní degenerace
  - Hyalinní degenerace



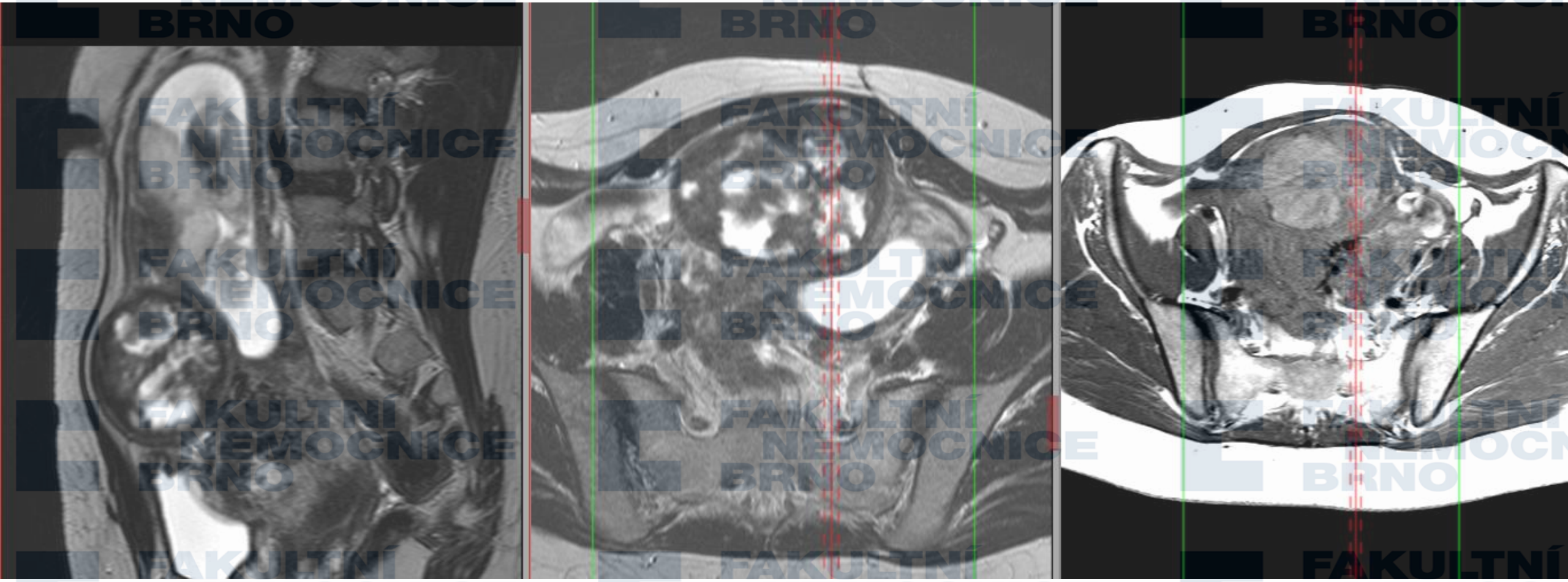
Normální vzhl

- T2 – nejčastěji nižš
- T1- nejčastěji izosi
- Kalcifikace – bez si
- Ohraničené
- Nemají restrikci difuze

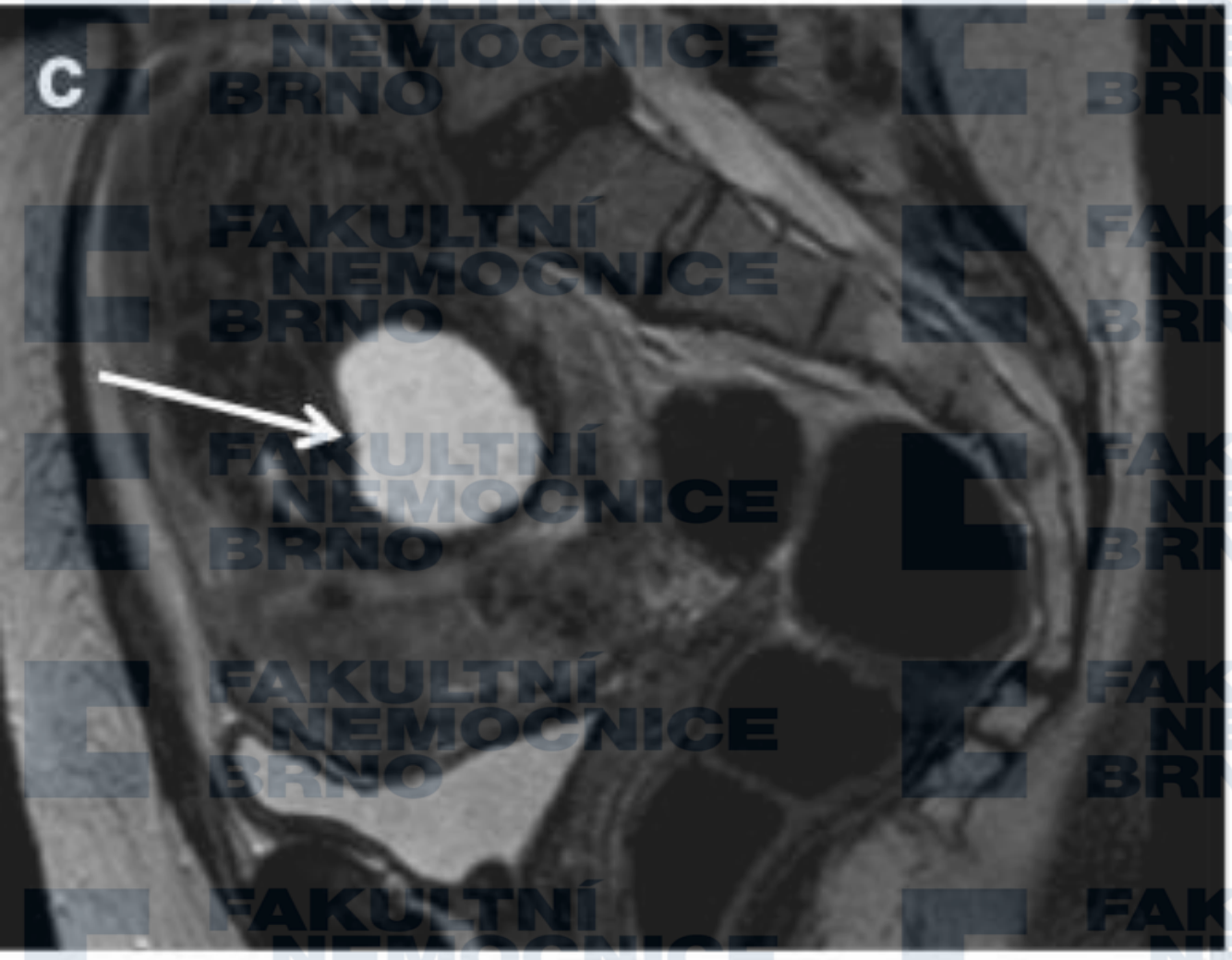


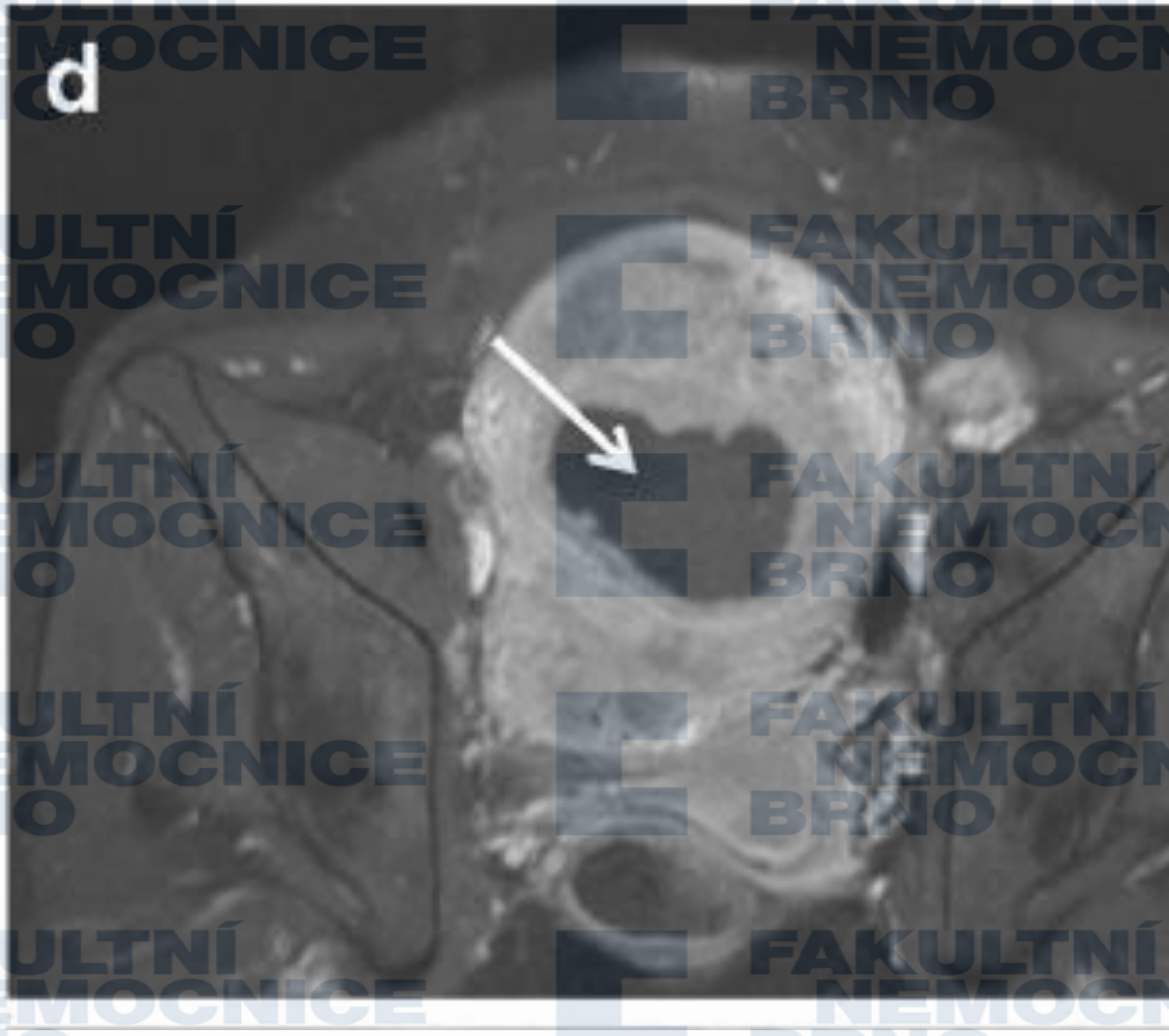


Red degeneration

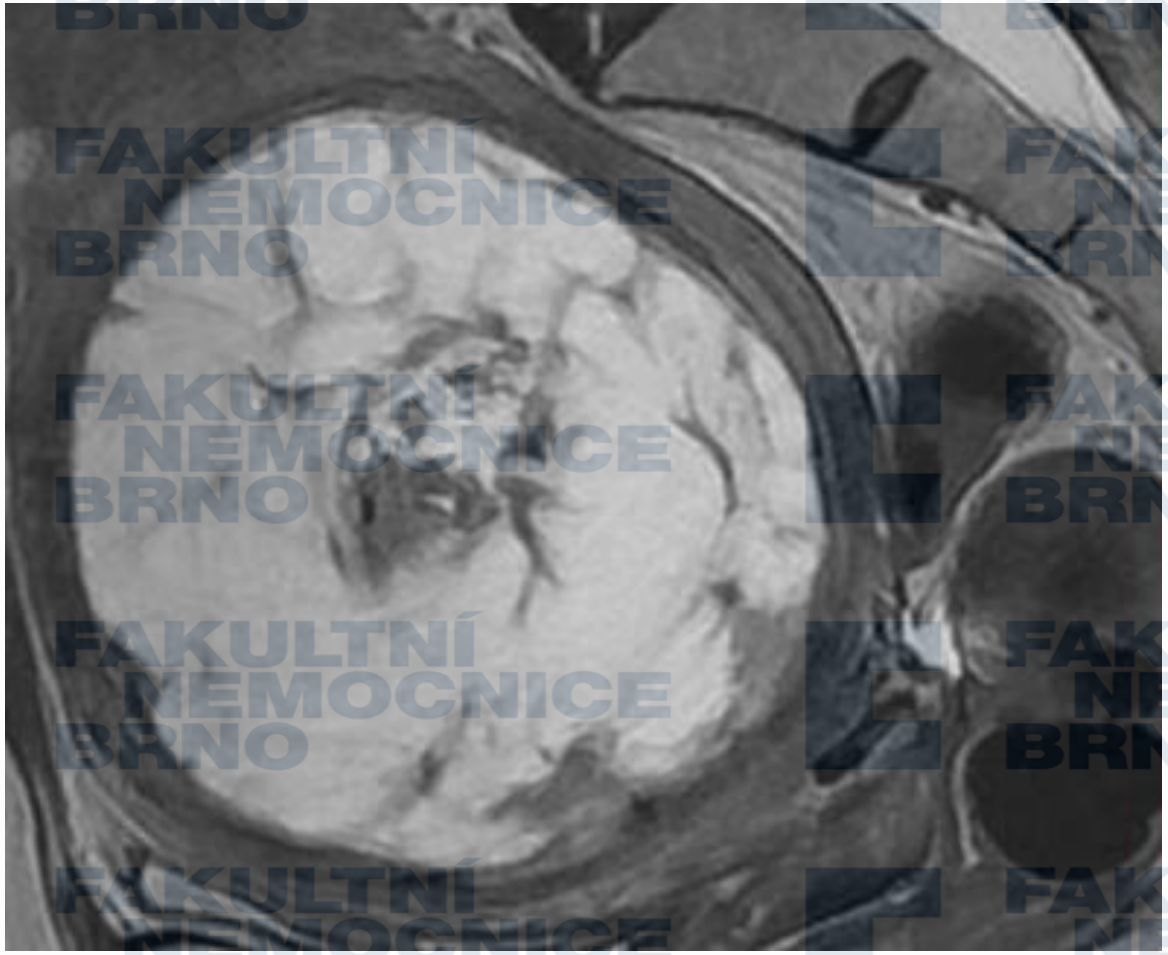


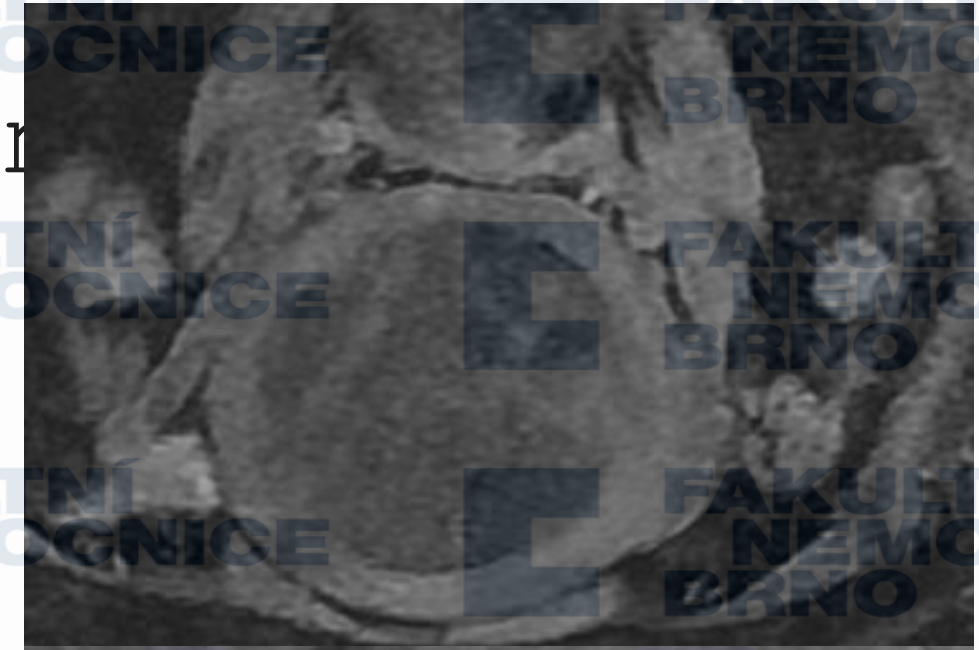
Cystic degeneration

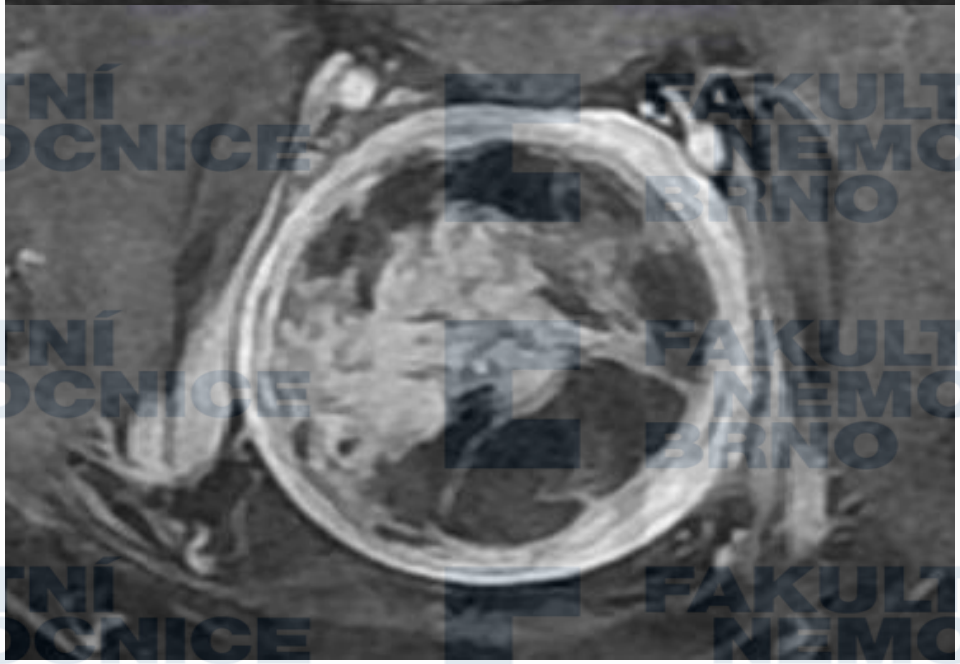




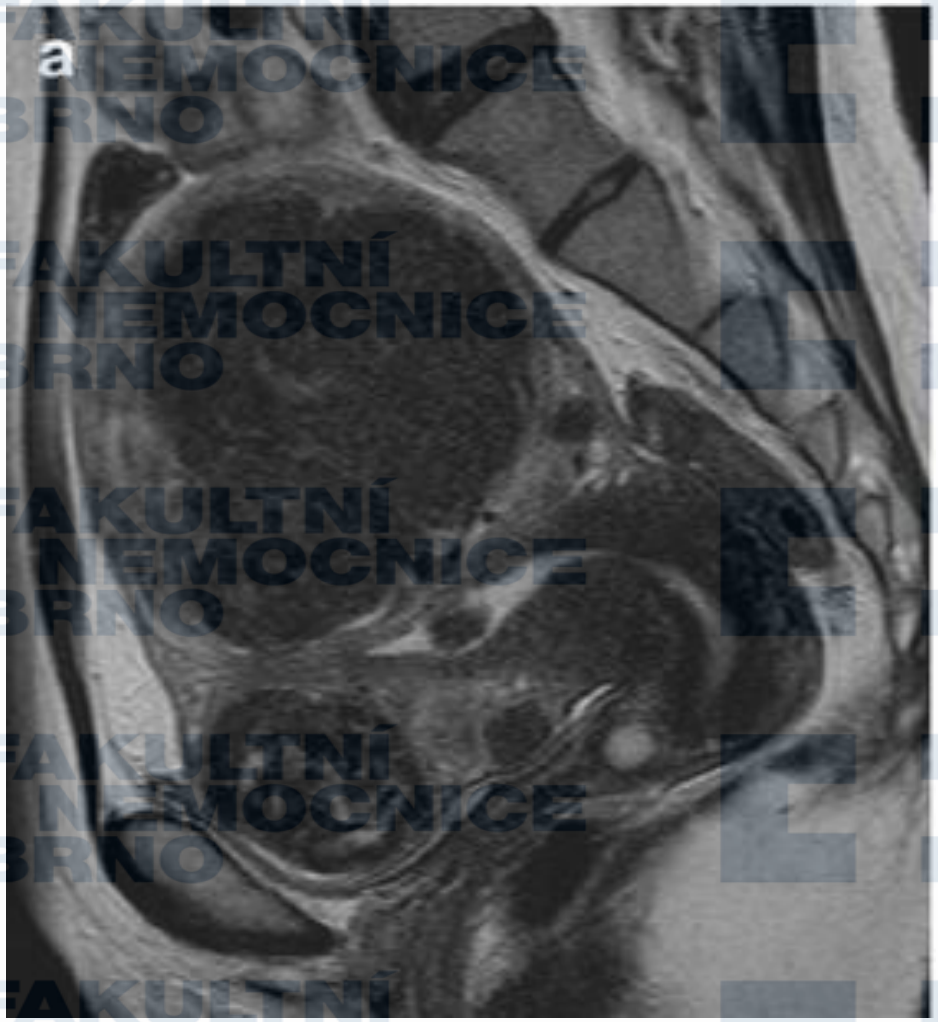
Myxoid degeneration

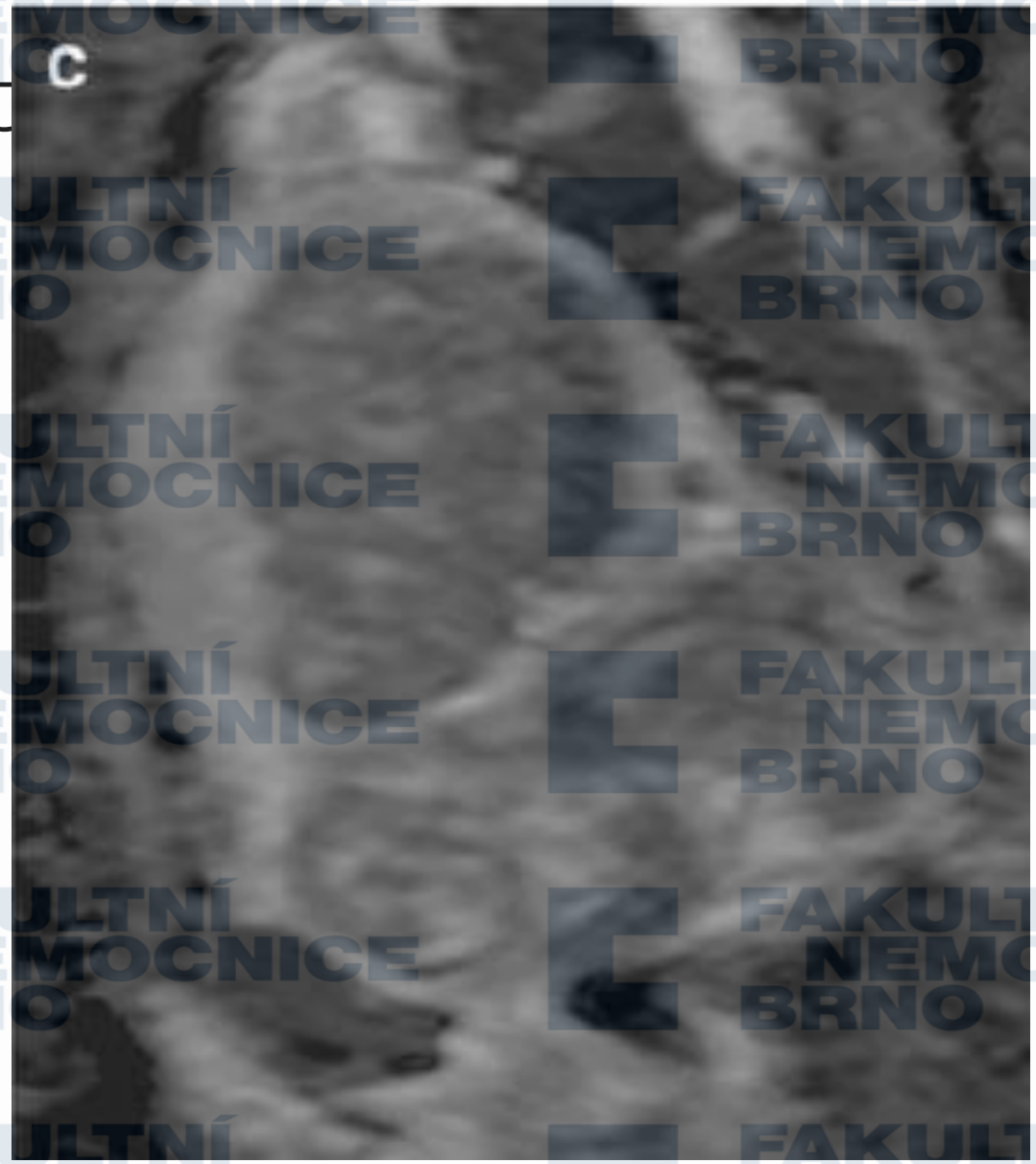




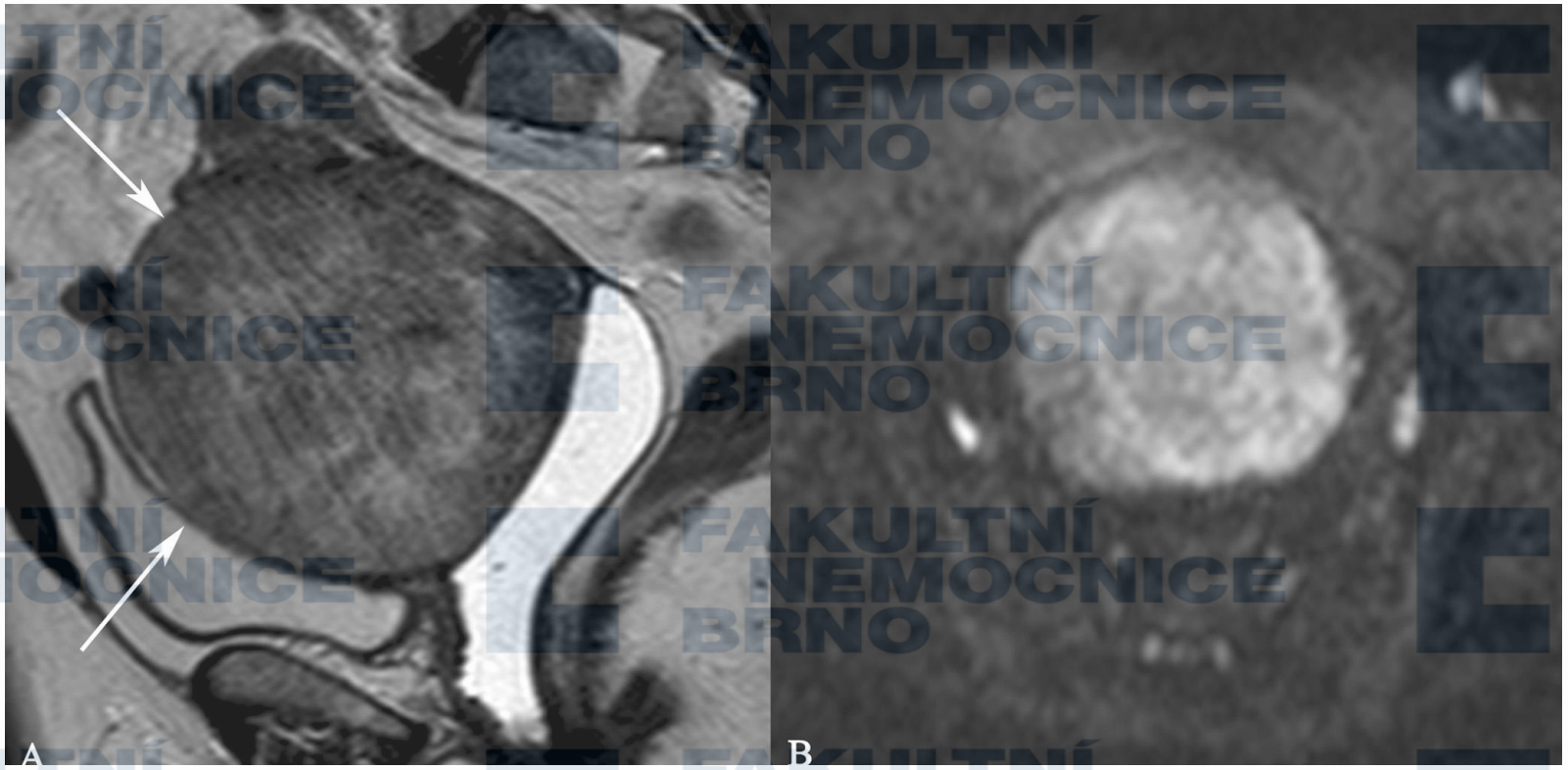


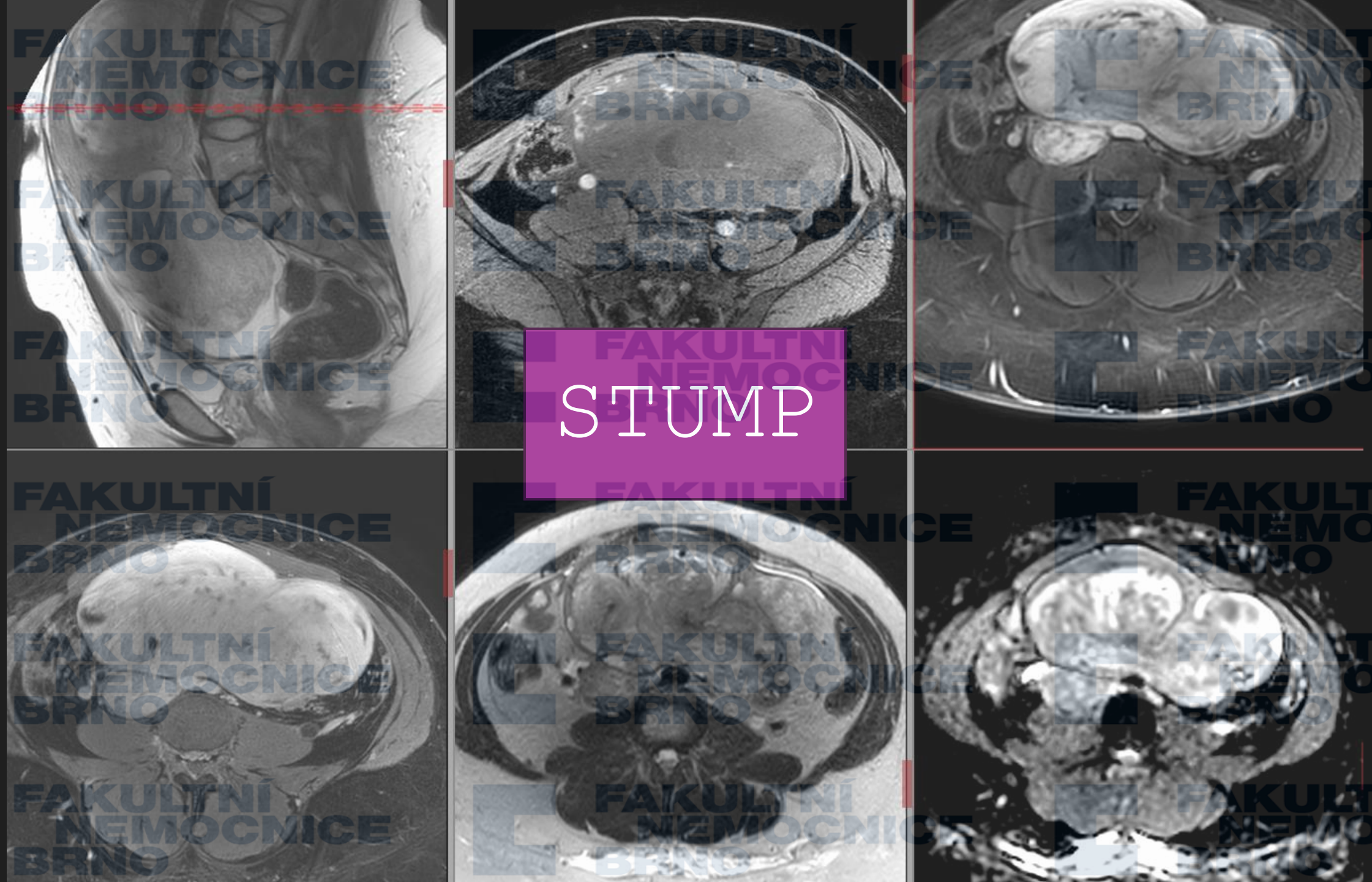
Hyaline degenerat



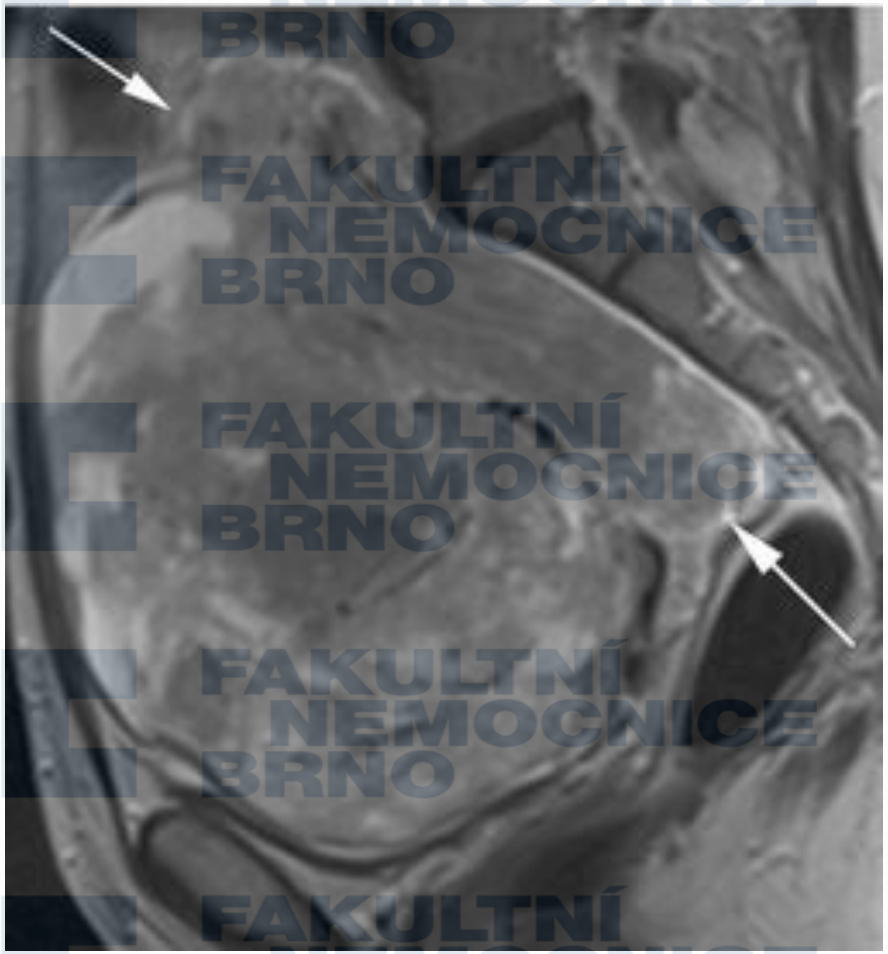


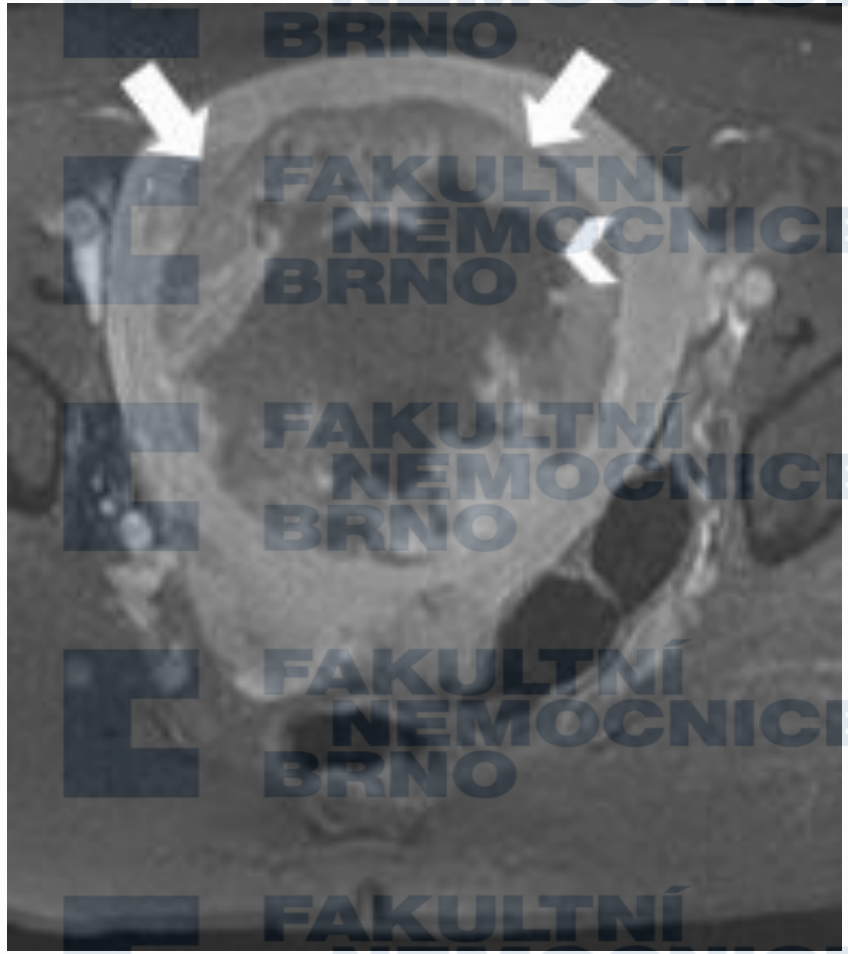
Cellular leiomyoma

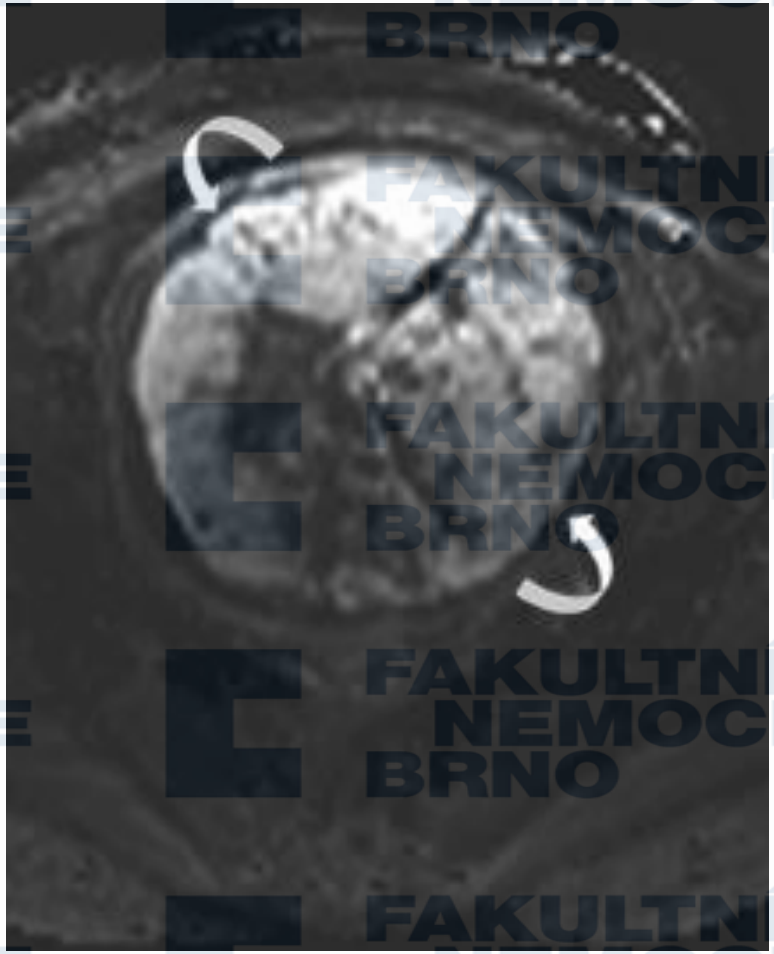



STUMP

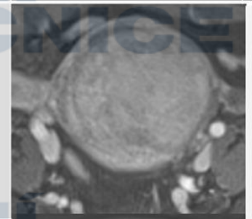
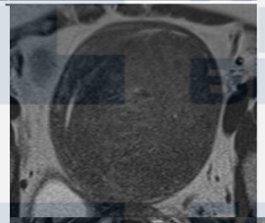
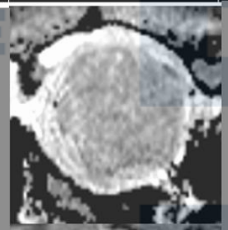
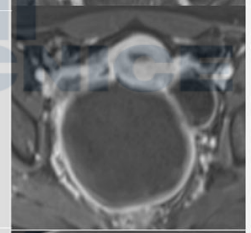
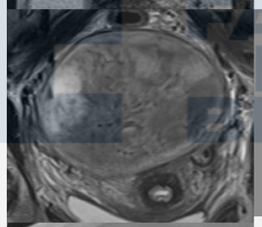
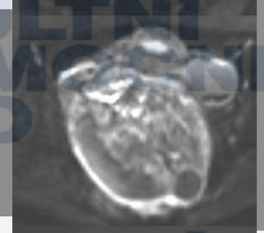
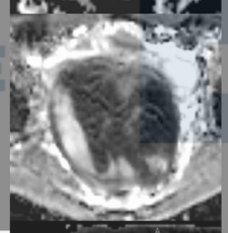
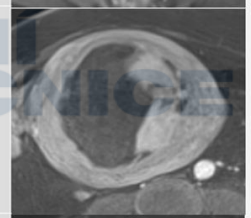
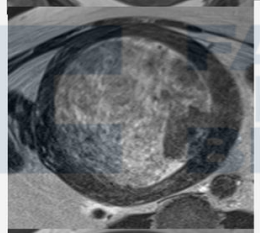
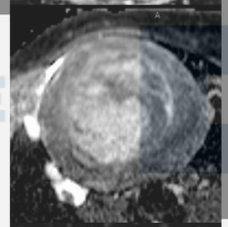
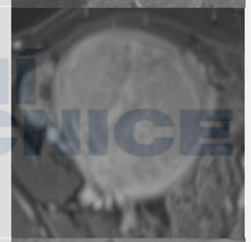
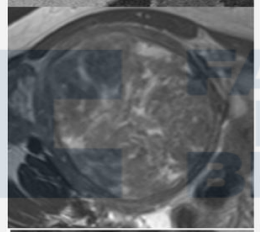
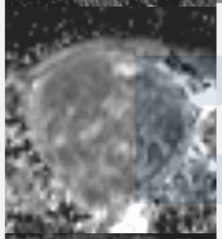
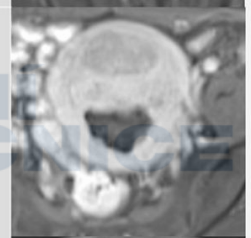
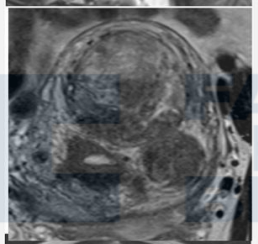
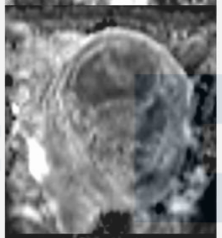
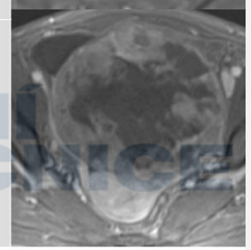
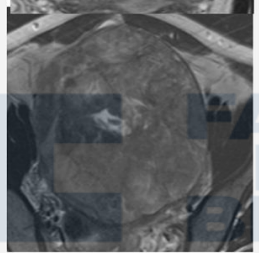
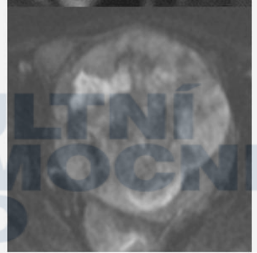
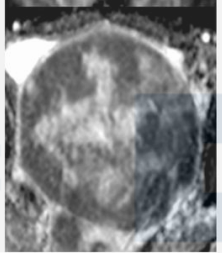
Leiomyosarcoma



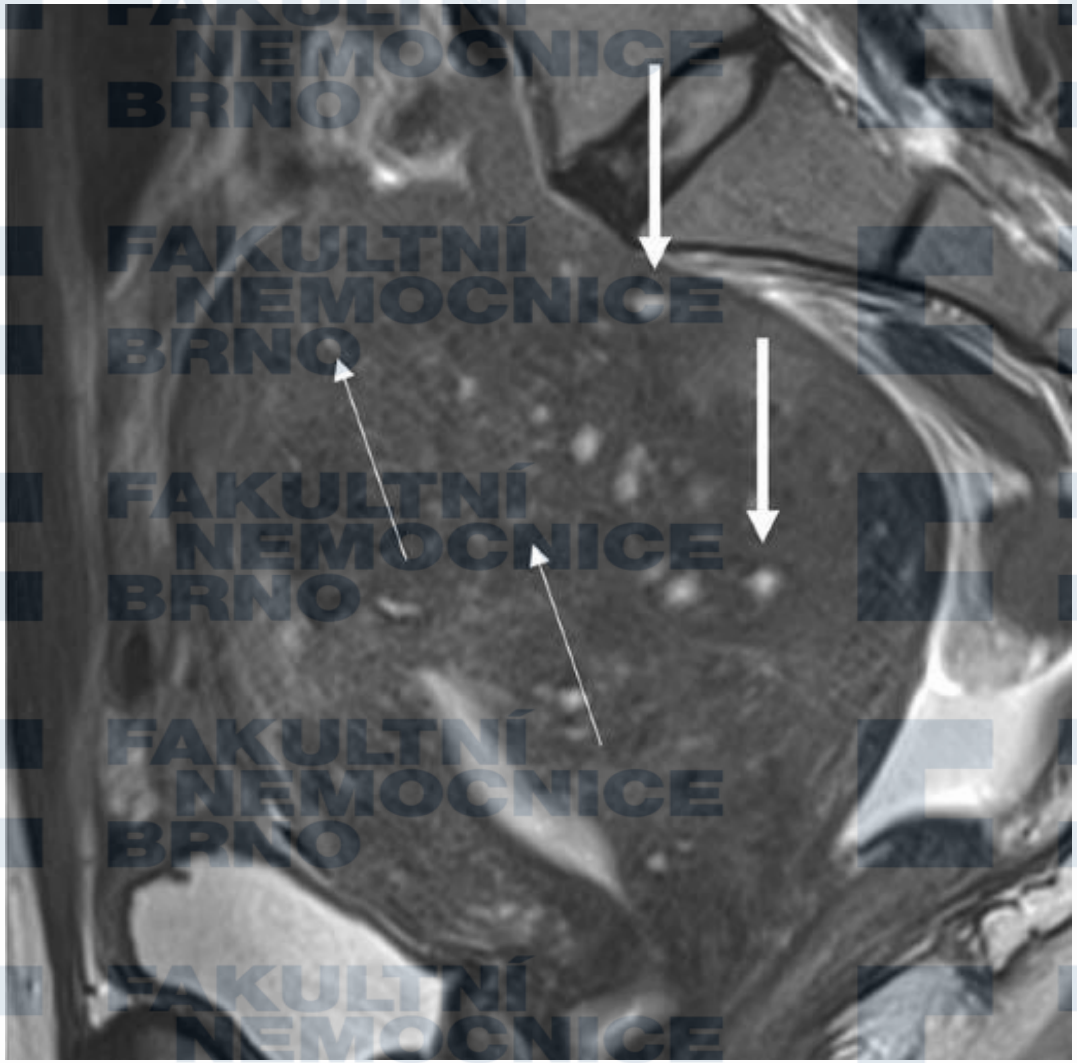


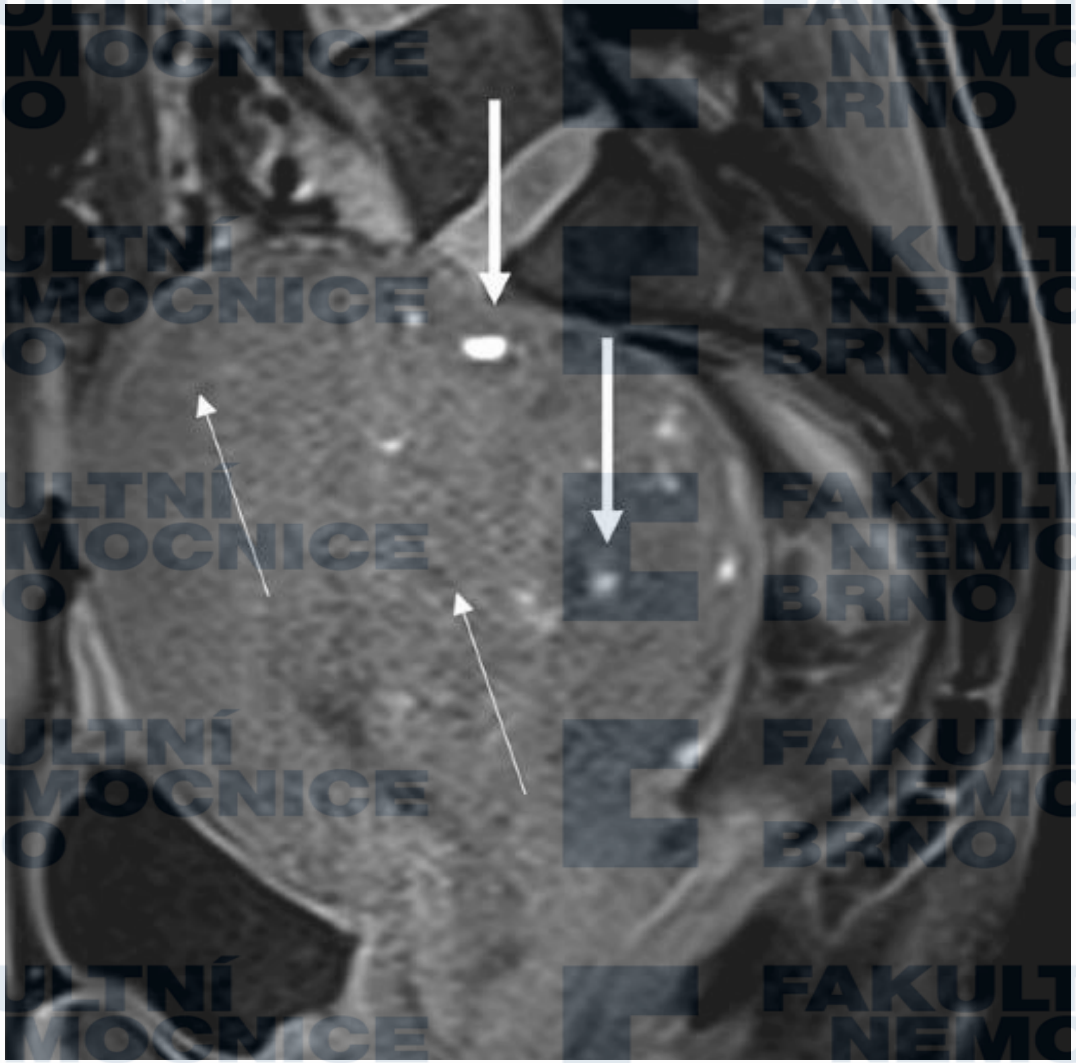


	Leiomyoma	Leiomyosarcoma
Age	Premenopausal	Peri/postmenopausal
Borders	Well delineated	Often **nodular***
DWI	Variable	Restricted diffusion, low ADC
Invasiveness	No	Adjacent tissues
Number	Commonly multiple	Solitary
Size	Variable	Large (>10cm)
T2WI	Mostly low, high in degeneration, whorled pattern	Inhomogenous with areas of **hemorrhage***, intralesional vessels; **T2 dark areas***
Vascularity	Variable; often parallels myometrium, cellular types with avid enhancement	Hypervascularization; peripheral early enhancement, central **necrosis***

Diagnosis	CE	Enhancing?	T2WI	Int. or High T2WI?	b1000 DWI	Diffusion Restricted?	ADC	ADC < 0.9?
Conventional leiomyoma		Yes. →		No. Uniformly low on T2WI. Benign. STOP.		Do not evaluate- Already benign.		Do not evaluate- Already benign.
Red Degeneration		Not enhancing. Benign. STOP.		Do not evaluate- Already benign.		Do not evaluate- Already benign.		Do not evaluate- Already benign.
Lipo-Leiomyoma		Yes. →		Yes. T2 high signal →		No. Low on b1000 Benign, STOP.		Do not evaluate- Already benign.
Cellular leiomyoma		Yes. →		Yes. T2 int. signal →		Yes. Higher than endo on b1000 →		No. ADC is > 0.905 x 10^{-3} Likely Benign.
STUMP		Yes. →		Yes. T2 high signal →		Yes. Higher than endo on b1000 →		Yes. ADC ≤ 0.905 x 10^{-3} **Suspicious for LMS.**
LMS		Yes. →		Yes. T2 int. signal →		Yes. Equal to endo on b1000 →		Yes. ADC ≤ 0.905 x 10^{-3} **Suspicious for LMS.**

Adenomyóza

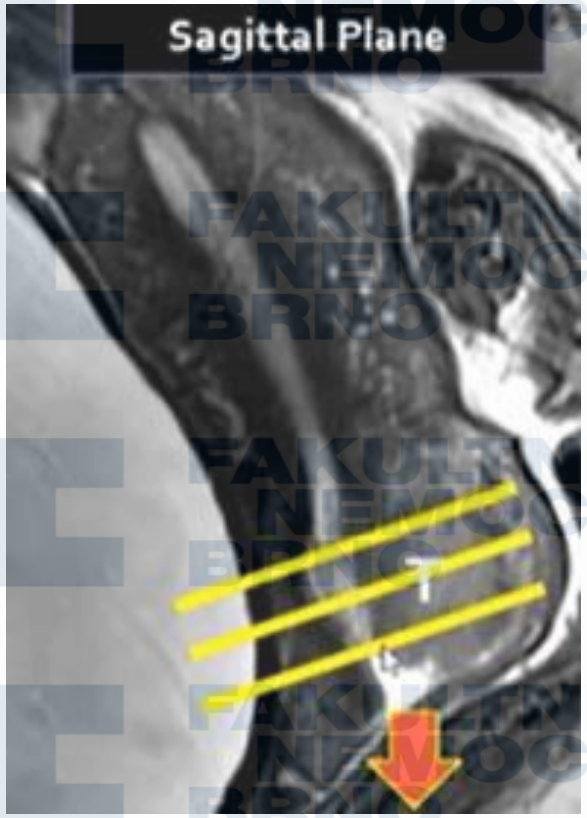




Souhrn

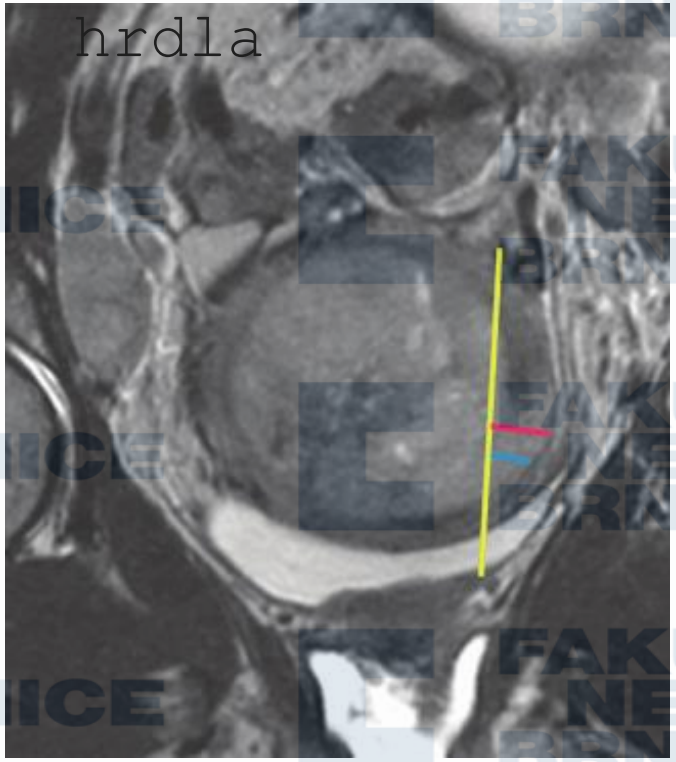
Technika

- Transaxiální T2
- Zobrazení ledvin



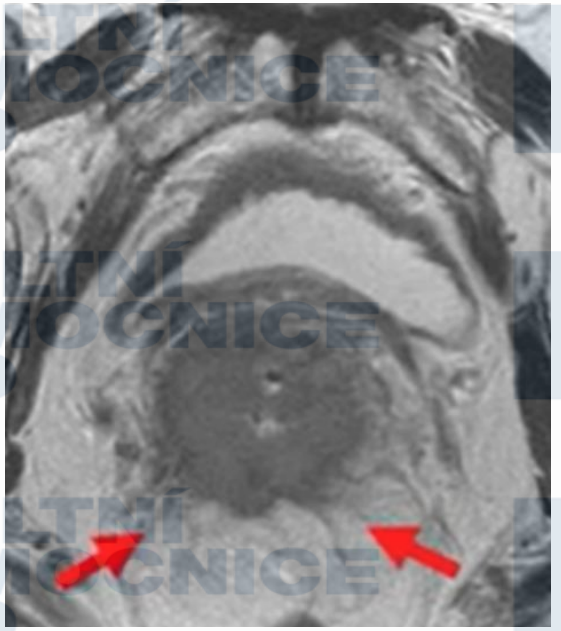
Ca endometria

- Invaze myo (50%)
- LVSI
- Invaze do hrdla



Ca cervixu

- Velikost (4 cm)
- IIB - PCF
- Invaze vaginy (1/3)



Myomy

- Degenerace STUMP/LMS
- DWI, nekrózy
- Sycení
- Noduální