

Is surgical management of uterine septum necessary prior to IVF?

Professor T C Li

Professor of Reproductive Medicine & Surgery

Sheffield

cutter

keeper

Should septum be
removed prior to IVF?

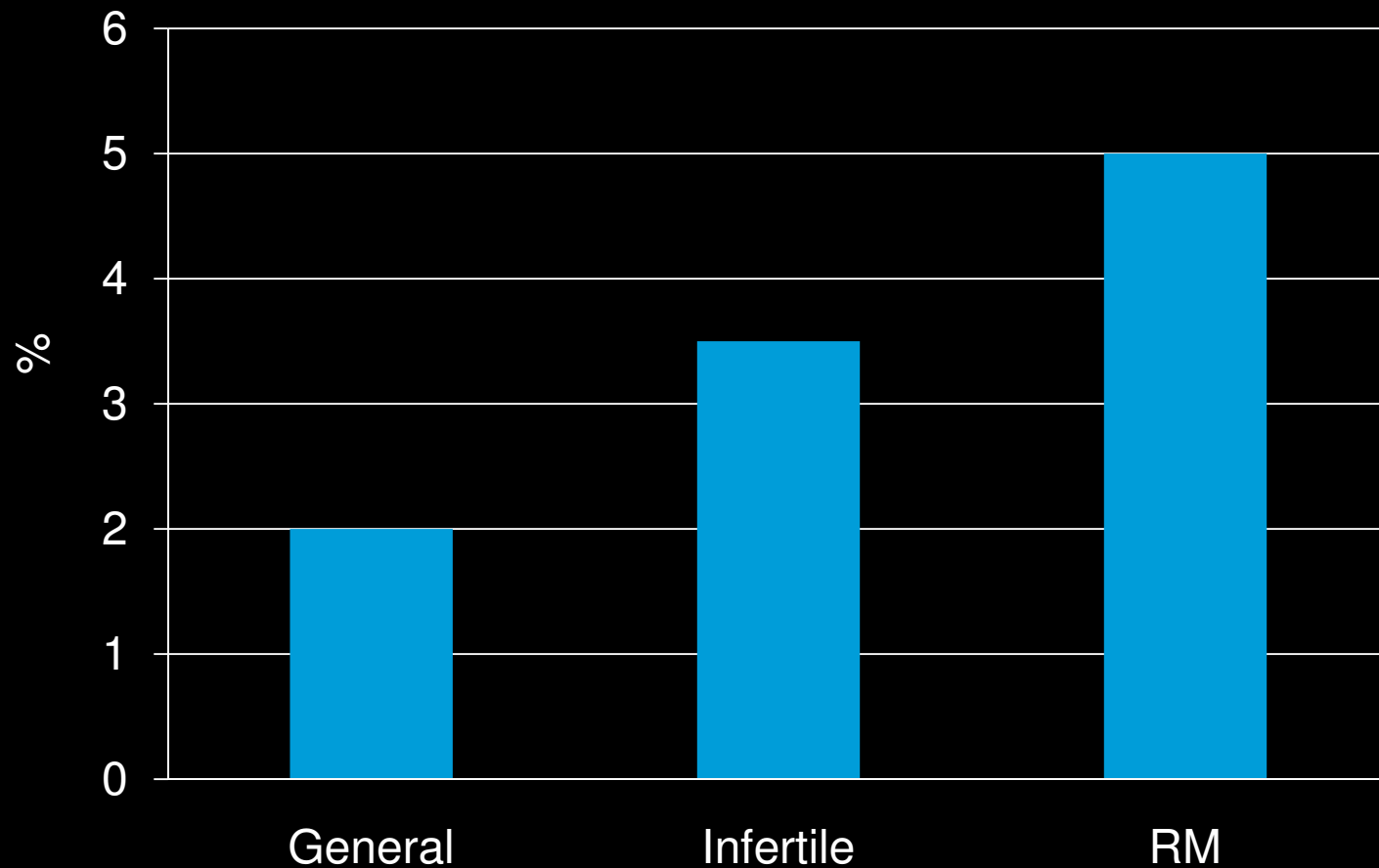
Should septum be left alone
prior to IVF?

I remove septum prior to IVF
because...there is good enough
evidence that it will improve
outcome

I do not remove septum prior to
IVF because.... there is no good
evidence that it will improve
outcome

The evidence

Prevalence of Septate uterus



High Accuracy studies (n=13110)

Sheffield RM Data

Patient group	1 st Trimester	2 nd Trimester
Unexplained RM(<i>n</i> =630)	68%	3%
Septate (<i>n</i> =106)	73%	13%^{**}

**** p<0.001**

Adapted from: Saravelos et al. *RBM Online*. In press

Sheffield RM Data: 1st Trimester Loss

Patient group	Biochemical	Early	Late
Unexplained RM (<i>n</i> =263)	30%	49%	21%
Septate (<i>n</i> =45)	11% **	58%	31% *

* $p < 0.05$

** $p < 0.01$

Adapted from: Saravelos et al. *RBM Online*. In press

REPRODUCTIVE OUTCOME BEFORE AND AFTER
HYSTEROSCOPIC METROPLASTY FOR SEPTATE UTERUS
A meta analysis of 16 published series

	Before	After
Pregnancy	1062	491
Miscarriage	933 (88%)	67 (14%)
Preterm delivery	95 (9%)	29 (6%)
Term delivery	34(3%)	395 (80%)

Homer, Li and Cooke Fertil and Steril, 2000

KEEPER'S RESPONSE

- Evidence is rather weak, as historical control data only, therefore subject to bias
- Data primarily on miscarriage and pregnancy outcome, not on infertility (fecundability)

Case Series 1

Reproductive outcome after hysteroscopic metroplasty in women with septate uterus and otherwise unexplained infertility

Pabuccu & Gomel Fertil Steril 2004

- 61 women
- 25 (41%) conceived within 8-14 months
- 18/25 (72%) live birth
- 5/18 (27.8%) preterm delivery

Case Series 1

Reproductive outcome after hysteroscopic metroplasty in women with septate uterus and otherwise unexplained infertility

Pabuccu & Gomel Fertil Steril 2004

- Conclusion : Women with uterine septum and otherwise unexplained infertility might benefit from hysteroscopic metroplasty

Prospective Controlled Trial

Hysteroscopic resection of the septum improves the pregnancy rate of women with unexplained infertility : a prospective controlled trial

Mollo et al, Fertil Steril 2009

- 44 women with septate uterus and unexplained infertility underwent hysteroscopic metroplasty
- 132 women with unexplained infertility as control subjects

Prospective Controlled Trial

Hysteroscopic resection of the septum improves the pregnancy rate of women with unexplained infertility : a prospective controlled trial

Mollo et al, Fertil Steril 2009

	Pregnancy rate	Live birth rate
unexplained infertility & septum removed	38.6%	34.1%
Unexplained infertility	20.4%	18.9%

KEEPER'S RESPONSE

- Although data is more related to infertility, it is not specifically on IVF

KEEPER'S RESPONSE

- Although data is more related to infertility, it is not specifically on IVF

Should septum be
removed prior to IVF?

Case Series 2

Is hysteroscopic correction of an incomplete uterine septum justified prior to IVF?

Ozgun et al Reprod Biomed Online 2004

- 119 women with incomplete uterine septum
- 119 age-matched control patients

	Septum removed	control
History of miscarriage	14.2%	6.0%
Previous IVF failure	32.7%	20.6%
Clinical pregnancy	47.8%	46.5%
Miscarriage rate	10.5%	20.3%

Retrospective Control Study

The outcome of singleton pregnancies after IVF/ICSI in women before and after hysteroscopic resection of a uterine septum compared to normal controls

Ban-Franchez et al, European J Obstet Gynae & Reprod Biol 2009

- 31 women who conceived following IVF or ICSI before hysteroscopic resection of large (12) or small (19) uterine septum; and 106 women who conceived following IVF or ICSI after hysteroscopic resection of large (49) or small (57) uterine septum.
- For each pregnancy in the study group, 2 pregnant matched, control women identified from IVF/ICSI registry

Retrospective Control Study

The outcome of singleton pregnancies after IVF/ICSI in women before and after hysteroscopic resection of a uterine septum compared to normal controls

Ban-Franchez et al, European J Obstet Gynae & Reprod Biol 2009

	Miscarriage rate	Miscarriage rate in matched controls	P value
Large septum, not removed	83.3%	16.7%	<0.001
Small septum, not removed	78.9%	23.7%	<0.001
Large septum removed	30.6%	20.4%	NS
Small septum removed	28.1%	19.3%	NS

KEEPER'S RESPONSE

- The evidence is somewhat better, but I am not sure if you can call it Grade B+, I would call it Grade B- or Grade C
- The finding is contrary to my experience because I know some patients with a septate uterus have no problems conceiving
- I like to see the results confirmed by a properly conducted **RCT** before changing my practice

There is **no RCT** on the surgical removal of septum prior to IVF treatment

So what do we do?

TRUST

The **R**andomised **U**terine
Septum **T**ransection
Trial

TRUST

- Mutli-centred, Dutch study
- 68 women with 2 or more miscarriage before 20 weeks with a septate uterus
- septum length at least $\frac{1}{4}$ of cavity
- Hypothesis : Live birth rate increases from 35% to 70%

2014....RCT finally published...

Removal of septum produced better outcome.

Keeper's responses

- It is about miscarriage population, not about IVF population
- I do not do this type of operation anyway. I do not think I will do a good job, I am never a good surgeon and I may make it worse.

2014.....RCT finally published...

Removal of septum did **not** produce better outcome.

Cutter's responses

- The study was underpowered
- Some surgeons did not do it properly - they are rather inexperienced. They did not remove all the septum and leave a bit behind. They did not use anti-adhesion gels.....

So the debate continues....

What does that mean to you (now)...

Two good news

- You can carry on doing what you believe – no one can really say that what you do is wrong.
- There is no absolute right or wrong, there is no need for confrontation, the keepers and cutters could continue to be friends.

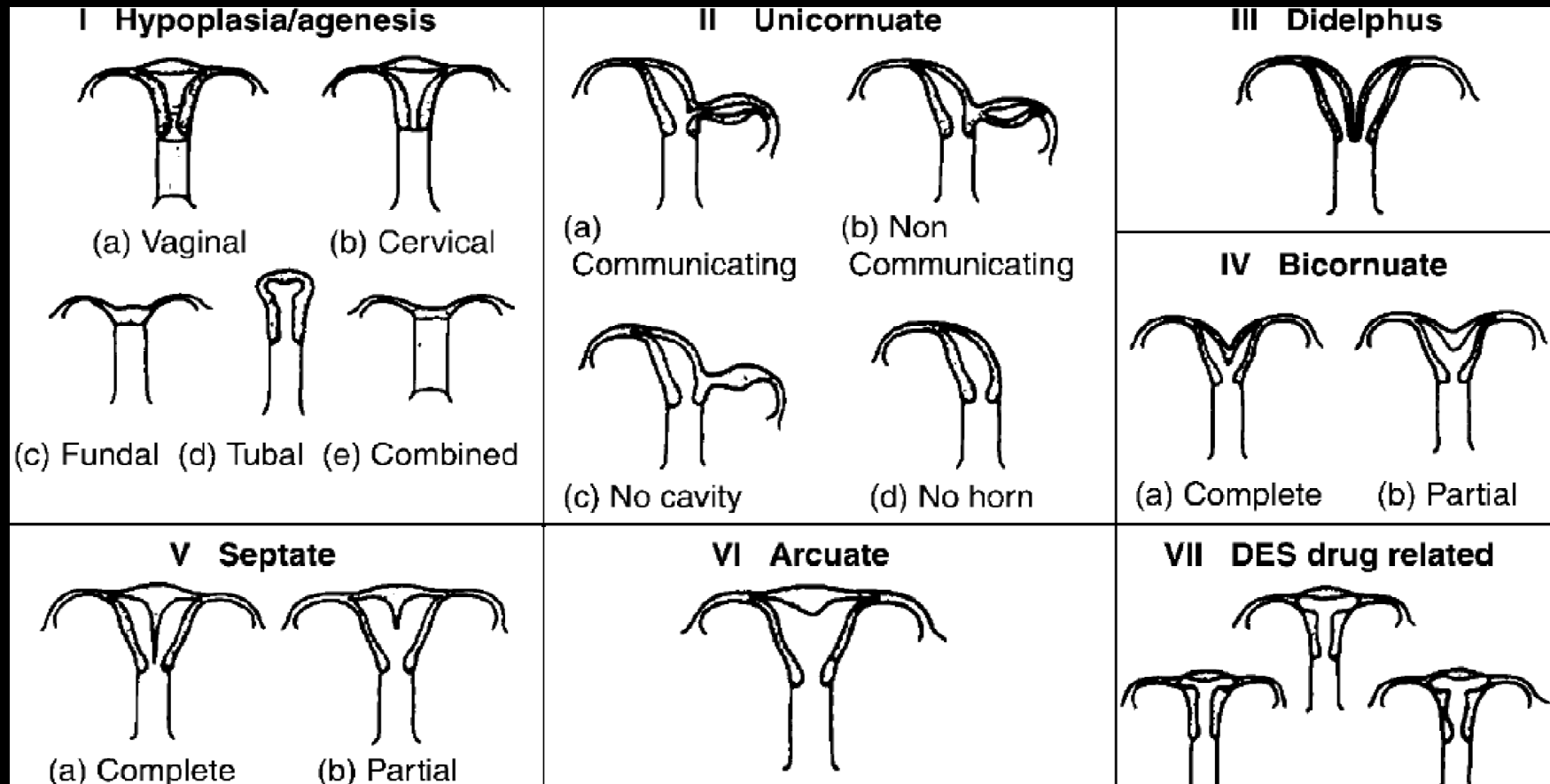
My Opinion

- The currently available evidence does suggest that septum should be removed prior to IVF
- The quality of currently available evidence is reasonable, Grade B-
- Properly conducted and powered RCT should be welcome to provide more robust, Grade A evidence

The future

1. Better diagnosis

Classification of congenital uterine anomalies



How to differentiate between a
small uterine septum and an
arcuate uterus?

2. Better selection

PATIENT SELECTION

Everything in surgery is patient selection –
the chief determinant of results, mortality
and morbidity

What type of septum should be removed prior to IVF?

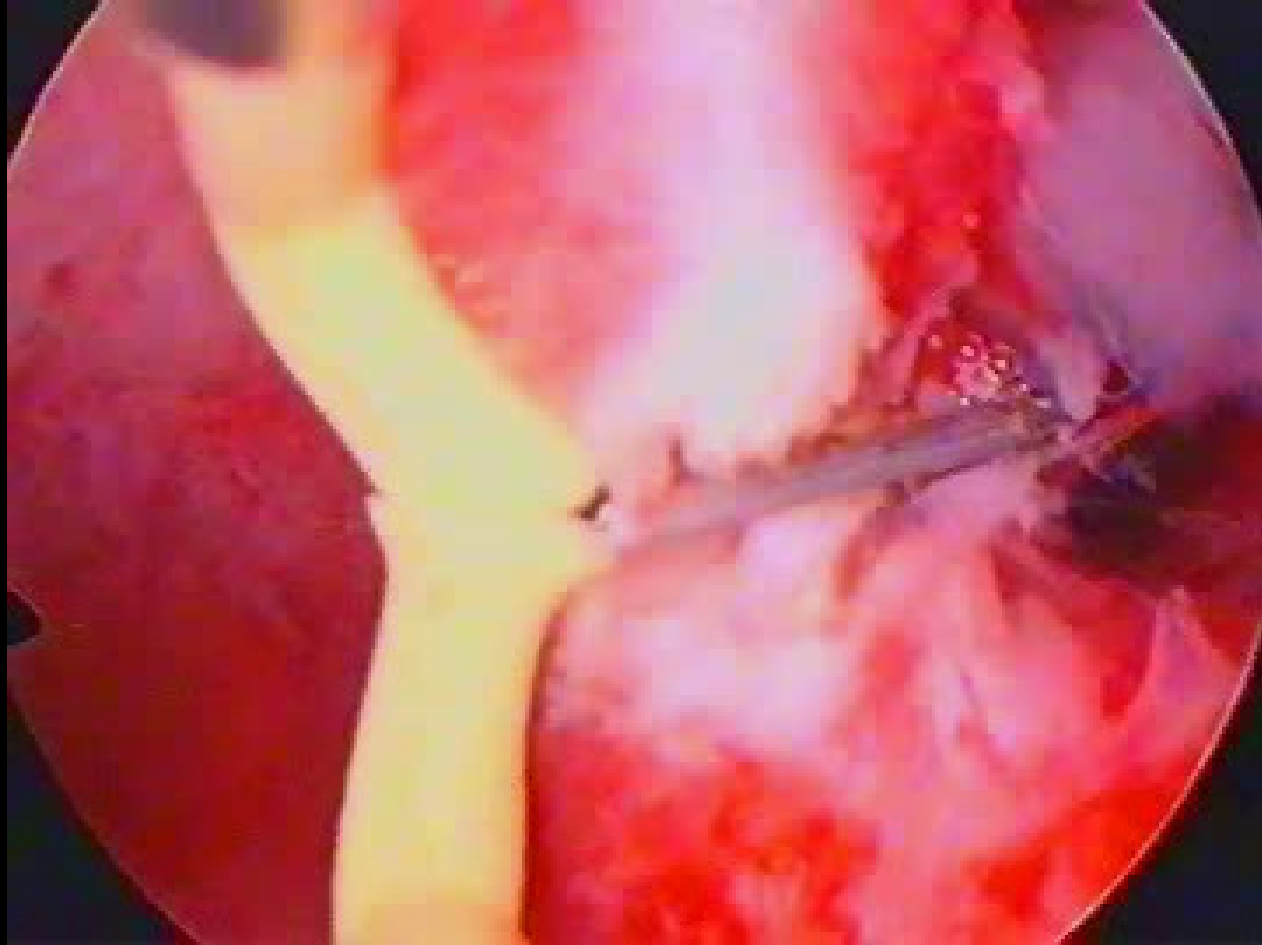
Does size matter?

Is reproductive history important?

Does vascularity affect outcome?

3. Proper surgical techniques

ULTRASOUND CONTROL



HYSTEROSCOPIC REMOVAL OF SEPTUM

- resectoscope - diathermy needle
- hysteroscopic scissors
- laser

Prevention of adhesion

- Hormone treatment
- Intrauterine contraceptive device (IUD) ? Balloon?
- Antibiotics
- Hyalobarrier

4. Better counselling

What is the best time to perform ICSI/ET after hysteroscopic surgery for an incomplete uterine septum?

Berkkanoglu et al Fertil Steril 2008

- 282 women who underwent ICSI/ET after removal of uterine septum

	< 9 weeks	10-16 weeks	> 17weeks
Number of subjects	133	93	56
Clinical pregnancy rate	45.8%	43.1%	41.1%
Miscarriage rate	6.4%	7.9%	5.1%

Obstetric outcome

- Premature labour
- Abnormal presentation
- Cervical weakness
- Rupture of uterus

5. Proper RCT

Conclusions

Should septum be
removed prior to IVF?

Probably Yes

Should septum be
removed prior to IVF?

Probably Yes

RCT awaited

Case selection

Proper surgical techniques

Thank You