Infertile work up

- Basic test (spermogram, ovulation, hormonal test etc..)
- Pelvic evaluation: 4 parameters
  - Tubal patency
  - Uterine cavity
  - Tubo-peritoneal environment
  - Tubal mucosa

WHICH METHOD
Non invasive tools (HSG-USG)

- 30-35% false negative*
- 15% false positive*

- Compared with laparoscopy
  - Kappa score* = 0.3 (except for hydrosalpinx = 0.6)

**EBM level Ia
***Kappa score: considered as good when above 0.75
WHICH METHOD

Invasive tool (Laparoscopy)

- Considered as the “gold standard”
- Risks*

- so rarely practised today leading to increase artificially the number of “unexplained infertility”
- IVF often practised without correct pelvic evaluation


fertiloscopy

- Hydropelviscopy
- Dye test
- Salpingoscopy
- Microsalpingoscopy
- Hysteroscopy

CRES 2002

fertiloscopy

- Local anesthesia
- No scar
- Safe: no pneumoperitoneum, no Trendelenburg position, no risk of vessel injury
- Short procedure (10’)
- Compared with laparoscopy=identical
  Kappa score between 0.75 and 0.92**
  + adjonction of salpingo/microsalpingoscopy


+ EBM level Ib
What is fertiloscopy?
Rationale for fertiloscopy

- **FLY study** *(Fertiloscopy versus Laparoscopy)*
- Prospective multicentric trial comparing fertiloscopy and laparoscopy on the same patient
- Conclusion: « fertiloscopy should replace laparoscopy in infertile patients with no obvious pathology »

**Watrelot et al. Human Reproduction 2003**

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**RESULTS (1) salpingoscopy**

<table>
<thead>
<tr>
<th>N=500</th>
<th>n</th>
<th>normal</th>
<th>abnormal</th>
</tr>
</thead>
<tbody>
<tr>
<td>phimosis</td>
<td>25(5%)</td>
<td>12</td>
<td>17(68%)</td>
</tr>
<tr>
<td>hydrosalpinx</td>
<td>6(1,2%)</td>
<td>1</td>
<td>5(83%)</td>
</tr>
<tr>
<td>adhesions</td>
<td>48(9,5%)</td>
<td>15</td>
<td>33(68%)</td>
</tr>
<tr>
<td>Endometriosis</td>
<td>95(19%)</td>
<td>79</td>
<td>16(16%)</td>
</tr>
<tr>
<td>No pathology</td>
<td>326 (65,2%)</td>
<td>299</td>
<td>27(5,2%)</td>
</tr>
<tr>
<td>total</td>
<td>500</td>
<td>98(19,6%)</td>
<td></td>
</tr>
</tbody>
</table>
**microsalpingoscopy**

**RATIONALE:**

The more the nuclei are dye stained, the more damaged the mucosa is (Marconi 1999)

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**Two alternative strategies**

- French approach
- American approach

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**Current French approach**

- Normal/doubtful
- Pathological
- HSG
- Laparoscopy
- Fertiloscopy
- Operative fertiloscopy
- IUI
- IVF
Continuous serie

- June 1997 - December 2005
- N° patients = 1802
- Exclusion = 223 cases (live demonstration 101 and ovarian drilling 122)
- N = 1589 cases
Cancellation rate

- vaginal examination: 91/1589 (5.7%) (recto-vaginal endometriosis, fixed retroverted uterus)

Complications

- Infection: 1
- Abnormal bleeding: 2 (0.1%)
- False route: 11 (0.7%)
- Rectal injury: 3 (0.2%)

- Never serious complication

- Cumulative series >20,000 cases
  - Laparoscopy mortality: 1/12,000, morbidity 3.4/1000
strategy
HSG pathological

\[ \text{Fertiloscopy } N=1498 \]

\[ \text{Laparoscopy} \]

\[ \text{Normal} \]
\[ \text{abnormal} \]

\[ \text{Operative fertiloscopy} \]

selection

\[ \text{IUI} \]
\[ \text{IVF} \]

Fertiloscopy

salpingoscopy

selection = 1006

Normal/sub normal fertiloscopy

- Normal findings = 518 (34.5%)
- Subtle lesions = 349 (23.2%)
- Minimal endometriosis = 139 (9.3%)

Total = 1006 (67.1%)
Abnormal fertiloscopic findings

$n=482$

- Endometriosis:
  - mild = 79 (5.3%)
  - severe = 33 (2.2%)
  - Total endometriosis = 112 (7.4%)

- Pelvic adhesions and tubal pathology:
  - minimal = 104 (6.9%)
  - mild = 208 (13.8%)
  - severe = 58 (3.8%)
  - Total adhesions = 370 (25.6%)
Salpingoscopy and microsalpingoscopy

- N=1164 (for at least one tube)
- 1164/1232 (94.3%)

Normal microsalpingoscopy

Abnormal microsalpingoscopy (nuclei dye stained by the methylene blue)

Fertiloscopy = normal
Salpingoscopy = normal

N=572

Fertiloscopy = abnormal
Salpingoscopy = normal

N=261

Fertiloscopy = normal
Salpingoscopy = abnormal

N=202

Fertiloscopy = abnormal
Salpingoscopy = abnormal

N=129

IUI IVF surgery

Follow up

- N=1164
- IUI ......572 (49.1%)
- surgery ....261 (22.4%)
- IVF ........331 (28.4%)
Pregnancy after 6 months

- Group 1: IUI……..118 (20.6%)
- Group 2: surgery.. 92 (35.2%) ns
- Group 3: IVF…… 121 (35.7%) ns
- Total……………. 331 /1164 (28.4%)

Operative fertiloscopy

OVARIAN DRILLING (for infertile patients)

Criteriae of Rotterdam (hyperandrogenia, hirsutism, ultrasound imaging)
Evolution

- Wedge resection per laparotomy
- Laparoscopic wedge resection
- Laparoscopic ovarian drilling
- Fertiloscopic ovarian drilling

TECHNIQUE

- HYDROPELVISCOPY (step 1)
- Visualization of ovarian ligament
- Bilateral drilling (4-8 holes by side) using bipolar electrosurgery
- Step 2 to 5
- Saline solution is left in place
- New option: ADEPT™

Ovarian drilling and fertiloscopy

- Fast
- Easy
- Less risky than other surgical method
- Ambulatory
- Check up at the same time
Strategy
- Diet
- Clomiphene citrate
- Metformin+FSH
- Drilling

Outcome predictive factors
- Poor responder:
  - BMI>35
  - hyperandrogenia
  - infertility>3 years
- Good responder
  - LH>10

Pro and cons?

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Gonadotrophin</th>
<th>Ovarian Drilling</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Non-invasive</td>
<td>Mono-ovulation</td>
</tr>
<tr>
<td></td>
<td>May be repeated</td>
<td>No multiple pregnancy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Less miscarriages</td>
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<tr>
<td></td>
<td></td>
<td>No OHSS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Prolonged effect</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cheap</td>
</tr>
<tr>
<td></td>
<td></td>
<td>One step check up</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Disadvantages</th>
<th>Gonadotrophin</th>
<th>Ovarian Drilling</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Monitoring cost</td>
<td>Risk of OHSS</td>
</tr>
<tr>
<td></td>
<td>Risk of multiple pregnancy</td>
<td>Risk of surgical procedure</td>
</tr>
<tr>
<td></td>
<td>Very low with fertiloscopy</td>
<td>Very low with fertiloscopy</td>
</tr>
<tr>
<td></td>
<td>Adhesions rare with fertiloscopy</td>
<td>Adhesions rare with fertiloscopy</td>
</tr>
<tr>
<td></td>
<td>Risk of surgical procedure</td>
<td>Risk of surgical procedure</td>
</tr>
</tbody>
</table>
Results

- N=80
- Follow-up=18 months (+/-6.4%)
- Ovulation: 73/80 (=91%)
- Cumulative PR:44/73 (=60%)
  44/80(55%)
- Mean time :3,9 (1-11,8) months
- Outcome :8 miscarriages(18%) (no twins or ectopic)

Fernandez, Watrelot et al. AAGL journal 2004

"Piercing study"
(coordinator H Fernandez, 10 centres, 250 patients Metformin+IUU vs Fertiloscopic OD-)

- Guidelines of HAS (Haute autorité de Santé 04/2008)
  1. OD is an attractive alternative to FSH stimulation,
  2. fertiloscopy is a mini-invasive option as effective as laparoscopy, 
  3. second OD may be performed if PCOS is recurrent after a first pregnancy

FERTILOSCOPY=first GYN NOTES PROCEDURE
Conclusions = take home messages

- Fertiloscopy is safe and reproducible
- Very well accepted by patient: No scar, no post operative pain, office procedure, strict local anaesthesia available
- Learning curve limited but necessary
- The Complication rate is very low and never serious
- Salpingoscopy is possible in a routine basis
- Abnormal salpingoscopy leads to IVF
- Endoscopy is mandatory to choose the best therapeutic option and avoid unnecessary IVF
- **FERTILOSCOPY REDUCES THE TIME TO BECOME PREGNANT IF PRACTICED EARLY IN THE INFERTILE WORK UP**

Contact: Robert Milnes
Robert.milnes@fertility-focus.com

thank you!