ETIOLOGIJA PONAVLJANIH IMPLANTACIJSKIH NEUSPJEHA

SMANJENA ENDOMETRIJSKA RECEPTIVNOST

DEFEKTAN RAZVOJ EMBRIJA

MULTIFAKTORIJALNI UČINCI

SMANJENA RECEPTIVNOST ENDOMETRIJA

ABNORMALNOSTI MATERIŠTA

TANAK ENDOMETRIJ

NESINHRONA EKSPRESIJA ADHEZIVNIH MOLEKULA

IMUNOLOŠKI FAKTORI

TROMBOFILIJE

POBOLJŠATI RECEPTIVNOST ENDOMETRIJA

DIJAGNOSTIČKI POSTUPCI

3D ULTRAZVUK

HISTEROSKOPIJA

TERAPIJSKI POSTUPCI

MIOMEKTOMIJA

LIJEČENJE TANKOG ENDIOMETRIJA

ASPIRIN, SILDENAFIL, KRIOTRANSFER UZ HNL

FILGASTRIM, IMUNOGLOBULINI, GLIUKOKORTIKOSTEROIDI,

PODRAŽIVANJE ENDOMETRIJA

3D UZV obrada neplodnosti

- Anomalije uterusa
- Tumori uterusa
  - Endometralni polip
  - Miomi
    - Submukozni miom
    - Intramuralni miom
    - Subserozni miom
- Jajovodi
- Jajnici

Incidencija kongenitalnih anomalija uterusa PRCT – 3 D ultrazvuk

Populacija bez prethodne neplodnosti, habitualnih pobačaja, mioma

3 D UZV	N	%
Normalan	983	90,2
Arkuatus	72	6,6
Septiran	29	2,7
Bikornis	5	0,5
Ukupno	1089	100

Uterus subseptus značajno je povezan s višom stopom pobačaja u 1 trimestru (Zeta = 4,68, P<0,01).

Uterus arcuatus značajno je češći u žena s pobačajima u drugom trimestru (Zeta = 5,76, P<0,01), prijevremenim porodom (Zeta = 4,1, P<0,01)

Woelfer B. Ultrasound Obstet Gynecol. 2001; 98(6):1099-103)

Incidencija kongenitalnih anomalija uterusa

Analizom studija od 1950. – 2007. incidencija kongenitalnih anomalija:

6,7% (95% CI, 6,0 – 7,4) u općoj populaciji

7,3% (95% CI, 6,7 – 7,9) u neplodnih žena

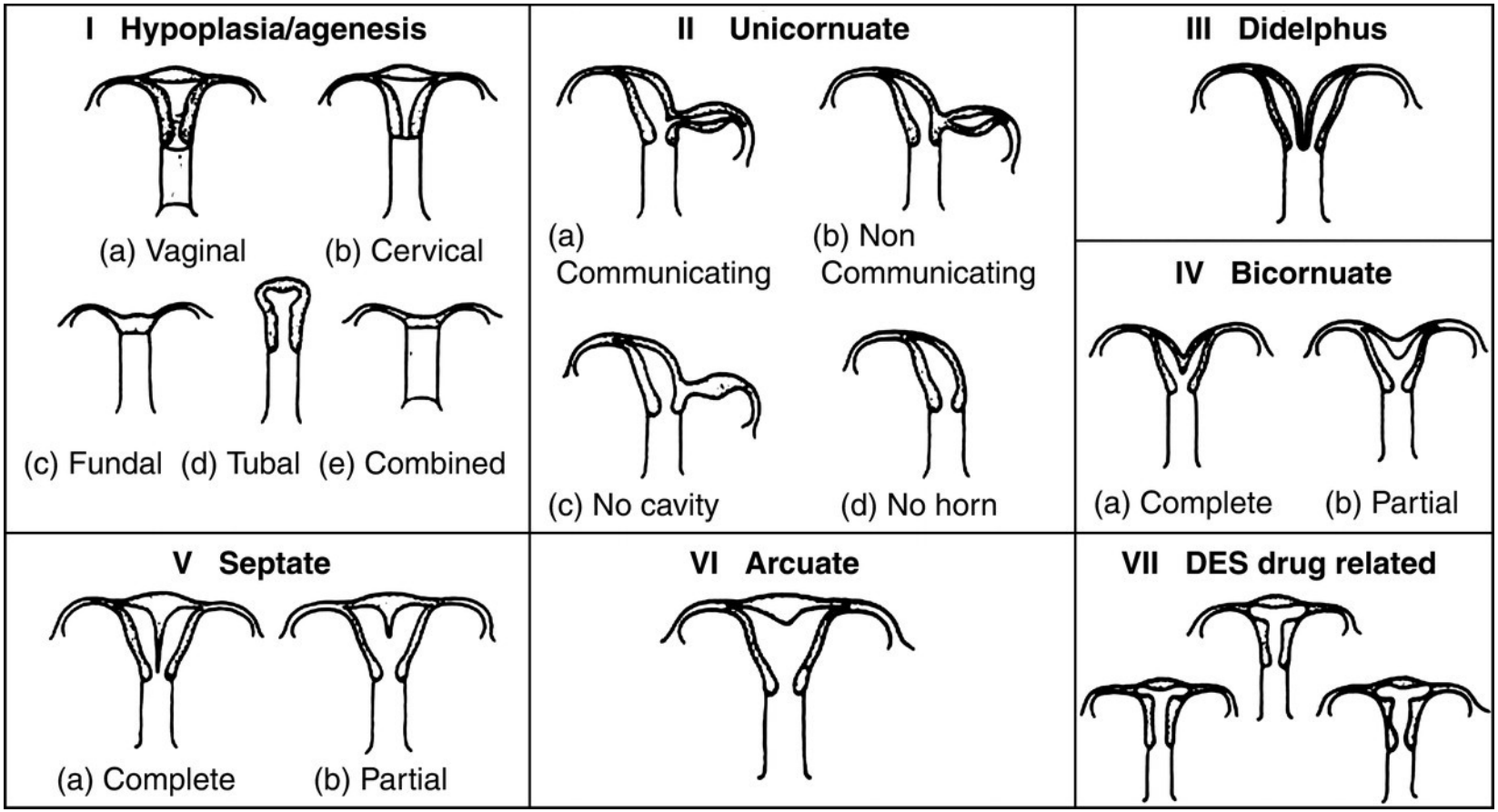
16,7% (95% CI, 14,8 – 18,6) u žena s habitualnim pobačajima

Uterus arcuatus **je najčešća anomalija u općoj populaciji i u žena s habitualnim pobačajima**

Uterus septus **je najčešća anomalija u neplodnih žena**

Saravelos. Hum Reprod Update 2008.

Figure 2. Classification system of müllerian duct anomalies developed by the American Fertility Society (43).

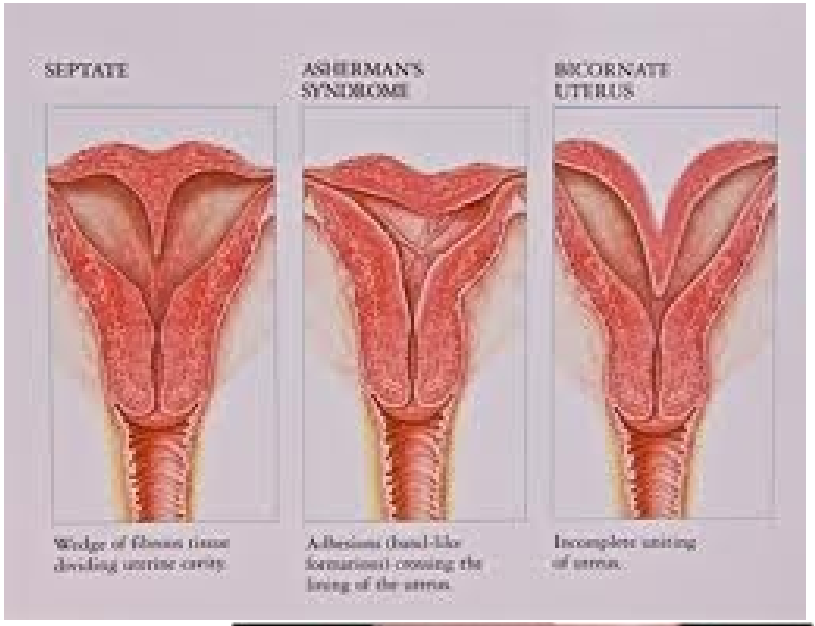


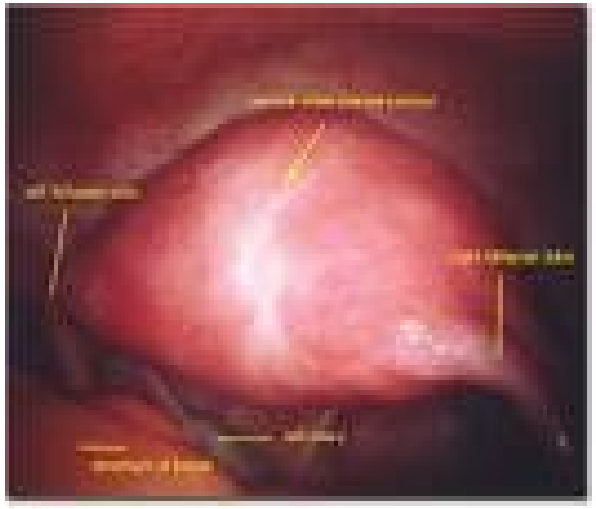
Troiano R N , McCarthy S M Radiology 2004;233:19-34

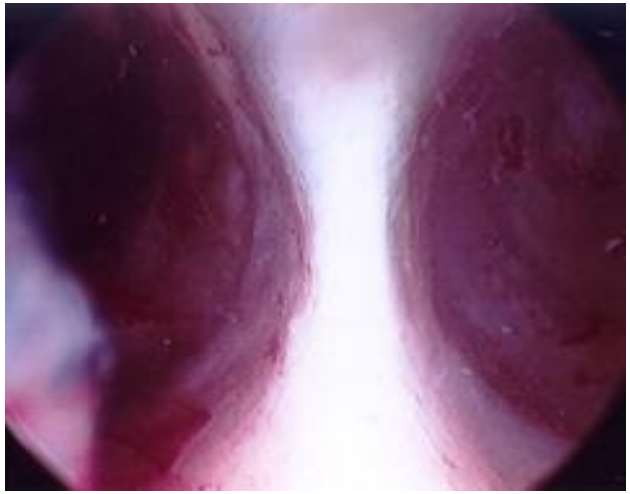
Radiology

Kongenitalne uterine anomalije

Histeroskopija – laparoskopija???







Kongenitalne uterine anomalije

Indirektne vizualizacijske tehnike

Histerosalpingografija

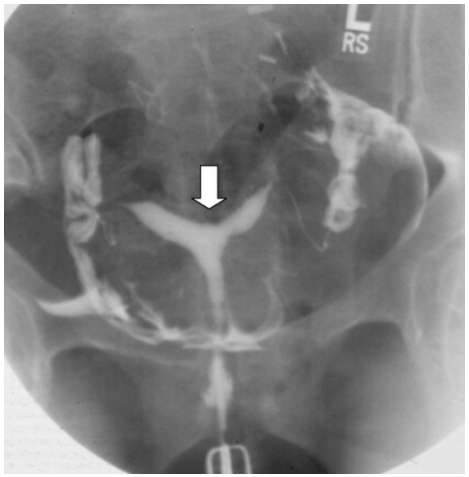
Sonohisterosalpingografija

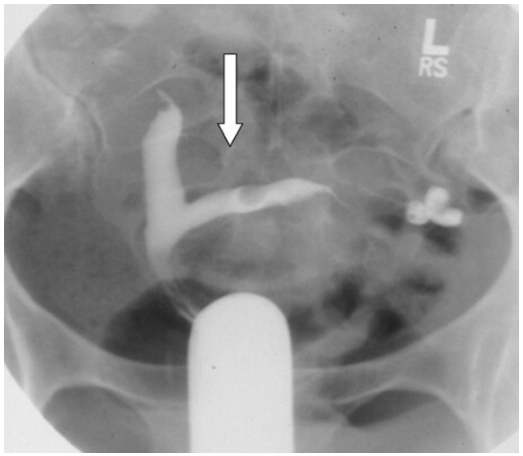
Kompjuterizirana tomografija

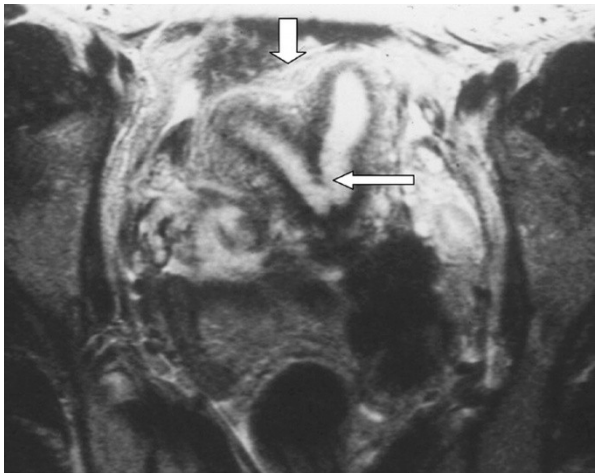
Nuklearna magnetska rezonancija

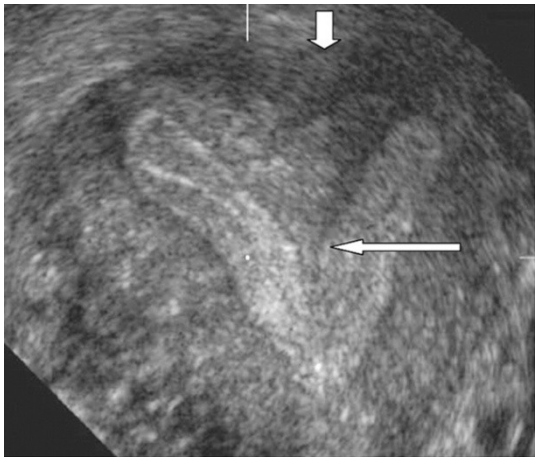
2 D ultrazvuk

3 D ultrazvuk









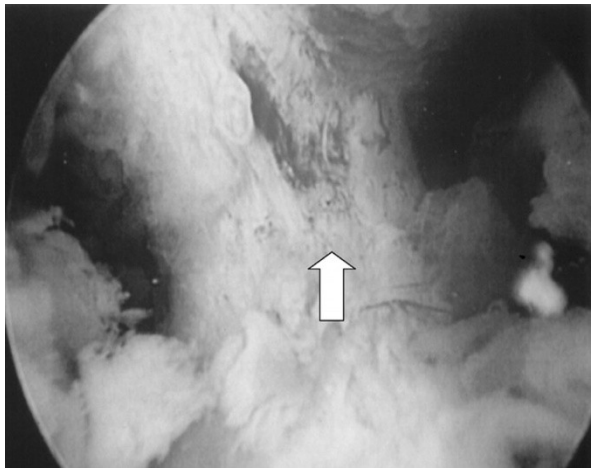
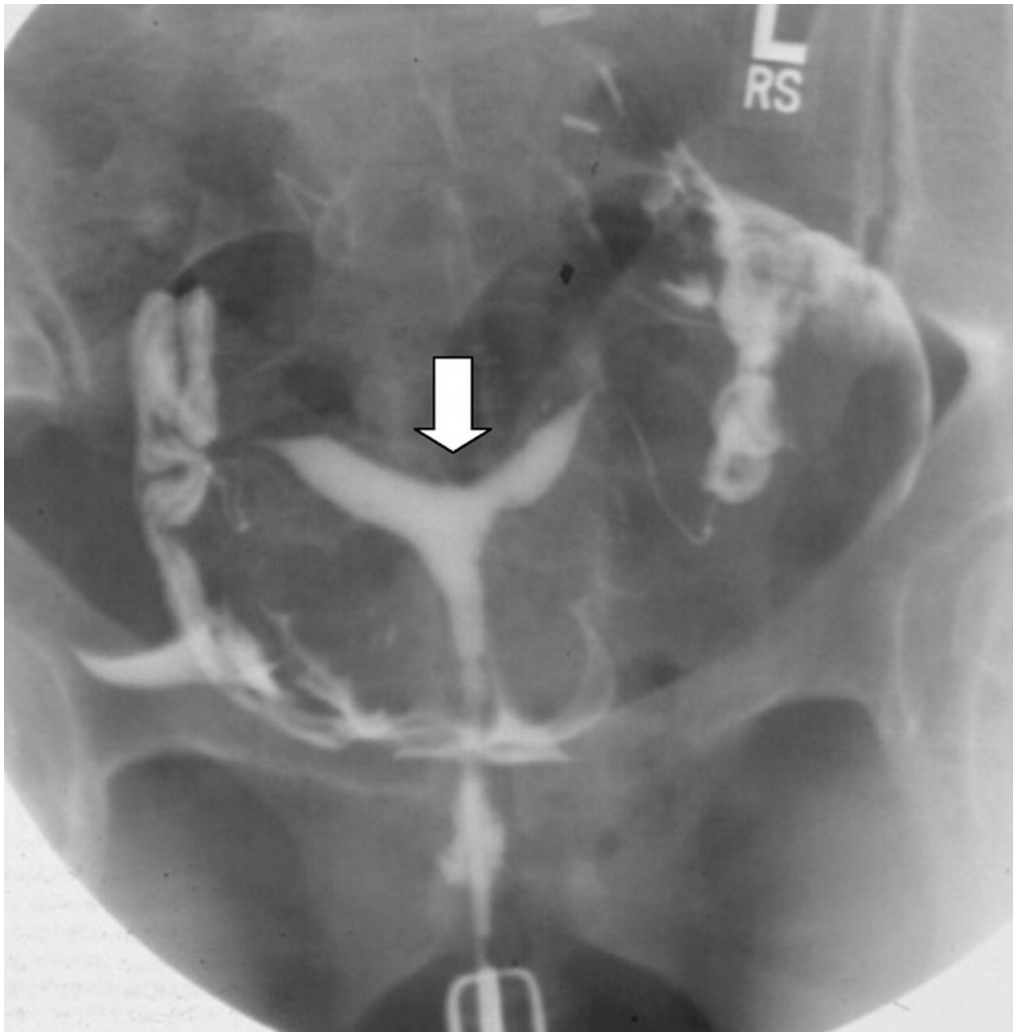


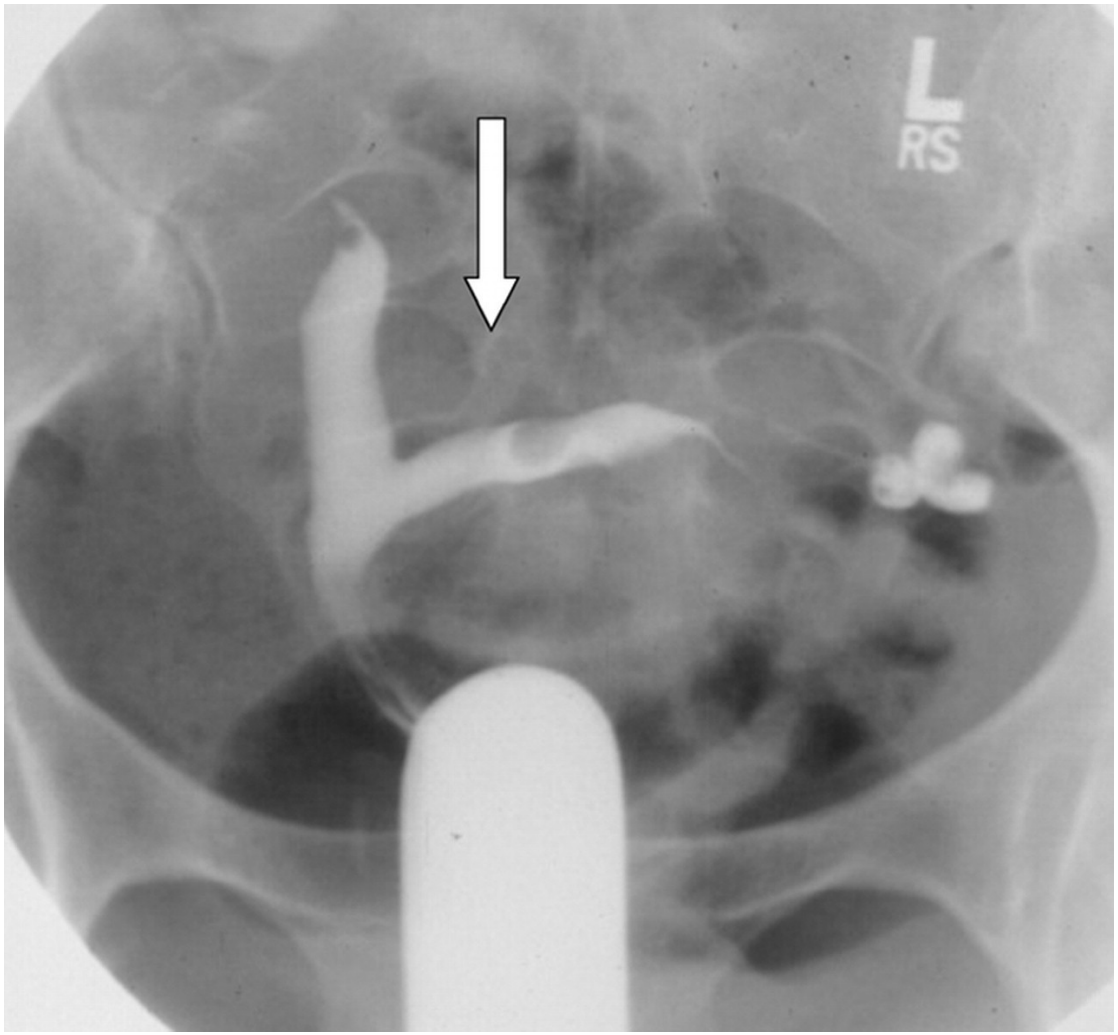
Figure 12. Arcuate uterus.



Troiano R N , McCarthy S M Radiology 2004;233:19-34

Radiology

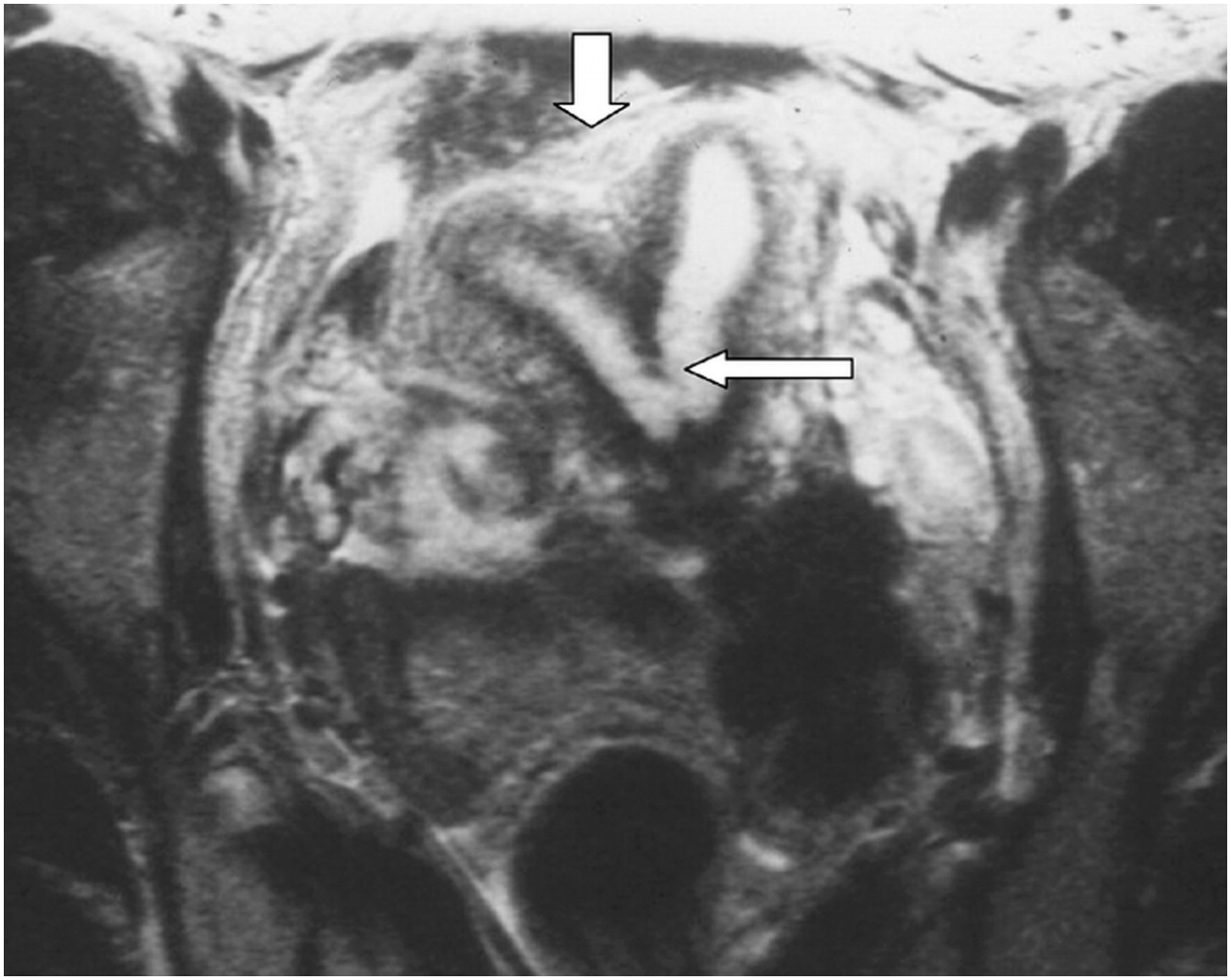
Figure 4b. HSG demonstration of septate versus bicornuate uteri.



Troiano R N , McCarthy S M Radiology 2004;233:19-34

Radiology

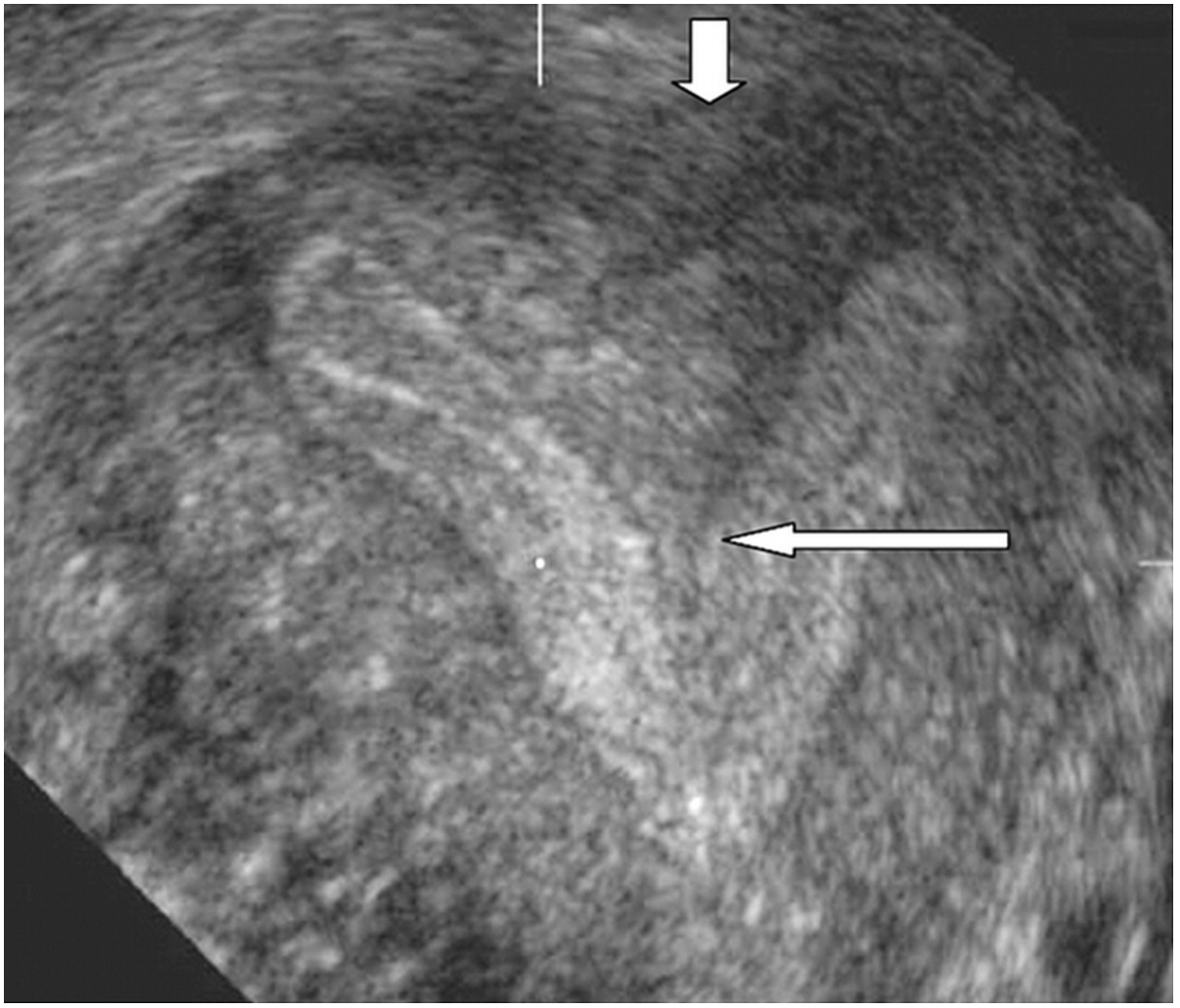
Figure 9a. MR images of partial uterine septum.



Troiano R N , McCarthy S M Radiology 2004;233:19-34

Radiology

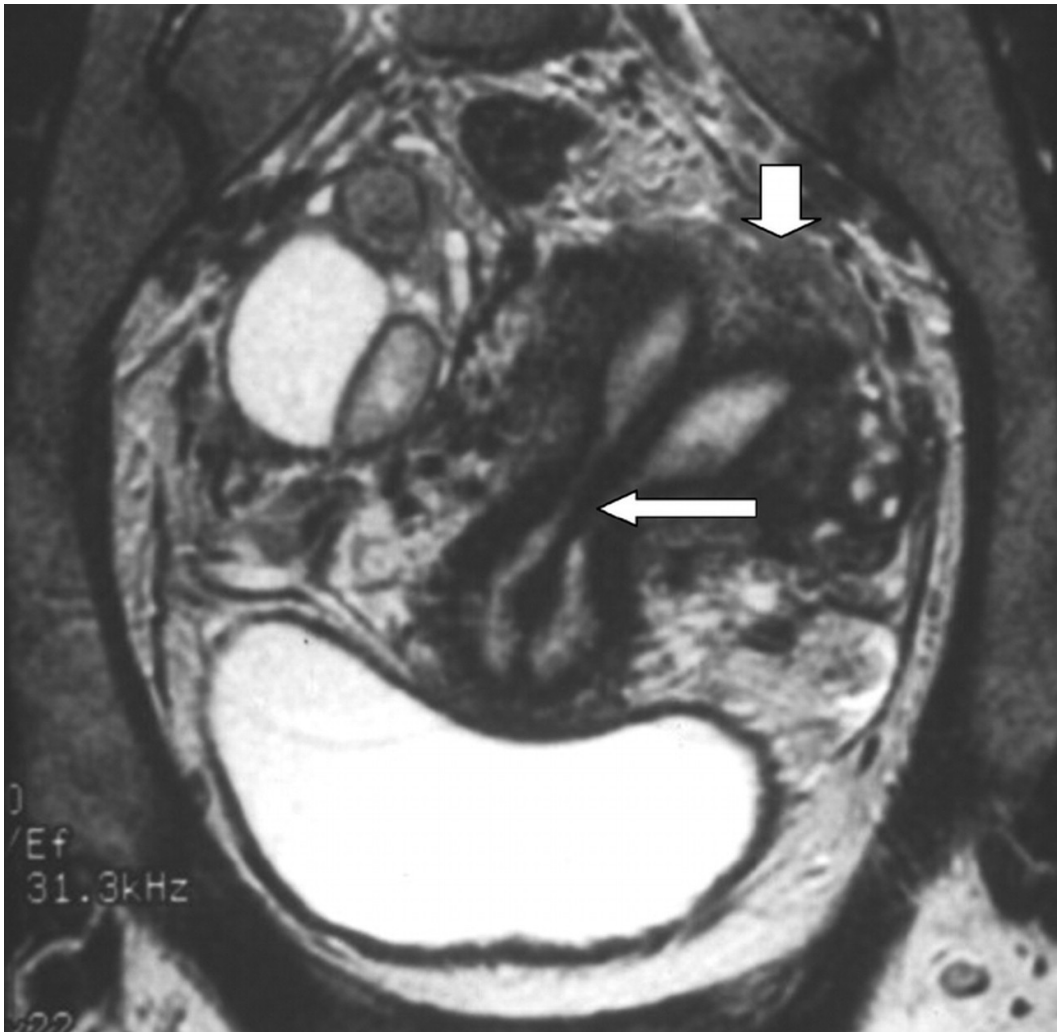
Figure 6. Coronal oblique reconstructed three- dimensional endovaginal US image of a partial uterine septum demonstrates mild indentation of the uterine fundus with no intervening cleft (short arrow) and septum separating endometrial cavities (long arrow).



Troiano R N , McCarthy S M Radiology 2004;233:19-34

Radiology

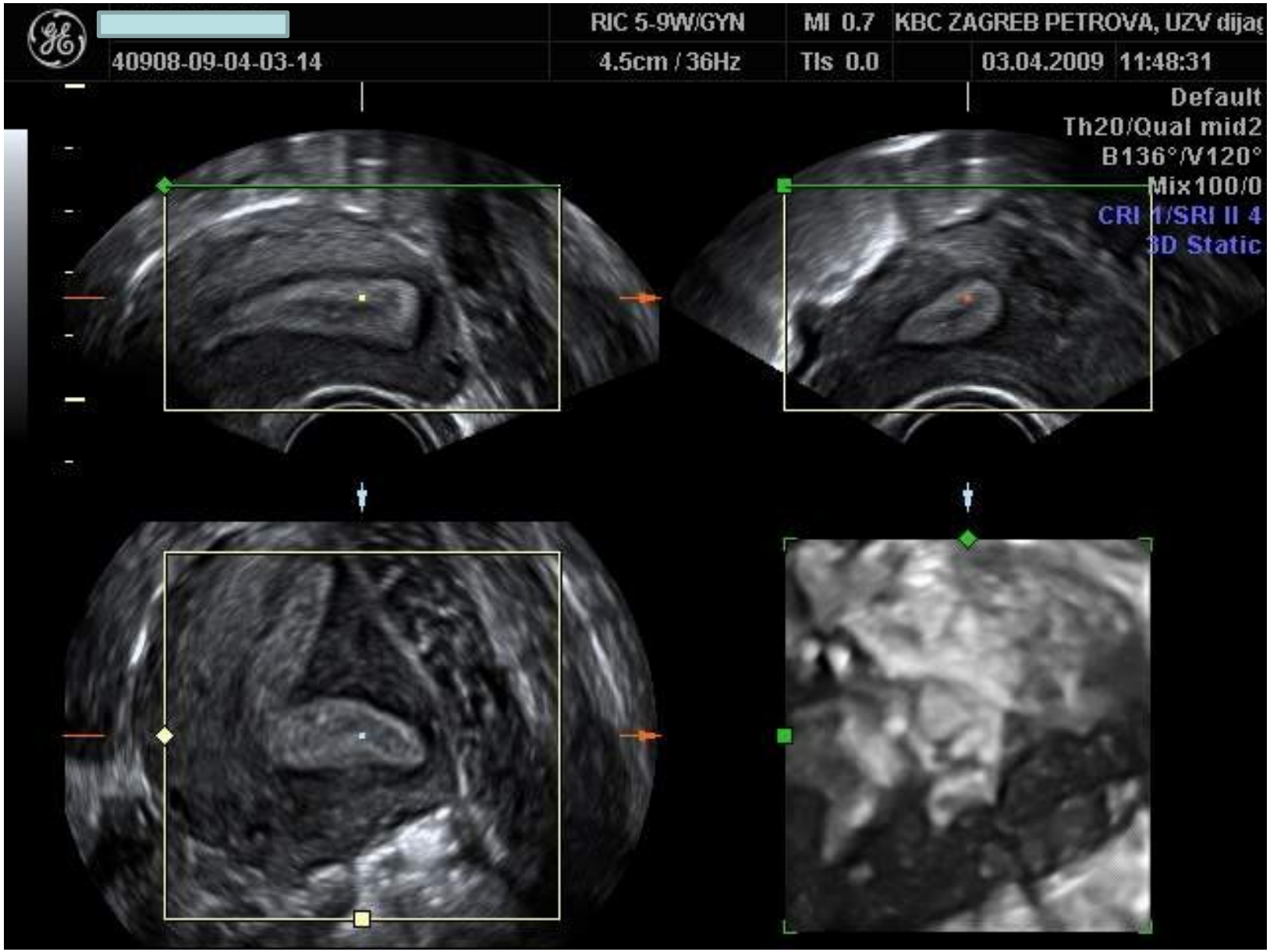
Figure 8a. MR images of complete uterine septum.



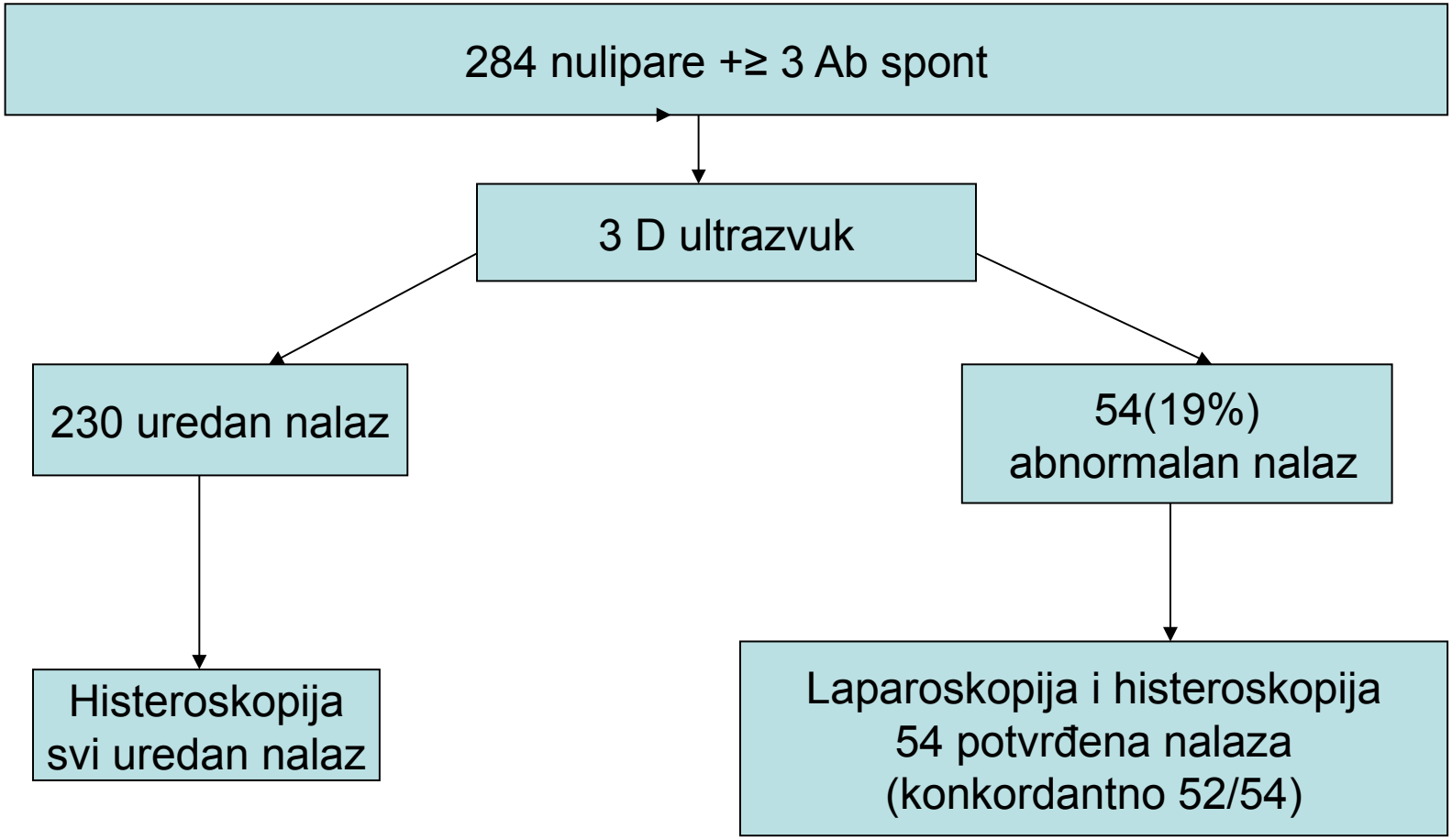
Troiano R N , McCarthy S M Radiology 2004;233:19-34

Radiology

SEPTUM UTERUSA



3 D ultrazvuk: visoka točnost (HSC/LPSC)



Ghi et al. Fertil Steril 2009.

Dijagnostika uterine patologije

1 razina

2 D ultrazvuk – minihisteroskopija – 2 D kontrastna sonografija

2 razina u slučaju malformacija: 3 D ultrazvuk

3 D UZV omogućuje u koronarnom pregledu

transparentan odnos kavuma i fundusa

egzaktnu izmjeru duljine i debljinu septuma, volumen kavuma

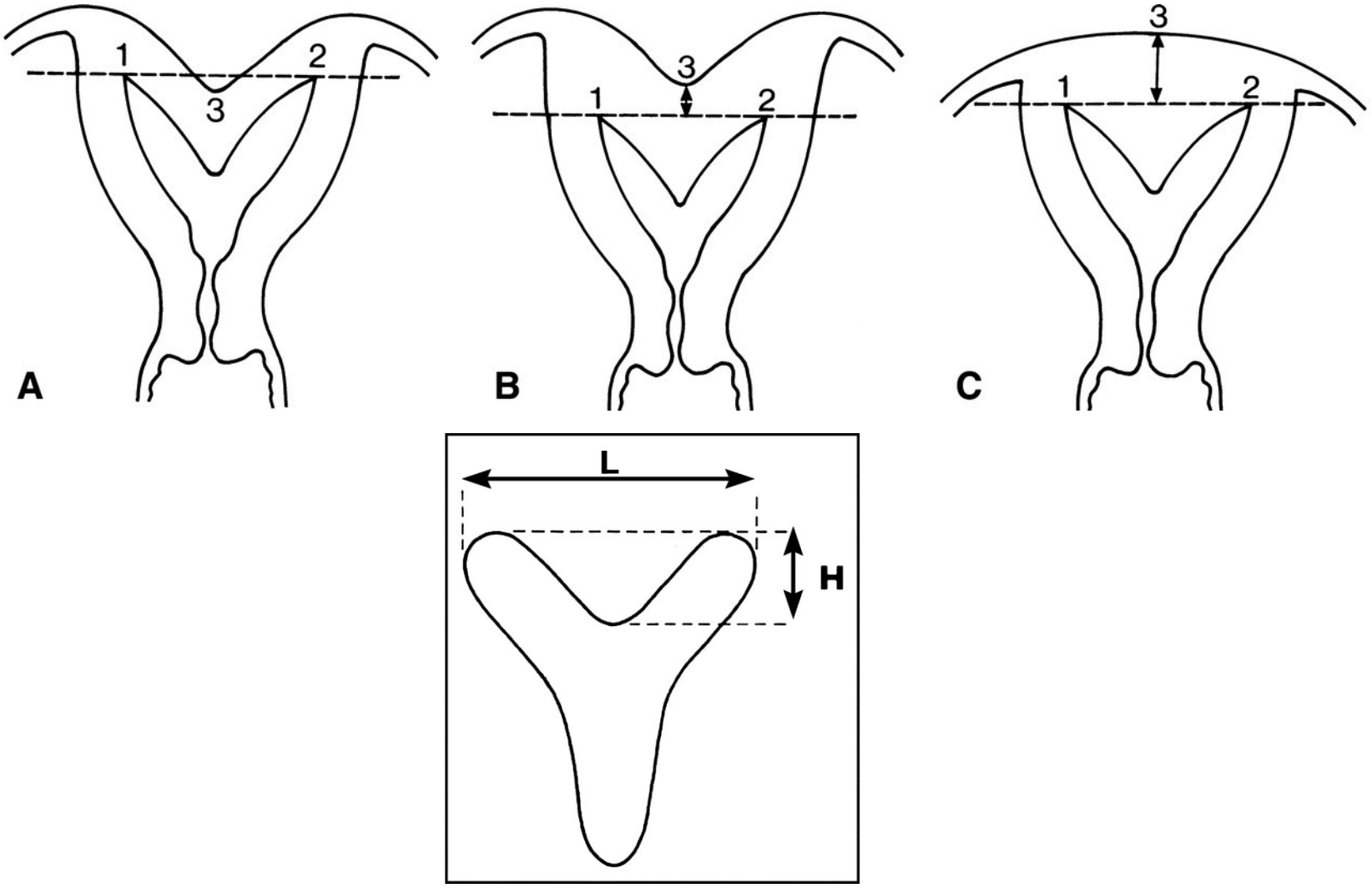
3 razina

u slučaju složenije anomalije MRI – LPSC/HSC

3 D ultrazvuk > 2D ultrazvuk osjetljivost i specifičnost

	Osjetljivost %	Specifičnost %	Pozitivna predikt. vrijednost %	Negativna prediktivna vrijednost %
Normalan uterus				
2 D	**88**	**94**	**97**	**75**
3 D	**98**	**100**	**100**	**94**
Uterus arcuatus				
2 D	**67**	**94**	**55**	**88**
3 D	**100**	**100**	**100**	**100**
Velike anomalije				
2 D	**100**	**95**	**50**	**100**
3 D	**100**	**100**	**100**	**100**

Kongenitalne uterine anomalije

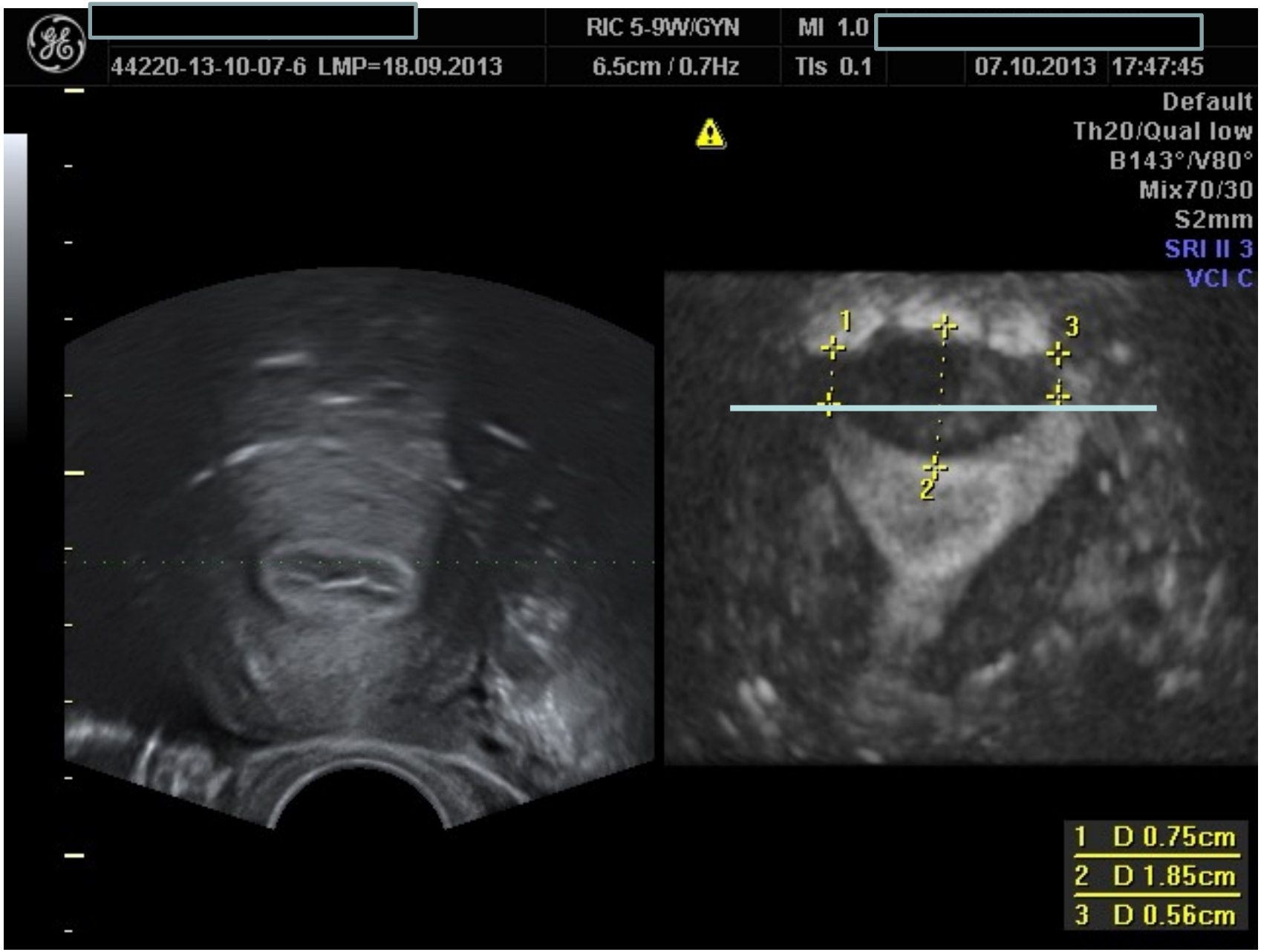


Kontrola dubine disekcije

Ultrazvuk
- Izmjeriti debljinu miometrija u fundusu

Vaskularitet u prostoru disekcije
- Izravna vizualna kontrola tijekom rezanja škarama

Laparoskopija –Histeroskopija
- Transluminacijski test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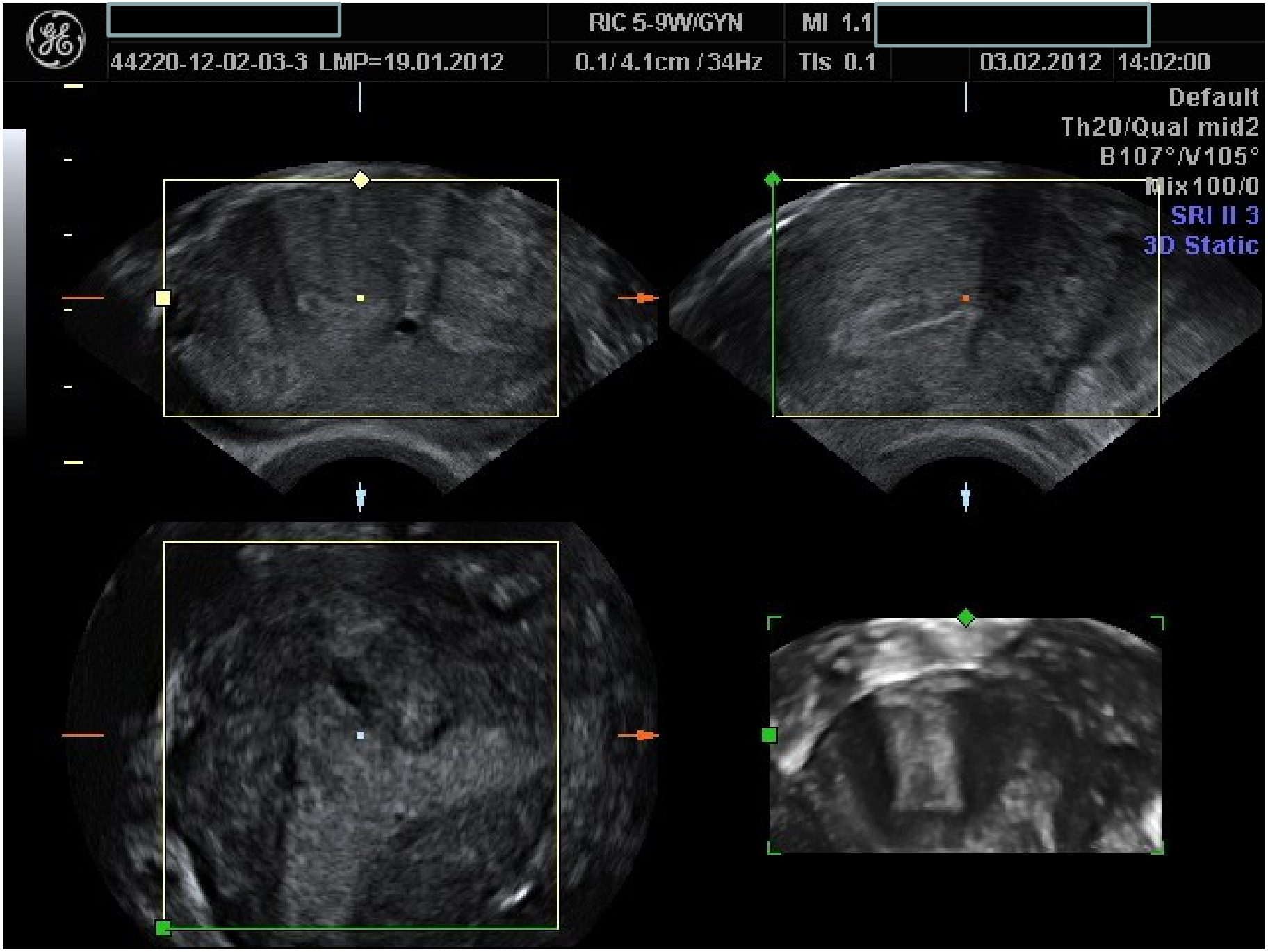
TIs 0.1
07.10.2013 17:47:45
Default
Th20/Qual low
B143°/V80°
Mix70/30
S2mm
SRI II 3
VCI C
1
2
3
1 D 0.75cm
2 D 1.85cm
3 D 0.56cm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MI 1.1
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0.1/4.1cm/34Hz
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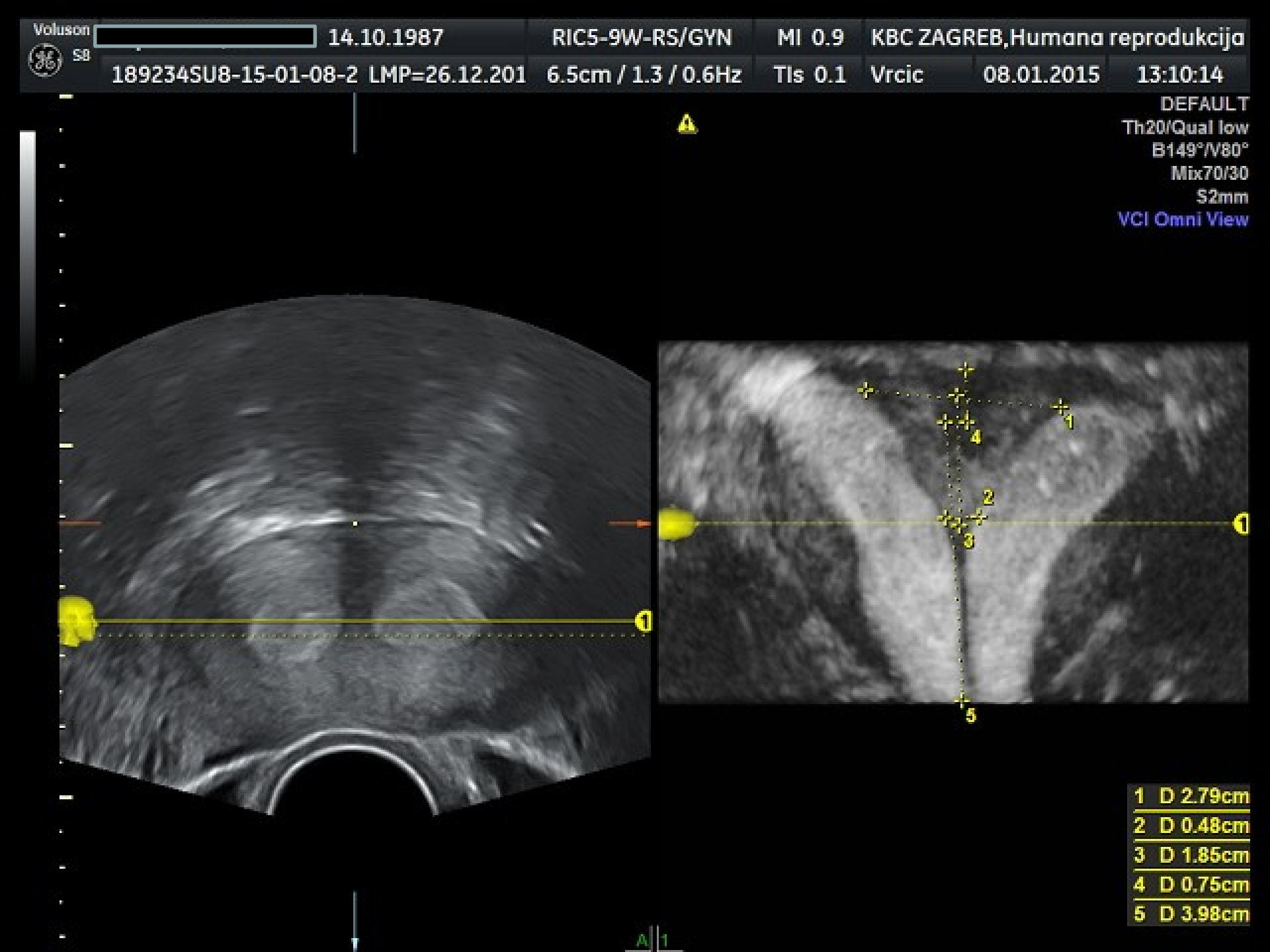
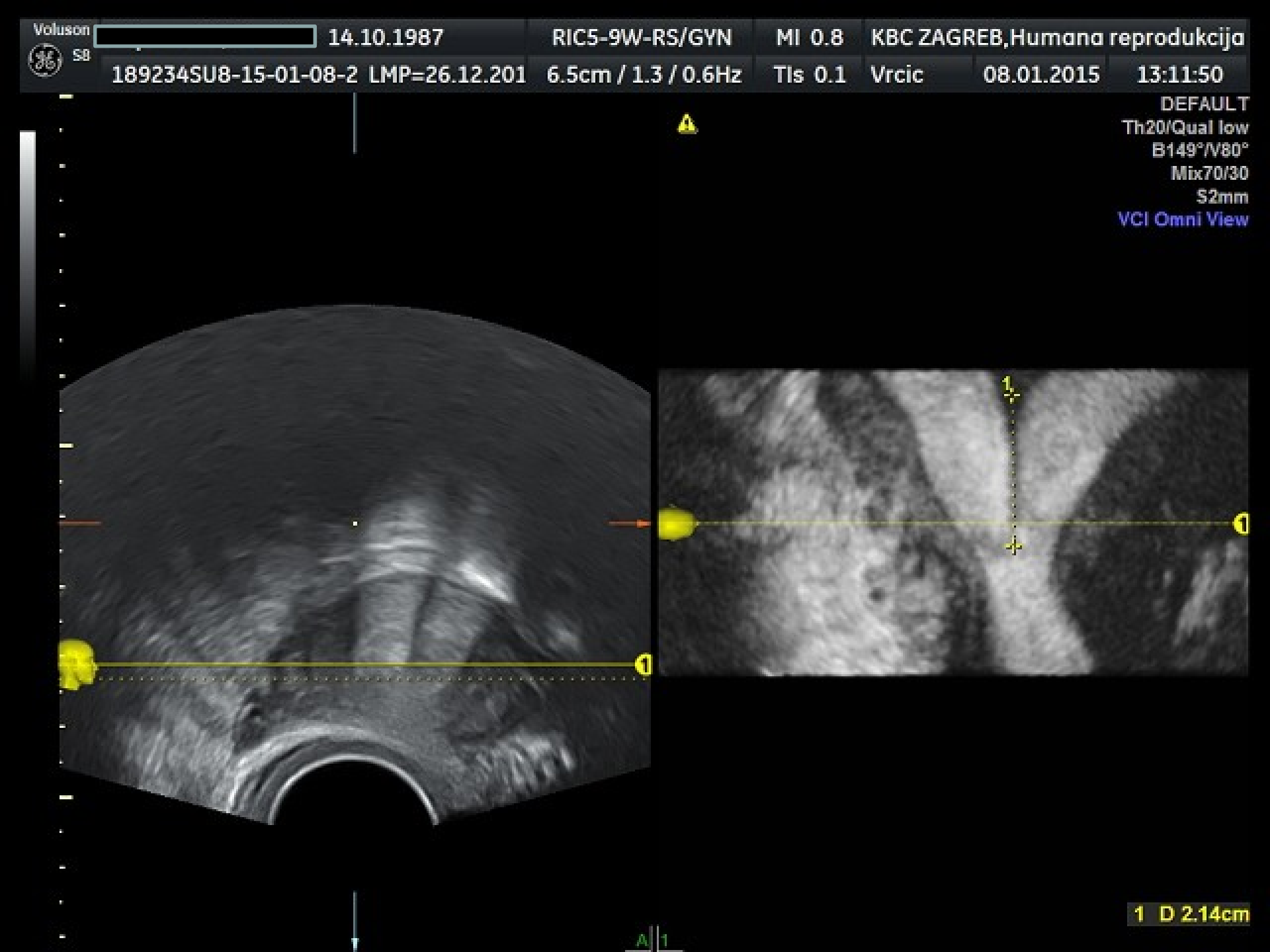
B107°/V105°
Mix100/0
SRI II 3
3D Static


Voluson
S8
14.10.1987
RIC5-9W-RS/GYN
MI 0.9
KBC ZAGREB,Humana reprodukcija
189234SU8-15-01-08-2 LMP=26.12.201
6.5cm / 1.3 / 0.6Hz
TIs 0.1
Vrcic
08.01.2015
13:10:14
DEFAULT
Th20/Qual low
B149°/V80°
Mix70/30
S2mm
VCI Omni View
1 D 2.79cm
2 D 0.48cm
3 D 1.85cm
4 D 0.75cm
5 D 3.98cm


Voluson
S8
14.10.1987
RIC5-9W-RS/GYN
MI 0.8
KBC ZAGREB,Humana reprodukcija
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6.5cm / 1.3 / 0.6Hz
TIs 0.1
Vrcic
08.01.2015
13:11:50
DEFAULT
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B149°/V80°
Mix70/30
S2mm
VCI Omni View
1
1
1
1 D 2.14cm

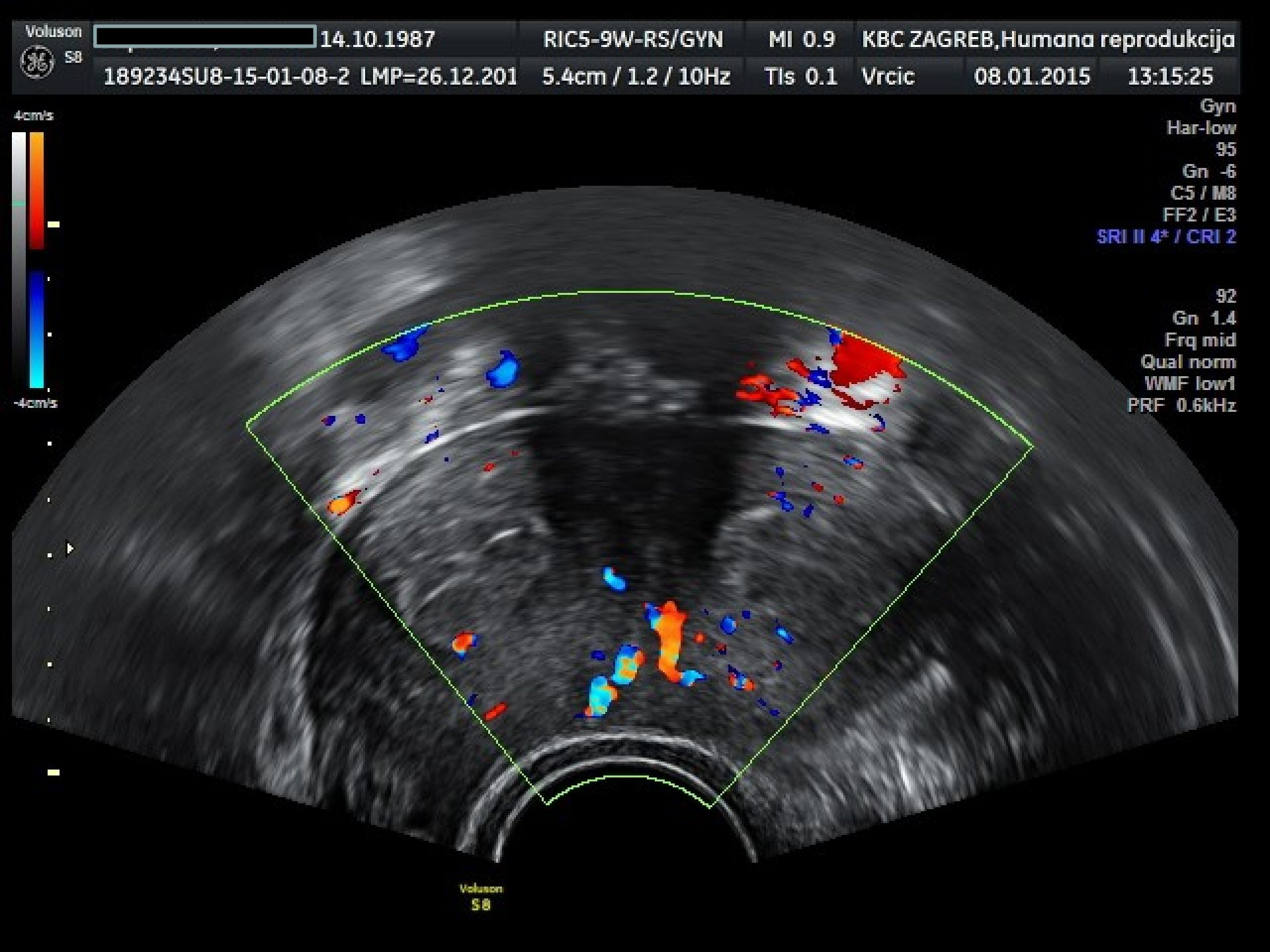
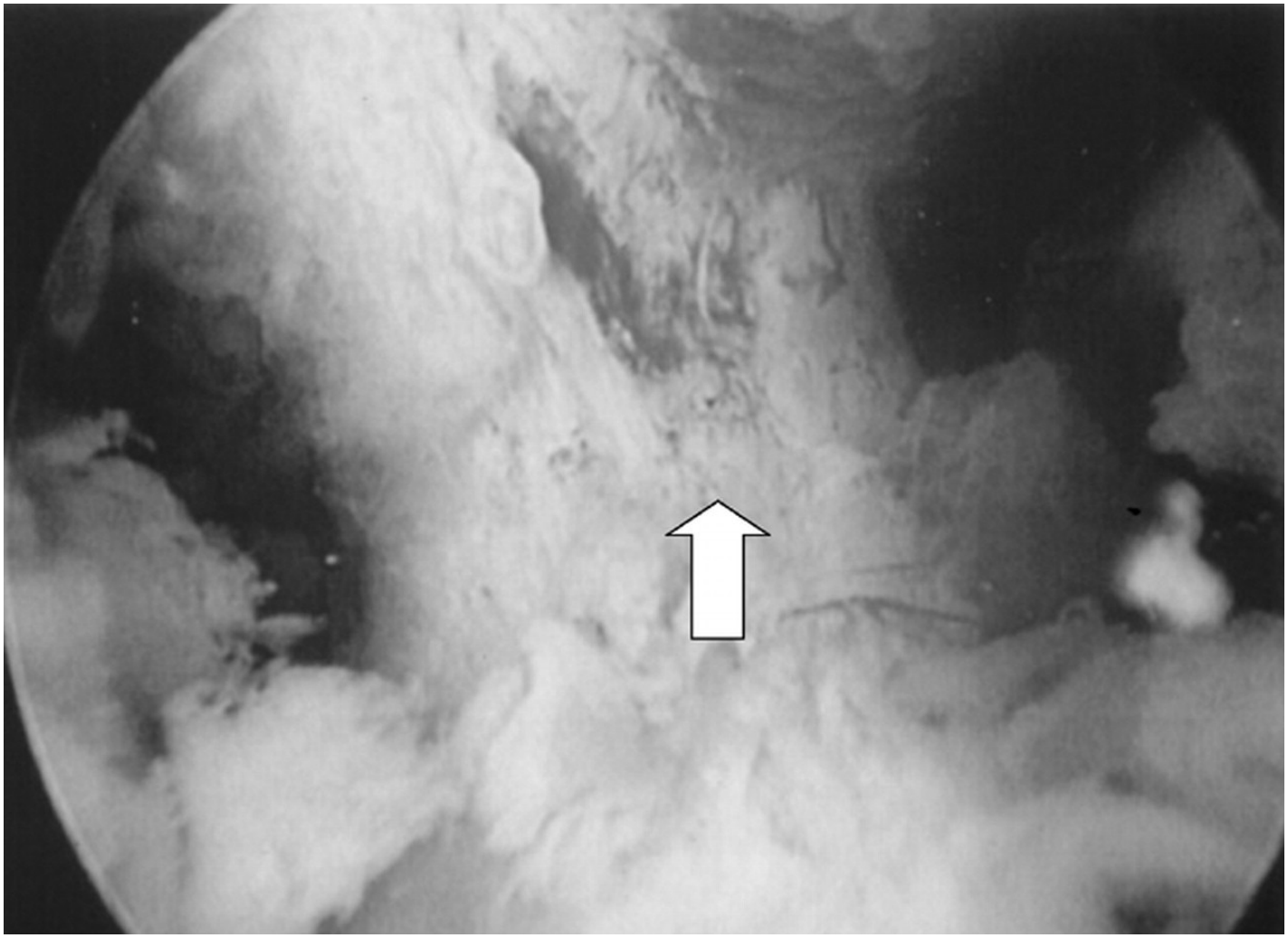

Voluson
S8
14.10.1987
RIC5-9W-RS/GYN
MI 0.9
KBC ZAGREB,Humana reprodukcija
189234SU8-15-01-08-2 LMP=26.12.201
5.4cm / 1.2 / 10Hz
TIs 0.1
Vrcic
08.01.2015
13:15:25
4cm/s
-4cm/s
Gyn
Har-low
95
Gn -6
C5 / M8
FF2 / E3
SRI II 4* / CRI 2
92
Gn 1.4
Frq mid
Qual norm
WMF low1
PRF 0.6kHz
Voluson
S8

Figure 3b. Uterine septum.



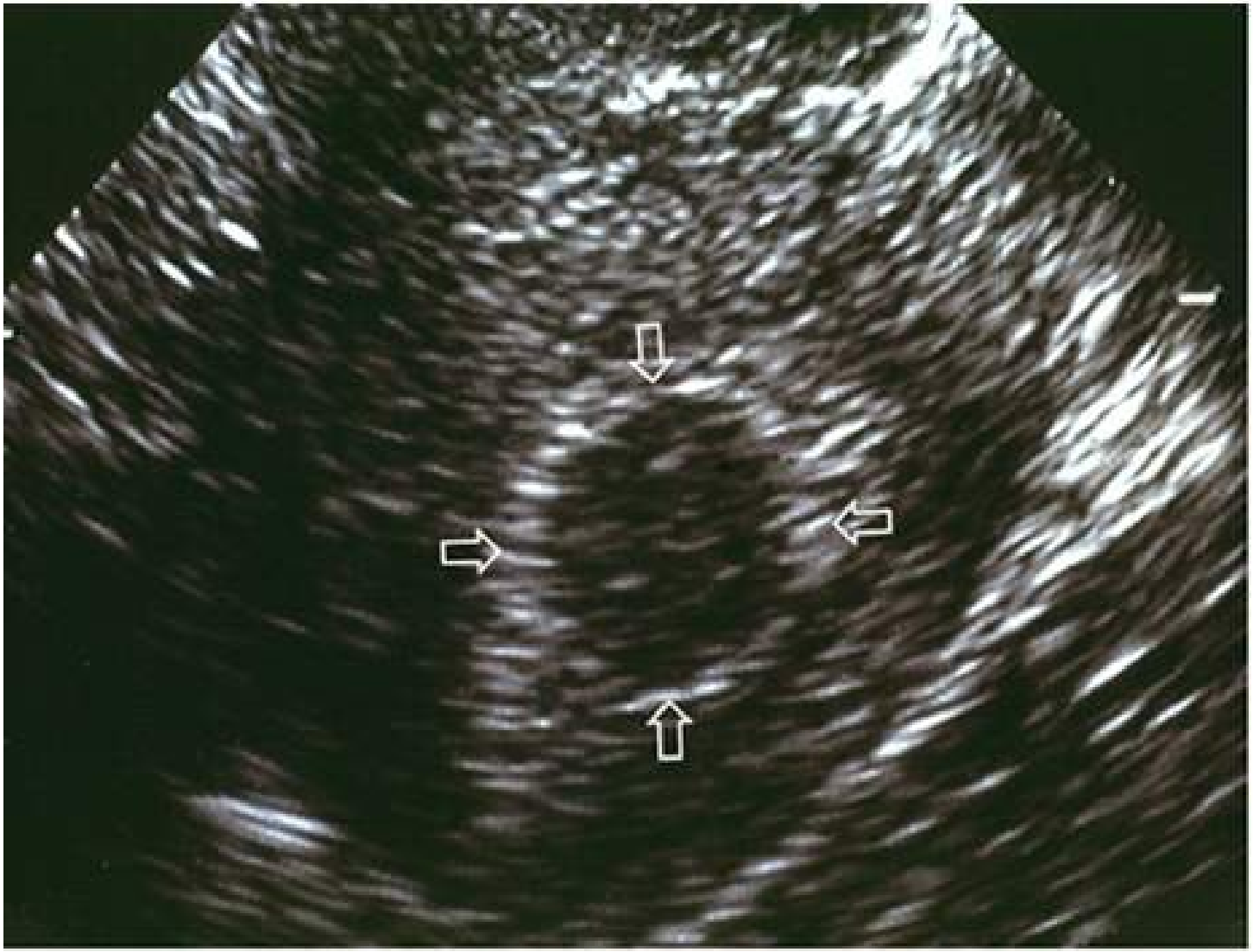
Troiano R N , McCarthy S M Radiology 2004;233:19-34

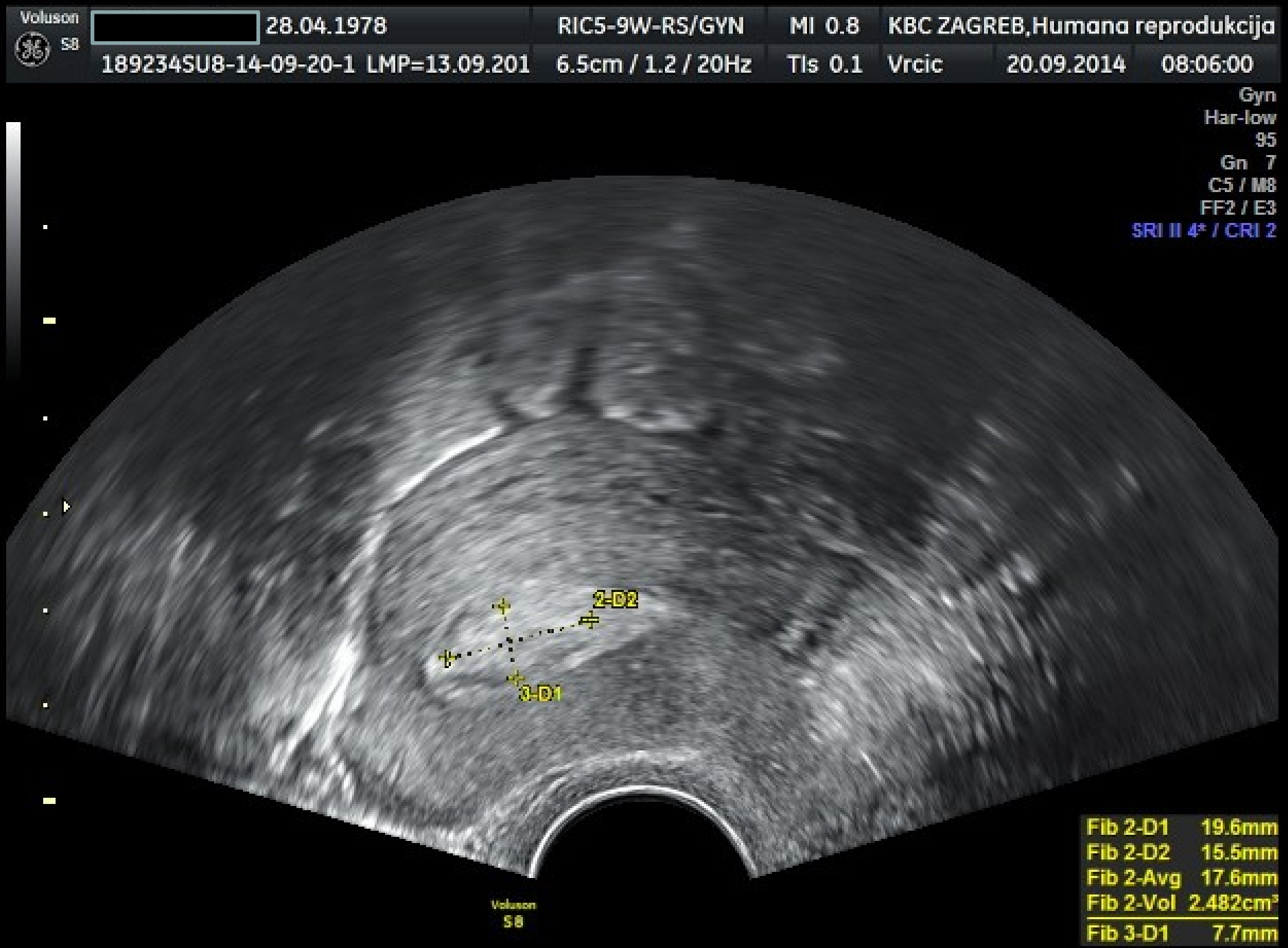
Radiology

ENDOMETRALNI POLIP

Endometralni polip

SUBMUKOZNI MIOM

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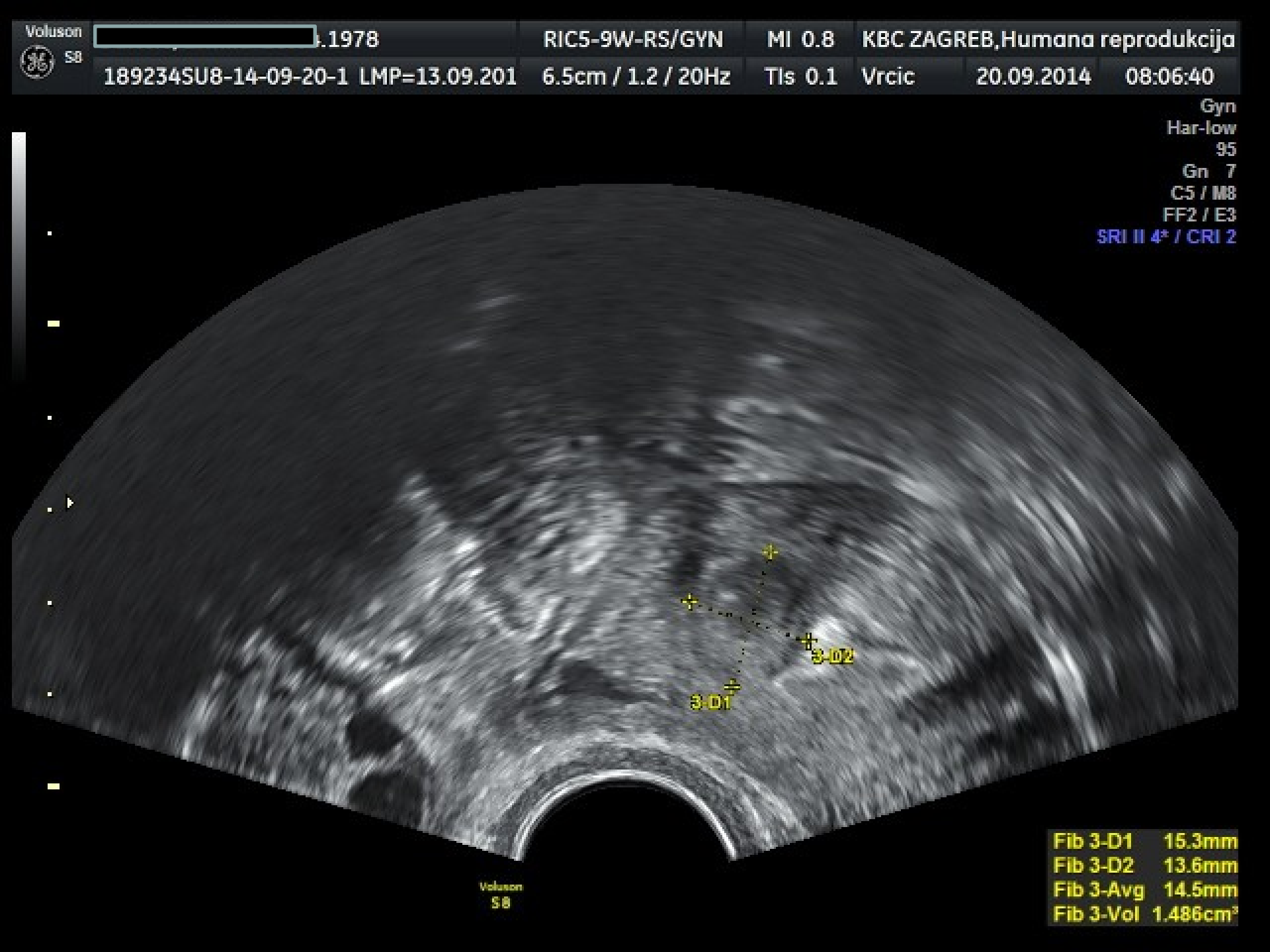
6.5cm / 1.2 / 20Hz
TIs 0.1
Vrcic
20.09.2014
08:06:00
Gyn
Har-low
95
Gn 7
C5 / M8
FF2 / E3
SRI II 4* / CRI 2
2-D2
3-D1
Voluson S8
Fib 2-D1 19.6mm
Fib 2-D2 15.5mm
Fib 2-Avg 17.6mm
Fib 2-Vol 2.482cm³
Fib 3-D1 7.7mm


Voluson
S8
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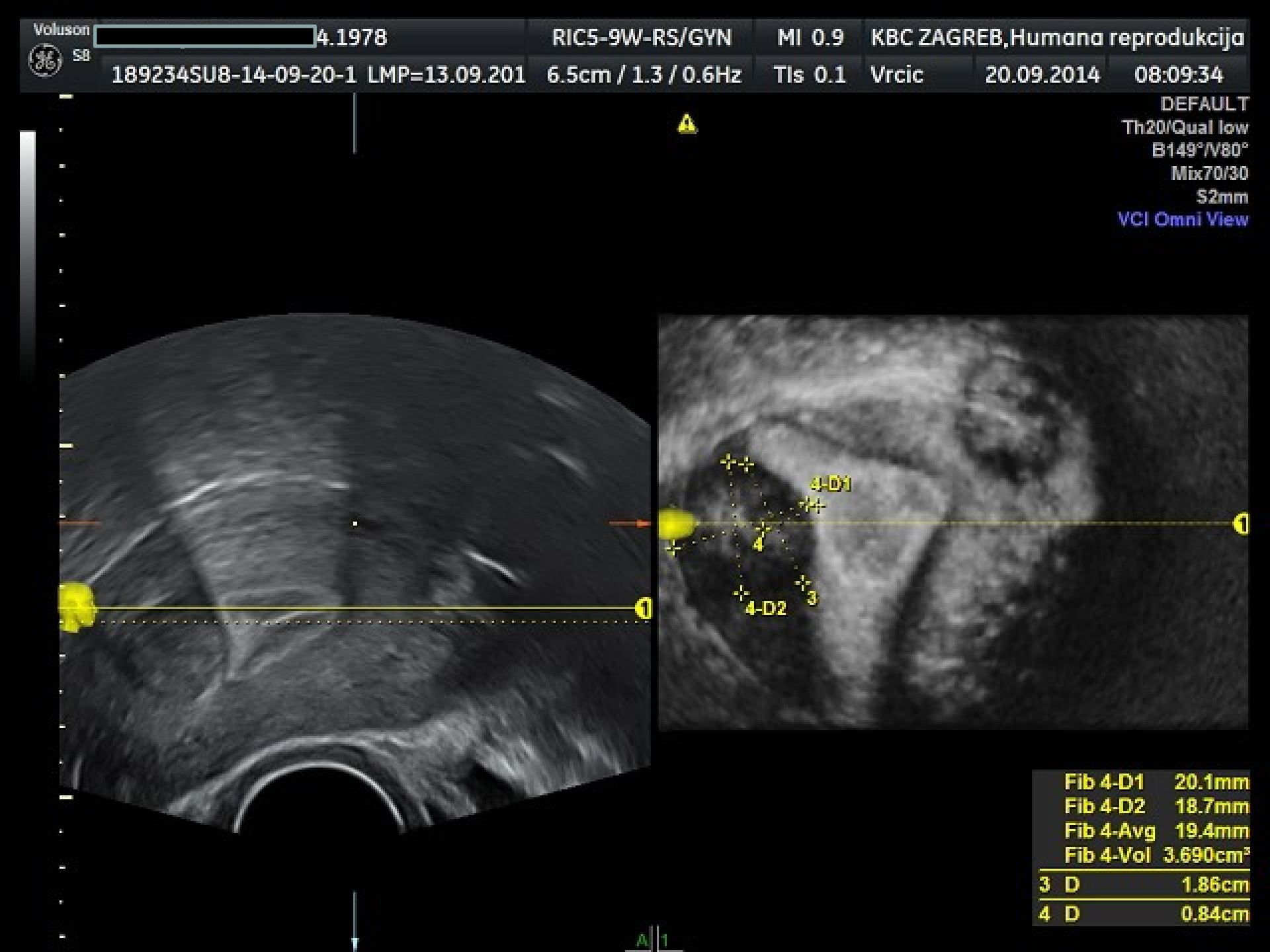
RIC5-9W-RS/GYN
MI 0.8
KBC ZAGREB,Humana reprodukcija
189234SU8-14-09-20-1 LMP=13.09.201
6.5cm / 1.2 / 20Hz
TIs 0.1
Vrcic
20.09.2014
08:06:40
Gyn
Har-low
95
Gn 7
C5 / M8
FF2 / E3
SRI II 4* / CRI 2
3-D2
3-D1
Fib 3-D1 15.3mm
Fib 3-D2 13.6mm
Fib 3-Avg 14.5mm
Fib 3-Vol 1.486cm³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MI 0.9
KBC ZAGREB,Humana reprodukcija
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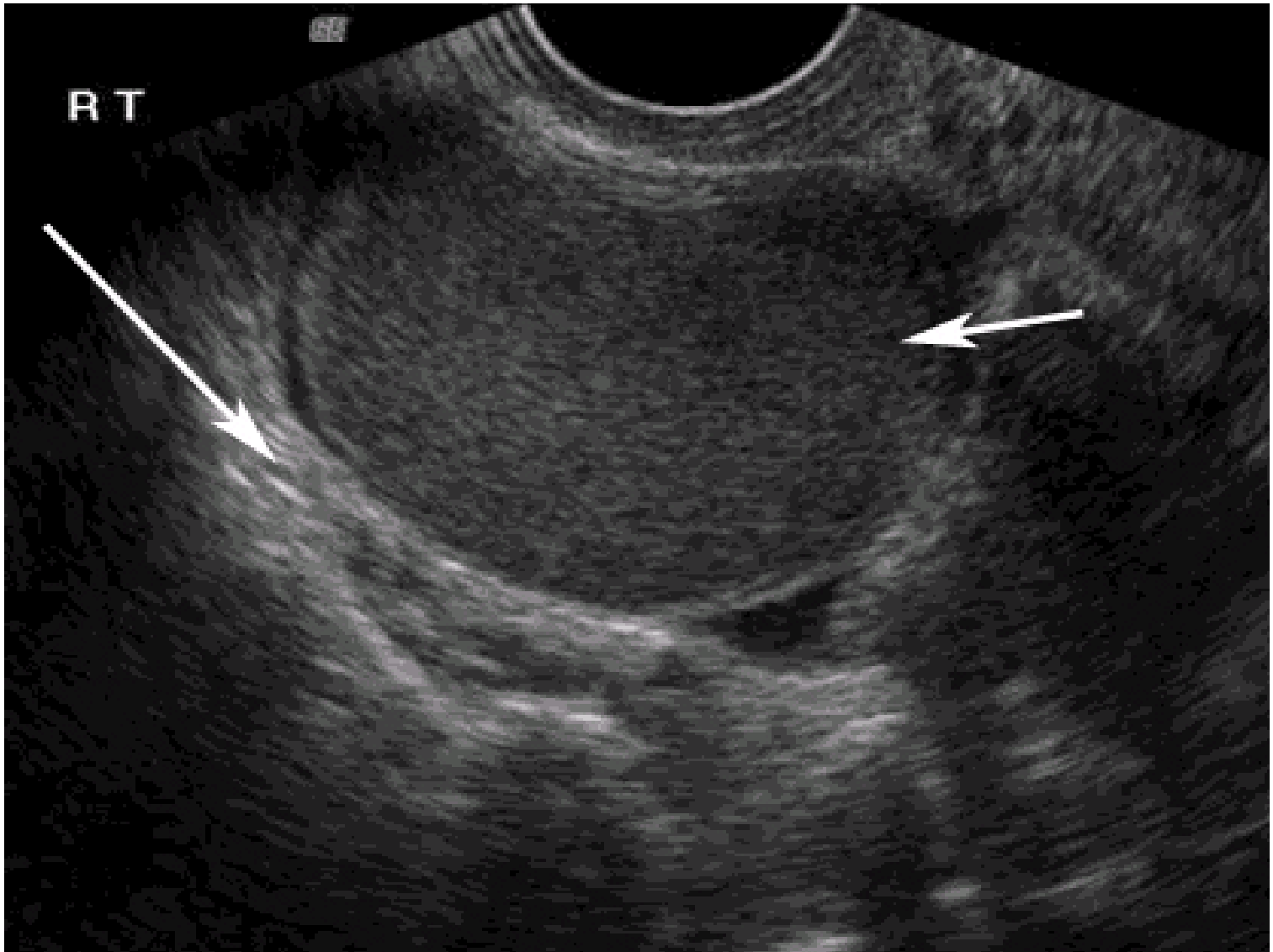
6.5cm / 1.3 / 0.6Hz
TIs 0.1
Vrcic
20.09.2014
08:09:34
DEFAULT
Th20/Qual low
B149°/V80°
Mix70/30
S2mm
VCI Omni View
4-D1
4
4-D2
3
Fib 4-D1 20.1mm
Fib 4-D2 18.7mm
Fib 4-Avg 19.4mm
Fib 4-Vol 3.690cm³
3 D 1.86cm
4 D 0.84cm

Endometriom

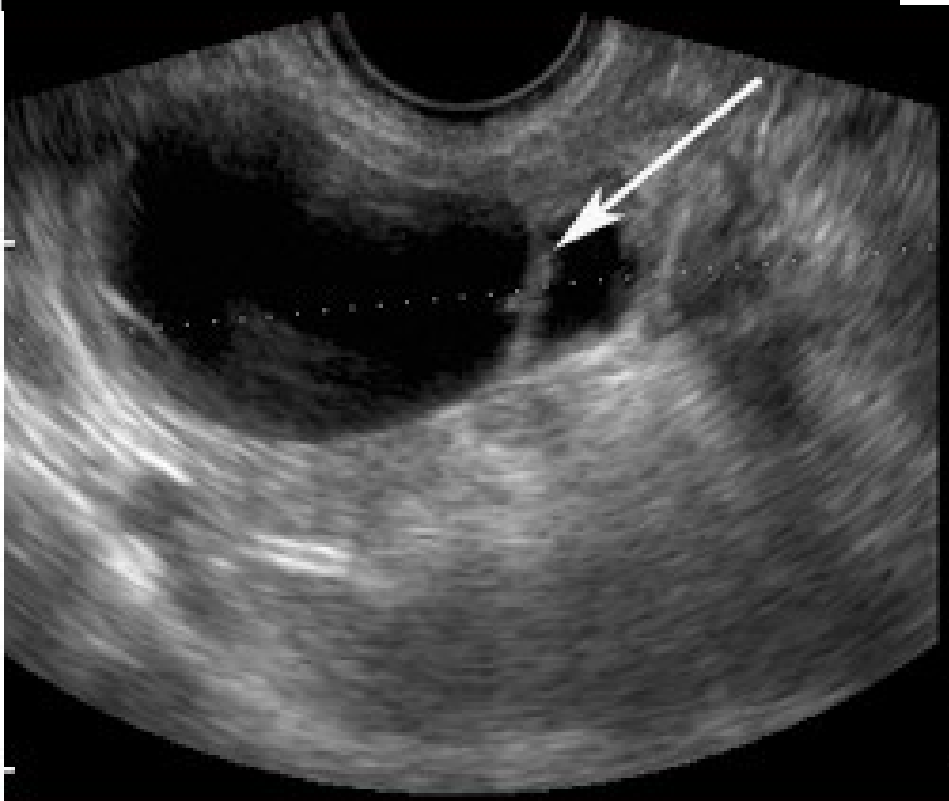


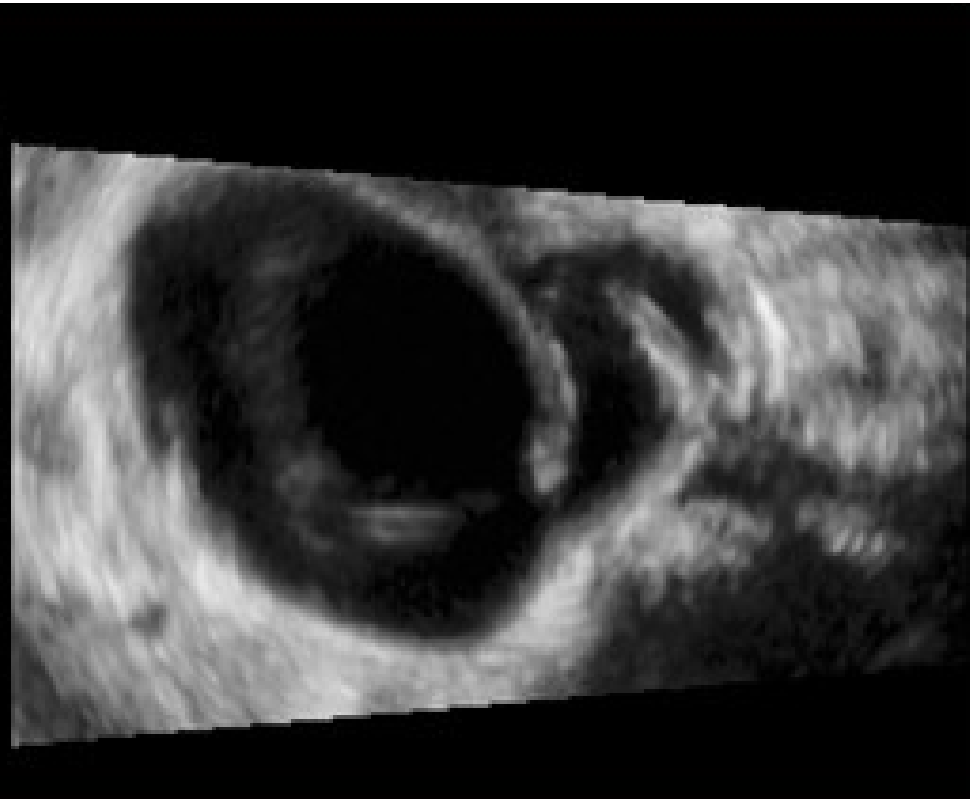
ENDOMETRIOZA I IVF

- *ODSTRANJENJE TKIVA JAJNIKA U 54% ŽENA
- TKIVO JAJNIKA UZ HILUS SU BROJNI PRIMARNI I SEKUNDARNI FOLIKULI
- NEUNIŠTITI OVARIJSKO TKIVO TIJEKOM ODSTRANJENJA CISTE RADEĆI HEMOSTAZU U PODRUČJU HILUSA
- TKO TREBA OPERIRATI ENDOMETRIOZU U NEPLODNIH PACIJENTICA?

*Muzzi et al. Fertil Steril 2002; Human Reprod 2005

Hydrosalpinx





HIDROSALPINKSI

- UNILATERALNI HIDROSALPINKS
- SALPINGEKTOMIJA OŠTEĆENOG JAJOVODA
- UNAPRIJEĐUJE SPONTANO ZANOŠENJE
- 88% ZATRUDNI UNUTAR 6 MJESECI

» SAGOSKIN ET AL 2000.

ZAKLJUČAK 1

- INDIVIDUALNI PRISTUP
- 3D ULTRAZVUK
- HISTEROSKOPIJA
- KIRURŠKO LIJEČENJE
    - ENDOMETRIOZE, HIDROSALPINKSA
- TESTOVI NA TROMBOFILIJU
- ANTIFOSFOLIPIDNI SINDROM
- ENDOKRINI POREMEĆAJ
- ADJUVANTNE TERAPIJE NAKON PROŠIRENE DIJAGNOSTIKE

Zaključak 2

Brza uterina dijagnostika sadrži transvaginalni ultrazvuk, mini histeroskopiju s tekućinom te kontrastnu sonografiju za unaprijeđenje uterine dijagnoze.

3 D ultrazvuk u koronarnom presjeku trenutno najbolju metodu evaluacije i dokumentiranja ne kompliciranih uterinih kongenitalnih anomalija

Uterus arcuatus, sub septus i septus čini se da ima ulogu u neplodnosti i habitualnim pobačajima

Ozljeda endometrija prije IVF

- U KOJOJ FAZI CIKLUSA?
- S KAKVIM INSTRUMENTOM?
- KAKO?
- NAČIN DJELOVANJA?
- KOJE PACIJENTICE?

Ultrasound Obstet Gynecol. 2013 Oct;42(4):375-82. doi: 10.1002/uog.12539. Epub 2013 Sep 2.

Endometrial scratching performed in the non-transfer cycle and outcome of assisted reproduction: a randomized controlled trial.

Nastri CO[1], Ferriani RA, Raine-Fenning N, Martins WP.
[1]Department of Obstetrics and Gynecology, Medical School of Ribeirao Preto, University of Sao Paulo (DGO-FMRP-USP), Ribeirao Preto, Brazil; Ultrasonography and Retraining Medical School of Ribeirao Preto (EURP), Ribeirao Preto, Brazil.

OBJECTIVES:
To investigate the effect of endometrial scratching, performed during oral contraceptive pill (OCP) pretreatment, on reproductive outcome and on ultrasound markers of endometrial receptivity, and to assess the pain involved in the procedure, in unselected women undergoing assisted reproductive techniques (ART).

METHODS:
Women undergoing ART were randomly allocated to undergo either endometrial scratching with a pipelle de Cornier or a sham procedure, 7-14 days before starting controlled ovarian stimulation (COS).

RESULTS:
We included 158 women. Endometrial scratching was associated with higher rates of live birth (41.8% vs 22.8%, P = 0.01) and clinical pregnancy (49.4% vs 29.1%, P = 0.01) and higher pain score (6.42 ± 2.35 cm vs 1.82 ± 1.52 cm, P < 0.001), endometrial VI (3.71 ± 1.77 vs 2.95 ± 1.56, P < 0.01) and VFI (0.97 ± 0.51 vs 0.76 ± 0.40, P < 0.01).
There was no significant effect of endometrial scratching on rate of miscarriage (15.4% vs 21.7%, P = 0.53) or multiple pregnancy (22.5% vs 25.0%, P = 0.79), or on endometrial thickness (10.12 ± 1.55 mm vs 9.98 ± 1.62 mm, P = 0.59), endometrial volume (6.18 ± 1.63 cm(3) vs 6.01 ± 1.48 cm(3) , P = 0.51) or FI (26.12 ± 2.82 vs 25.91 ± 2.72, P = 0.65).

CONCLUSIONS:
Endometrial scratching performed once, during OCP pretreatment 7-14 days before starting COS, increases the chance of live birth and clinical pregnancy, but might cause considerable pain.

Eur J Obstet Gynecol Reprod Biol. 2012 Oct;164(2):176-9. doi: 10.1016/j.ejogrb.2012.06.029. Epub 2012 Jul 24.

Does a single endometrial biopsy regimen (S-EBR) improve ICSI outcome in patients with repeated implantation failure? A randomised controlled trial.

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OBJECTIVE:

To evaluate the effect of a single endometrial biopsy regimen (S-EBR) in the cycle preceding the ICSI cycle in patients with repeated implantation failure.

STUDY DESIGN:

This was a prospective randomized controlled trial which included two-hundred infertile women with a history of repeated implantation failure. The subjects were randomly divided into two groups. Group A subjects underwent hysteroscopy and endometrial scraping by Novak curette in the cycle preceding the ICSI cycle, while group B subjects underwent hysteroscopy without endometrial scraping. Implantation rate, clinical pregnancy rate, abortion rate and live birth rate were compared between both groups.

RESULTS:

The number of retrieved oocytes in group A was 11.6 ± 3 and in group B was 11.6 ± 2.8 with no statistically significant difference (p=0.787). There were statistically significant differences regarding the implantation rate, the clinical pregnancy rate and live birth rate. The implantation rate in group A was 12% while in group B it was 7% (p=0.015), the clinical pregnancy rate was 32% in group A while it was only 18% in group B (p=0.034) and the live birth rate was 28% in group A while it was 14% in group B (p=0.024).

CONCLUSIONS:

The single endometrial biopsy regimen (S-EBR) performed during hysteroscopy has statistically significant higher implantation rate, clinical pregnancy rate and live birth rate than hysteroscopy without endometrial scraping.

Iran J Reprod Med. 2013 Nov; 11(11): 869–874.

Table II

Results of pregnancy rate in both groups
All the parameters in this table are expressed in frequency (%) with Chi-square test.
*p-value less than 0.05 was considered statistic

Parameters	Experimental group (n= 114)	Control group (n= 103)	p-value
Pregnancy rate	20/114(17.5%)	7/103 (6.7%)	0.027*
Abortion rate	3 (17.64%)	1 (14.28%)	0.701
Ongoing pregnancy rate	17 (14.9%)	6 (5.8%)	0.03*

All the parameters in this table are expressed in frequency (%) with Chi-square test.
*p-value less than 0.05 was considered statistic

Reprod Biomed Online. 2014 Feb;28(2):151-61. doi: 10.1016/j.rbmo.2013.09.025. Epub 2013 Oct 5.

Hysteroscopy prior to the first IVF cycle: a systematic review and meta-analysis.

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Abstract

This systematic review and meta-analysis investigated the use of routine hysteroscopy prior to starting the first IVF cycle on treatment outcome in asymptomatic women. Searches were conducted on MEDLINE, EMBASE, Cochrane Library, National Research Register and ISI Conference Proceedings. The main outcome measures were clinical pregnancy and live birth rates achieved in the index IVF cycle. One randomized and five non-randomized controlled studies including a total of 3179 participants were included comparing hysteroscopy with no intervention in the cycle preceding the first IVF cycle. There was a significantly higher clinical pregnancy rate (relative risk, RR, 1.44, 95% CI 1.08-1.92, P=0.01) and LBR (RR 1.30, 95% CI 1.00-1.67, P=0.05) in the subsequent IVF cycle in the hysteroscopy group. The number needed to treat after hysteroscopy to achieve one additional clinical pregnancy was 10 (95% CI 7-14) and live birth was 11 (95% CI 7-16).

Hysteroscopy in asymptomatic woman prior to their first IVF cycle could improve treatment outcome when performed just before commencing the IVF cycle.

Robust and high-quality randomized trials to confirm this finding are warranted. Currently, there is evidence that performing hysteroscopy (camera examination of the womb cavity) before starting IVF treatment could increase the chance of pregnancy in the subsequent IVF cycle in women who had one or more failed IVF cycles. However, recommendations regarding the efficacy of routine use of hysteroscopy prior to starting the first IVF treatment cycle are lacking. We reviewed systematically the trials related to the impact of hysteroscopy prior to starting the first IVF cycle on treatment outcomes of pregnancy rate and live birth rate in asymptomatic women. Literature searches were conducted in all major database and all randomized and non-randomized controlled trials were included in our study (up to March 2013). The main outcome measures were the clinical pregnancy rate and live birth rate. The secondary outcome measure was the procedure related complication rate. A total of 3179 women, of which 1277 had hysteroscopy and 1902 did not have a hysteroscopy prior to first IVF treatment, were included in six controlled studies. Hysteroscopy in asymptomatic woman prior to their first IVF cycle was found to be associated with improved chance of achieving a pregnancy and live birth when performed just before commencing the IVF cycle. The procedure was safe. Larger studies are still required to confirm our findings.

Hum Reprod. 2014 Nov;29(11):2474-81. doi: 10.1093/humrep/deu213. Epub 2014 Sep 8.

The effect of endometrial injury on ongoing pregnancy rate in unselected subfertile women undergoing in vitro fertilization: a randomized controlled trial.

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Abstract

STUDY QUESTION:

Does endometrial injury in the cycle preceding ovarian stimulation for in vitro fertilization (IVF) improve the ongoing pregnancy rate in unselected subfertile women?

SUMMARY ANSWER:

Endometrial injury induced by endometrial aspiration in the preceding cycle **does not improve the ongoing pregnancy rate in unselected subfertile women undergoing IVF**.

WHAT IS KNOWN ALREADY:

Implantation failure remains one of the major limiting factors for IVF success. Mechanical endometrial injury in the cycle preceding ovarian stimulation of IVF treatment has been shown **to improve implantation and pregnancy rates in women with repeated implantation failures.**

There is limited data on unselected subfertile women, especially those undergoing their first IVF treatment.

STUDY DESIGN, SIZE, DURATION:

This randomized controlled trial recruited 300 unselected subfertile women scheduled for IVF/ICSI treatment between March 2011 and August 2013. Subjects were randomized into endometrial aspiration (EA) (n = 150) and non-EA (n = 150) groups according to a computer-generated randomization list.

Endometrial injury and reproductive outcomes: there's more to this story than meets the horse's blind eye

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We agree with Professor Evers: we need evidence. This evidence should come from well-designed trials that avoid any instrumentation of the uterus in the preceding 3 months, don't cause any endometrial damage in the control group, stratify the results for women with and without RIF, and report live birth.

Ozljeda endometrija prije IVF

- U kojoj fazi ciklusa? LUTEINSKA 21dc
- S kakvim instrumentom? SONDA, ENDORETA
- Kako? JEDNOPOTEZNO
- Način djelovanja? PROKRVLJENOST
- Koje pacijentice? PONAVLJANI IMPLANTACIJSKI NEUSPJESI, NAKON DETALJNE OBRADE

Zaključak

Da kod rif
Ostali ne
Uzimanje novaca