Reproductive Surgery : 2017

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Disclosure: shareholder EndoSAT

Fertility basics
EB clinical medicine
Results of surgery
Without adhesions ?
Who & How to organise
Conclusions
Basics of infertility: MFR & CPR

- In a 100% fertile population
  - With 30% monthly fecundity rate, 90% is pregnant after 6 months
  - With a 7% MFR, >55% after 1 year
- If half of the women have a frozen pelvis
  - A 30% MFR generates a plateau after 1 year; i.e., adhesions, re-anastomosis

Monthly fecundity rate AND Cumulative pregnancy rate over time are required to describe Fertility outcome.
Basics of infertility: MFR & CPR

- A real population is composed of very fertile and infertile.
- The very fertile get faster pregnant and the remaining group has a lower median fertility over time.
- Women delivering in Leuven:
  - 60% was pregnant after 1 month.
  - If not pregnant after 6 months, MFR is 10%.

Monthly fecundity rate will always decrease over time.
Fertility basics 1

• Unexplained infertility: population model
  • of 1 year: 20% conceive next year, 50% CPR after years
  • Of 3 years: < 5% < 20%
  • Of 5 years: < 1%
  • This is the basis for initiating investigation, treatment, IVF

• Following fertility surgery
  • A typical 2 population model: almost all pregnancies occur in the first 6 months - 1 year

• IVF
  • The MFR decreases over time
  • The CPR, including drop-outs, hardly exceeds 60% of the initial population
Fertility basics 2: CPR – MFR are multifactoreal

- Age and/or duration of infertility

- Mechanical
  - 1/3th iatrogenic

- Ovulation – luteal phase - implantation
  - endometriosis

- Cervical mucus and immunology

- Sperm quality and survival
Two Approaches to infertility

• Slow and progressive
  • Eg: 6 months of expectant management after HSG
  • Eg: temporise to avoid a diagnostic laparoscopy

• A complete diagnosis and work-up before treatment
  • Pro: does not waist time
  • Contra: unnecessary diagnostic laparoscopy/hysteroscopy

Slow versus fast varies with

• Age
• Other infertility factors as male infertility
  Severe: an argument for IVF or
  Moderate: a complete investigation
Infertility : when a laparoscopy?

• **Yes**
  - if associated pain
  - If big cystic endometriosis

• **?** When infertility is the only symptom
  - Calculated risk : overtreatment
  - missing treatable pathology
  - The exact place of THL is still unclear

• **No** when IVF is anyway indicated

*Laparoscopy is necessary for a complete diagnosis and comes before severe/expensive treatment*
Adhesion of oviduct only

This is an absolute mechanical infertility - which is impossible to diagnose without laparoscopy, cured after laparoscopy
Endometrioma by ultrasound

Age & diameter

<1  1-3  3-6  > 6

No symptoms
either wait
how long?
if not growing
age
or laparoscopy
excision
ablation

Infertility
IVF without
full fertility
work-up
Is not
recommended

Pain
laparoscopy
diagnosis
treatment
2 step
ovariectomy

Evidence Based medicine <-> Evidence based clinical medicine
we do not treat endometrioma’s  we treat patients
MFR and CPR + Multivariate

“torture the data until they confess”

significant=SEM medicine=population
During Diagnostic laparoscopy (THL ?)

- If surgery is indicated
  - Perform surgery if skilled
  - Otherwise refer

- 3 Groups
  - Surgery indicated for reasons other than fertility
    Very severe pain + deep endometriosis, cystic ovarian endo, frozen pelvis
    Symptomatic myoma
  - Surgery indicated beyond reasonable doubt
    Hysteroscopic polypectomy, small myomectomy, septum
    Superficial endometriosis
    Filmy peritubal-peri-ovarian adhesions
  - Unclear indications Surgery<->IVF
    Ovarian drilling (under water) for PCO
    Deep endometriosis without pain, asymptomatic severe adhesions
    Smaller cystic ovarian endo
    Tubal occlusion : hydrosalpinx, cornual block
Surgery beyond reasonable doubt

Hysteroscopy

- Polyp
- Smaller myoma
- Septum

- No arguments not to do
  - No surgical risk
  - Fast
  - Even if positive effect on fertility outcome is not that clear
Ovarian Drilling for PCO

- A debated subject
  - Medical therapy
  - Versus drilling

- Results of drilling
  - 80% ovulations
    - 30% adhesions
  - Under water: THL
    - 0% adhesions?
## Basics of endometriosis lesions

<table>
<thead>
<tr>
<th>Subtype</th>
<th>Prevalence</th>
<th>Pain</th>
<th>Infertility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subtle</td>
<td>80%</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Typical</td>
<td>25%</td>
<td>in 50%</td>
<td>+</td>
</tr>
<tr>
<td>Cystic</td>
<td>10%</td>
<td>in 80%</td>
<td>+++</td>
</tr>
<tr>
<td>Deep</td>
<td>2-3%</td>
<td>in 95%</td>
<td>++++</td>
</tr>
</tbody>
</table>

- **Adenomyosis**
- **Peritoneal pockets – Müllerianosis - Choristoma**
Superficial endometriosis

• Subtle lesions

• Typical lesions
  • Pelvis
  • Diaphragm?

• Guidelines : Superficial endometriosis
  • Surgery is indicated
  • If not pregnant after .... months IVF
Diagnosis and treatment during laparoscopy

• Is this a cause of infertility?

*Subtle endometriosis*
Diagnosis and treatment during laparoscopy

• Is this a cause of pain?? infertility?

Typical endometriosis
Diaphragm

Typical endometriosis
Results of treatment

• Infertility
  • Surgical treatment: Endocan study (R. Maheux et al)
    Stage I and II and no other infertility factor

• Discussion
  – Patient not blinded to treatment
  – Increase in treatment or decrease in non treatment?
  – LUF and stress
  – Trait anxiety and fertility

Endocan does not prove that fertility improves with laparoscopic treatment
The LUF Syndrome

- Peritoneal fluid
- LUF Exists
- Associated
  - with typical E
  - not with subtle E
- A cofactor?

Results of treatment

- Infertility

- Surgical treatment: Gruppo Italiano per lo studio dell’Endometriosi (Hum Reprod 99, 14, 1332-1334)

  Stage I and II and no other infertility factor

  RCT

What I believe!!
Conclusion

• Subtle endometriosis
  • ? Whether it is a cause of infertility or pain
  • ? Whether treatment is useful
  • A physiologic condition occurring intermittently in all women

• Typical endometriosis
  • Can cause pain
  • Associated with infertility and with LUF
  • Unclear whether treatment is effective
  • Surgical excision
  • Recurrence rate around 20 %

• But is it acceptable not to treat – no risks?
Cystic ovarian endometriosis

Evidence Based medicine <-> Evidence based clinical medicine
we do not treat endometrioma's we treat patients

Diagnosis: ultrasound
If mobile:‼ Corpus luteum
CA125 if suspected
Probability of other endometriosis
No pain is very rare

Infertility

Pain
laparoscopy
diagnosis
treatment
2 step
ovariectomy

<1 1-3 3-6 > 6
Cystic ovarian endometriosis

- > 6 cm = 2 step
- Smaller
  - Excise
  - Do not destroy the ovary
  - Fertility : CPR 60%
- The Questions are
  - Judgment without a laparoscopy ?
  - During laparoscopy : is no treatment an option ?
  - Unclear : smaller and recurrences
Vaporisation

- Slow
- Incomplete
- Depth?
- Too deep bleeding
Diagnosis and treatment during laparoscopy

Excision of cystic ovarian endometriosis
Cystic ovarian endometriosis

During diagnostic laparoscopy
very small: vaporise
larger: excise

When recurrences: 5-6% ???

Ovarian reserve: no valid data

Infertility

Pain
laparoscopy
diagnosis
treatment
2 step or
ovariectomy

Evidence Based medicine <-> Evidence based clinical medicine

we do not treat endometrioma's  we treat patients
Deep endometriosis & infertility

- If severe pain (95%) : surgery needed

- If no pain and infertility
  - We suggest surgery since Frozen pelvis after several IVF’s
  - Complications of pregnancy

- CPR after surgery : 25-50 % in 6-12 months

- Expertise required
  - to avoid unnecessary bowel resections, nerve damage and adhesions
Expertise required

pain ++
perineal
Radiation

All exams  Negative
Clinical, MRI, contrast enema

hysterectomy
Excision of a larger deep endometriosis nodule requires expertise
Pregnancies in deep endometriosis

N=2500

50% without children

50% with children

full analysis with
age
diameter of lesion
duration of surgery
not done yet
Pregnancy rates

Cox Regression

- Duration I: 0.001
- rAFS: 0.06
- Deep: 0.057
- E-oma: 0.09
- Age: 0.04

MODEL

- Duration: 0.01
- Endometriosis: 0.02

or

- Volume (deep): 0.05
- E-oma: 0.09

age # duration

6 Months
Conclusions:

Deep Endometriosis and infertility

- Huge variability in techniques
- Poorly documented fertility explorations
- Series too small for meaningful analysis eg size
- Spontaneous pregnancy rates of 25-60%
- Prognostic factors?
- Indication for surgery is pain not fertility
- Data suggest a negative effect upon fertility-MFR without treatment
Tubal surgery

- Adhaesiolysis
- Thick walled hydrosalpinx: salpingectomy
- Thinwalled hydrosalpinx
  - Salpingostomy if tuboscopy OK
- Reanastomosis for tubal cornual obstruction or reversal of sterilisation

The place of reconstructive tubal surgery in the era of assisted reproductive techniques

Victor Gomel *

Reproductive BioMedicine Online (2015) 31, 722-731

CONCEPTIONS

Reconstructive tubal microsurgery and assisted reproductive technology
Other fertility enhancing surgeries

• Myomectomy
  • Hysteroscopic
  • Laparoscopic indication versus feasibility

• Adenomyosis
  
  Insufficient data to judge fertility impact

  IVF is rather an indication for surgery

• Adhesiolysis

Uterine adenomyosis: laparoscopic management

George A. Pistofidis MB, BS, FRCOG¹, Ourania G. Koukoura MD, PhD²
Adhesion free surgery is realistic (Fertil Steril Oct, 2016)

Introduction: Quality of pelvic surgery and postoperative adhesions

Microsurgical principles and postoperative adhesions: lessons from the past

Role of the peritoneal cavity in the prevention of postoperative adhesions, pain, and fatigue
The damage to the cavity is (20 times) more important than the surgery trauma.
Proof of concept human RCT

- Deep endometriosis
- 16 cases – 11 controls

Köninckx, Corona, Timmerman, Verguts, Adamyan  J. Ovarian Res. 2013, 6,90
Prevention of adhesion formation based on pathophysiology. Steps 1 and 2 result in 85% adhesion prevention. Together with step 3, adhesion prevention becomes close to 100%.

Conclusions

• Infertility is a clinical problem
• Requiring a diagnostic laparoscopy before IVF
  In most couples
• Surgery during laparoscopy
  Requires skills
• Recommended
  Videoregistration as a quality control
• Adhesion free surgery is realistic
  Quality of surgery
  Microsurgical tenets ie Peritoneal conditioning + barrier
Surgery and IVF are complementary

but surgery comes first

Provided it is well done
Quality control needed

Surgery first results in higher CPR
Reproductive surgery 2017

Quality surgery Without Adhesions

Requires a Skilled + Fast surgeon

Which surgery by The infertility IVF Specialist?

How to maintain training in Reprod surgery?

Quality control?

The surgeon who does not have the courage to show what he does should not do surgery.