

Role of reproductive surgery in the era of Assisted Reproductive Technology

V P Singh

Medical Director

Fertility Associates Hamilton

Disclosures

- Training Director, AGES Laparoscopic training programme based at Waikato Hospital and Anglesea Gynaecology, Hamilton
- Covidien Preceptor for Laparoscopic Hysterectomy

Journey to a Baby

- *For some people the journey is short...*
- Thinking about starting a family
- Successful pregnancy



Journey to a Baby

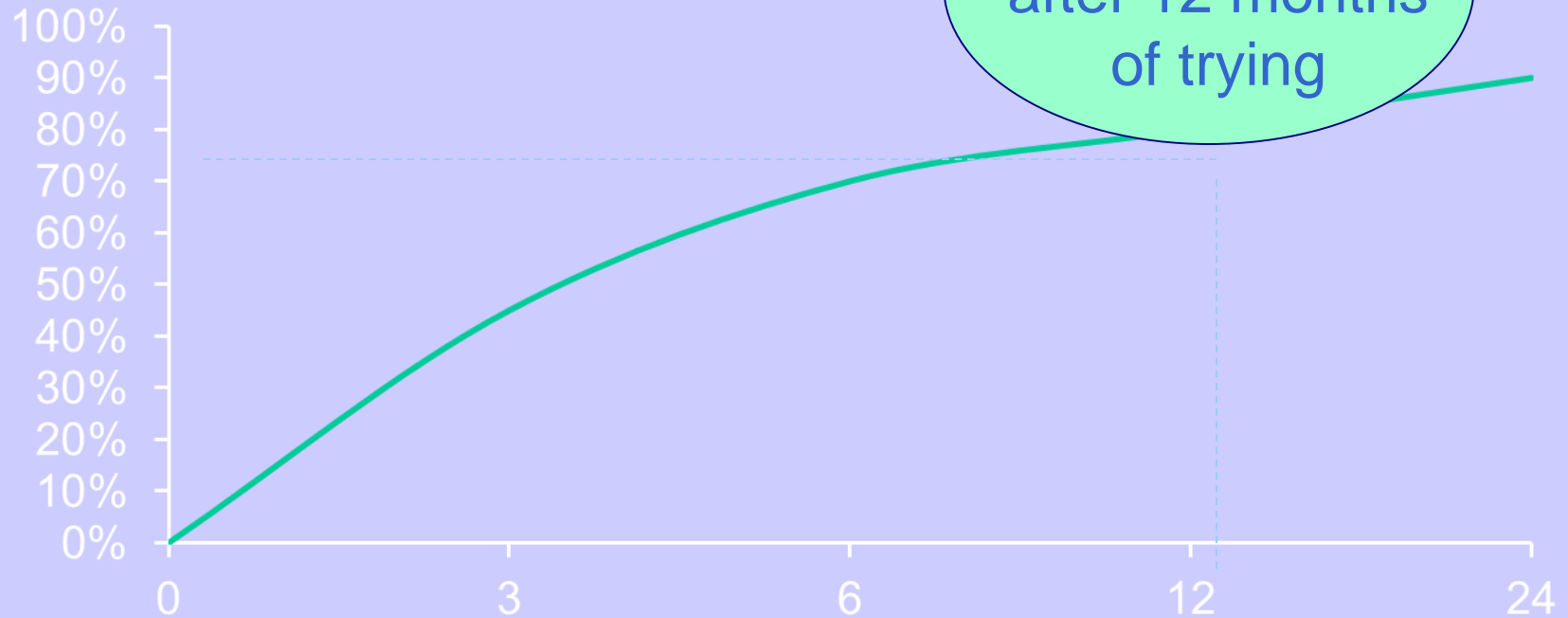
- *For others the journey is longer...*
- Thinking about starting a family
- Do I have a fertility issue to overcome?
- What can I do?
- What does treatment cost?
- What is treatment like?
- Successful pregnancy



Do I have a fertility issue?

Chance of Pregnancy

Human conception rate



Months of unprotected intercourse

Infertility

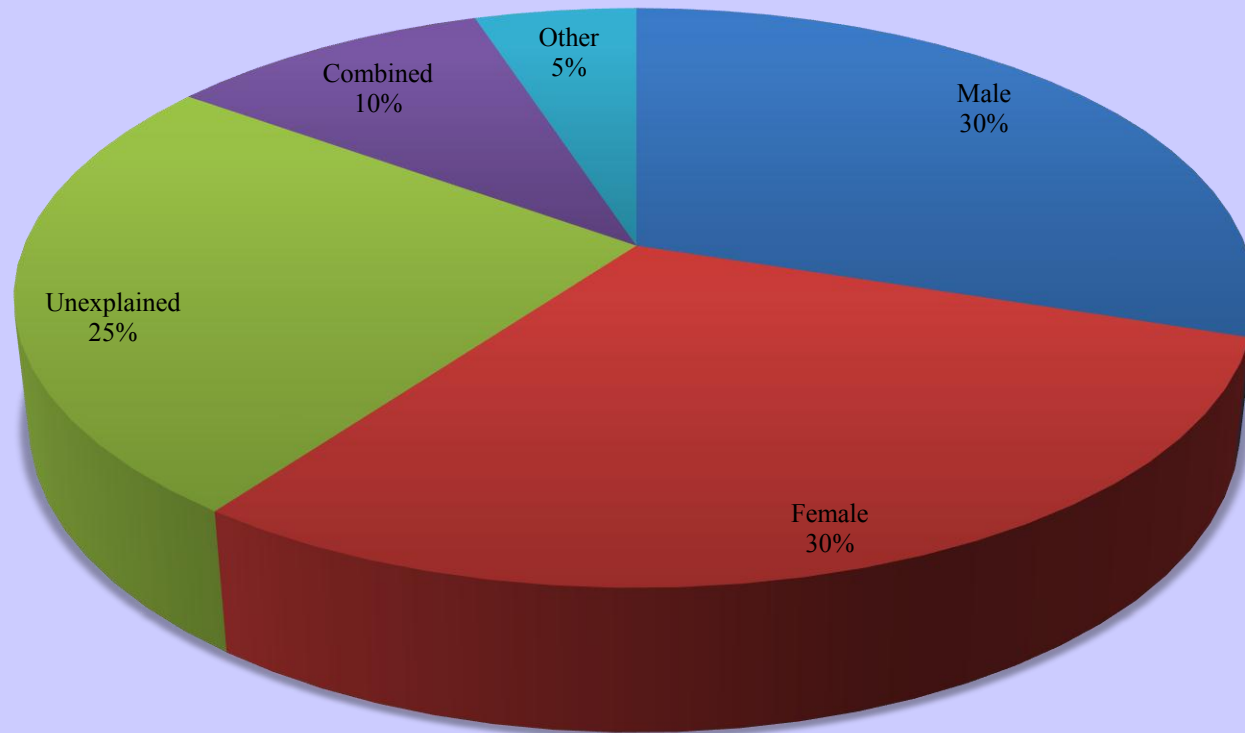
- **Failure to become pregnant after 1 year of unprotected intercourse**
- **Affects 1 in 7 couples**

Infertility: (n)

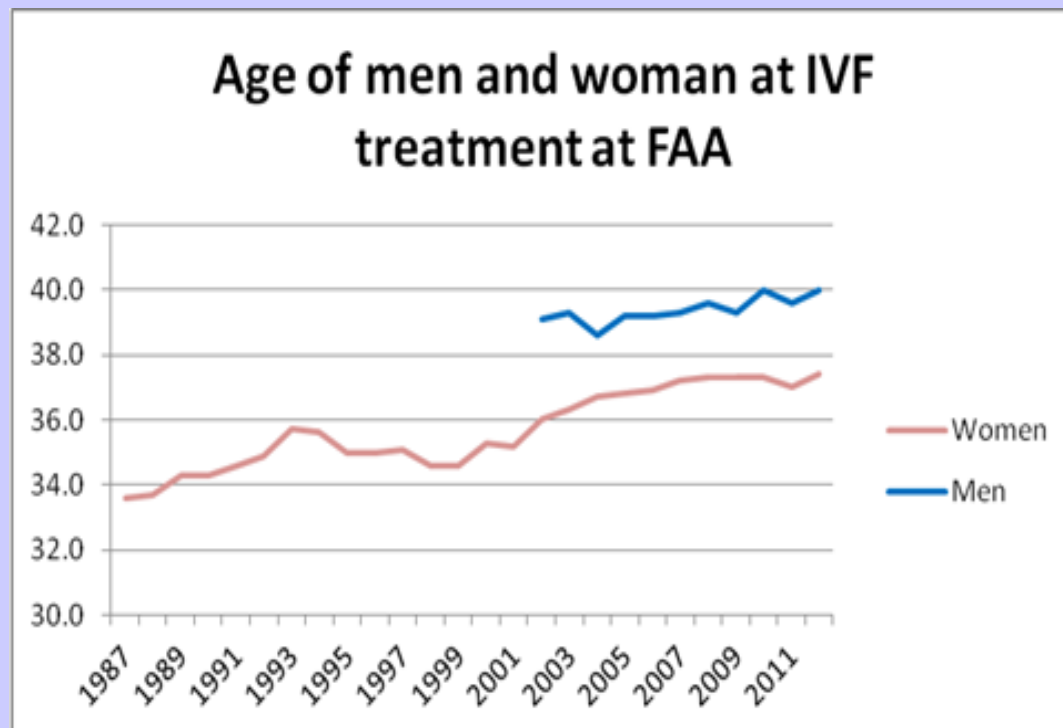
A medical condition that diminishes self-esteem, your social life as well as your checking and savings accounts. Causes sudden urges to pee on sticks, cry, scream and a fear of pregnancy announcements.

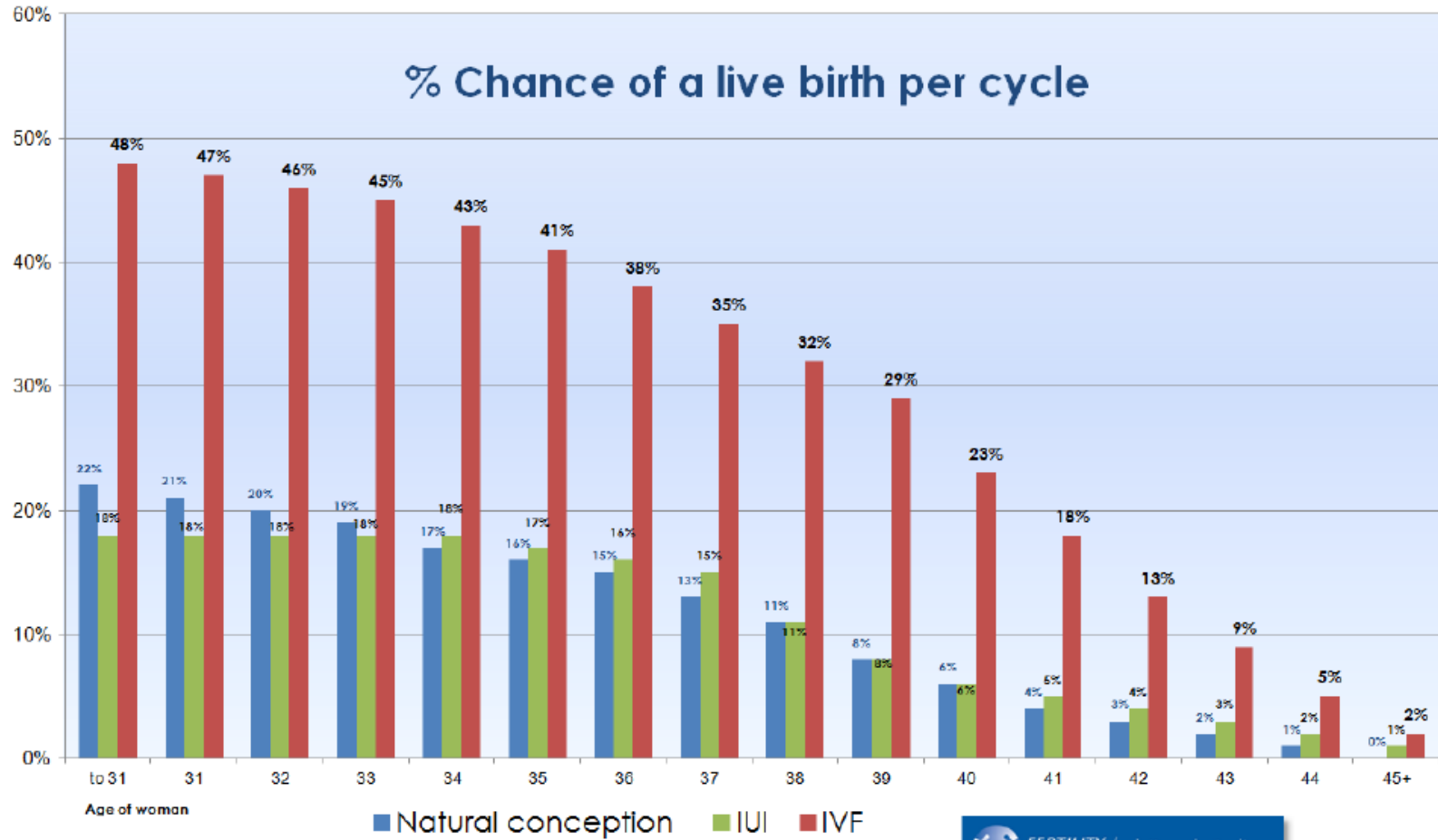
Treated by a Medical Specialist who you pay through your nose
-this does not always work!

Infertility



'Age' is the single most important contributing factor in our practice

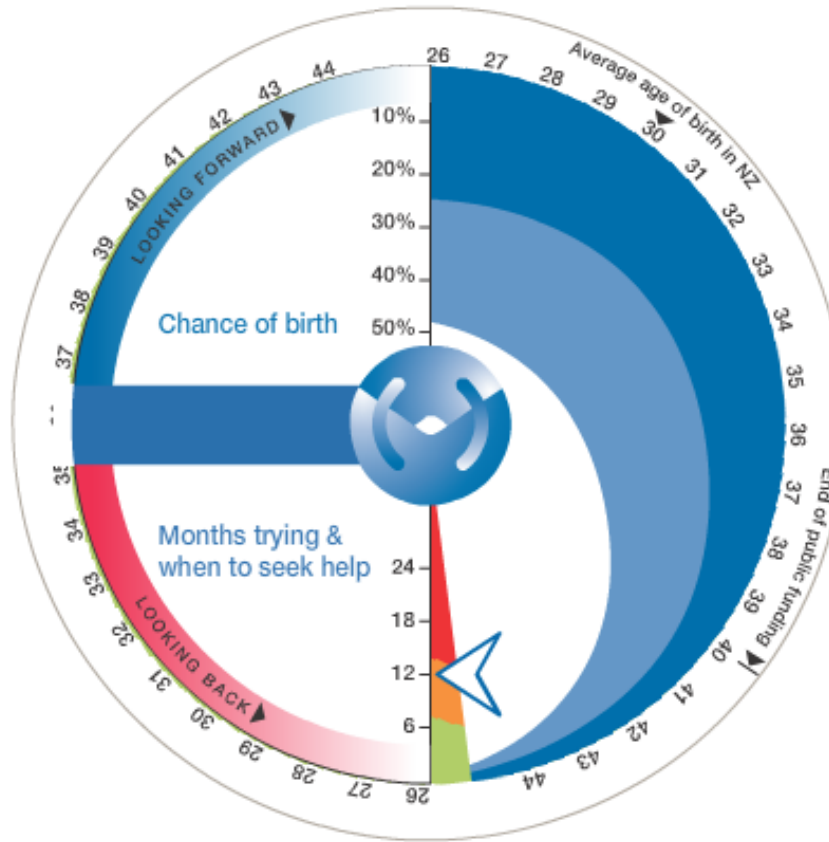




Source - Fertility Associates Biological Clock & Pathway to a child data



Biological Clock™



Chance of birth

■ Chance of having a child per month of trying for fertile couples

25%

■ Chance of having a child from one IVF cycle for people experiencing infertility

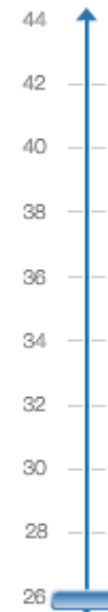
48%

Months trying & when to seek help

- Time to act
- Time to start thinking about seeing your GP or fertility specialist
- OK to wait, except under circumstances noted [here](#)

Woman's Age

26

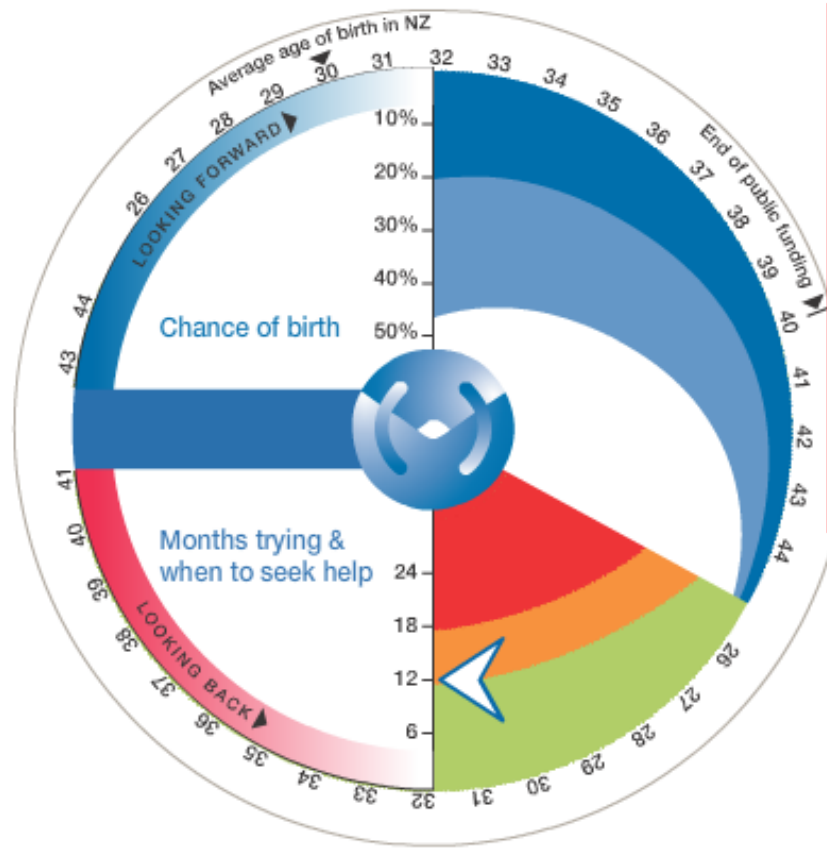


Months Trying

12



Biological Clock™



Chance of birth

■ Chance of having a child per month of trying for fertile couples

20%

■ Chance of having a child from one IVF cycle for people experiencing infertility

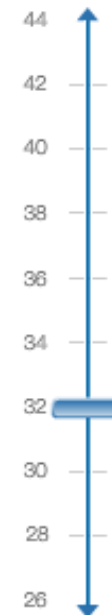
46%

Months trying & when to seek help

- Time to act
- Time to start thinking about seeing your GP or fertility specialist
- OK to wait, except under circumstances noted [here](#)

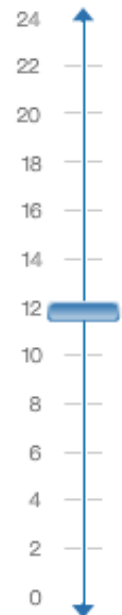
Woman's Age

32

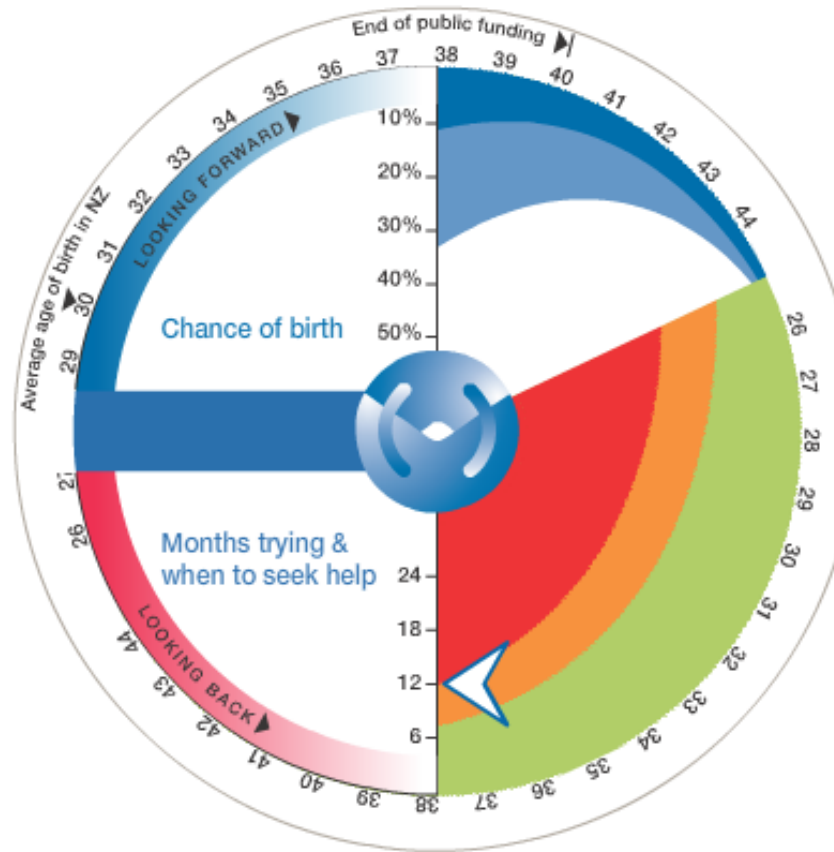


Months Trying

12



Biological Clock™



Chance of birth

Chance of having a child per month of trying for fertile couples

11%

Chance of having a child from one IVF cycle for people experiencing infertility

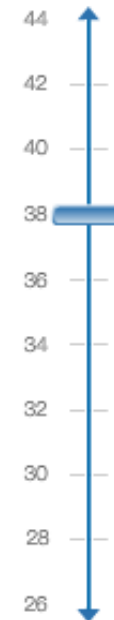
33%

Months trying & when to seek help

- Time to act
- Time to start thinking about seeing your GP or fertility specialist
- OK to wait, except under circumstances noted [here](#)

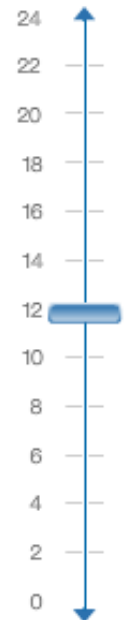
Woman's Age

38

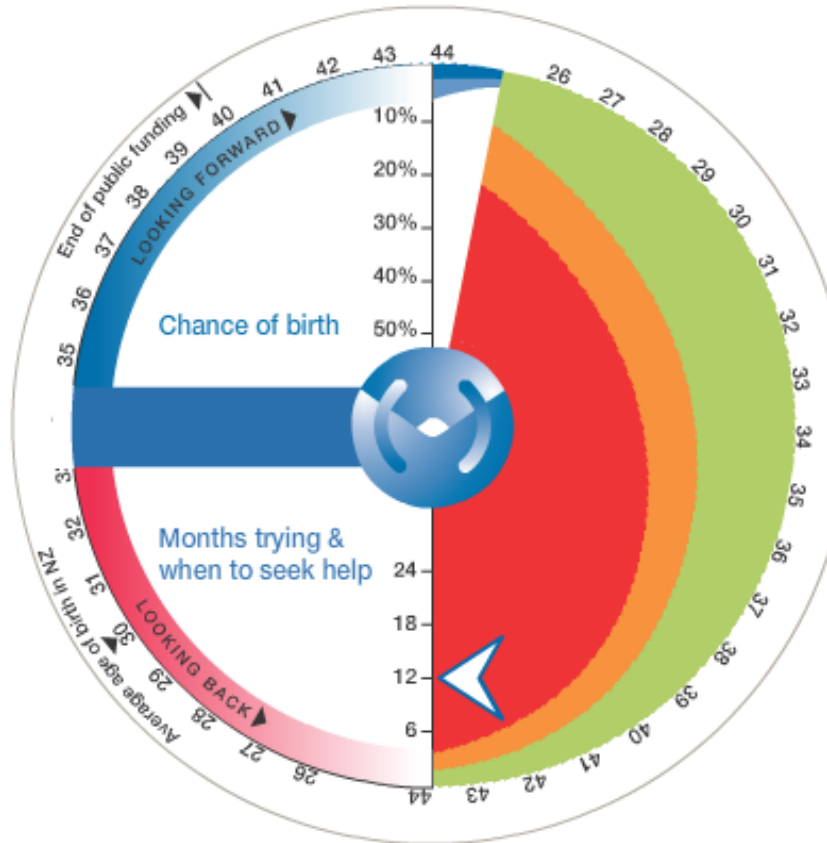


Months Trying

12



Biological Clock™



Chance of birth

■ Chance of having a child per month of trying for fertile couples

1%

■ Chance of having a child from one IVF cycle for people experiencing infertility

5%

Months trying & when to seek help

- Time to act
- Time to start thinking about seeing your GP or fertility specialist
- OK to wait, except under circumstances noted [here](#)

Woman's Age

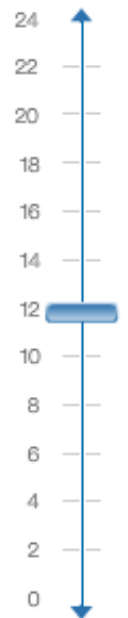
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End of public funding

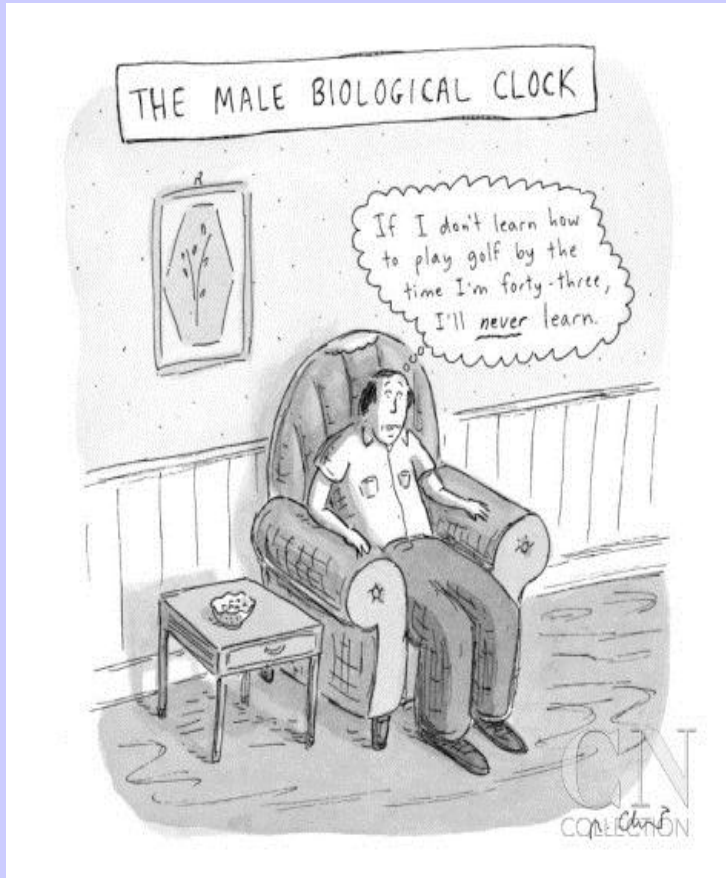


Months Trying

12



Male Age



- Young woman with male partner > 50 yrs up to half the chance of conception than with a younger man
- Single gene mutations, or mixed genetic and environmentally caused adverse outcomes, are much more common in the children of older men
 - Autism
 - Schizophrenia

Early IVF was mostly
unsuccessful

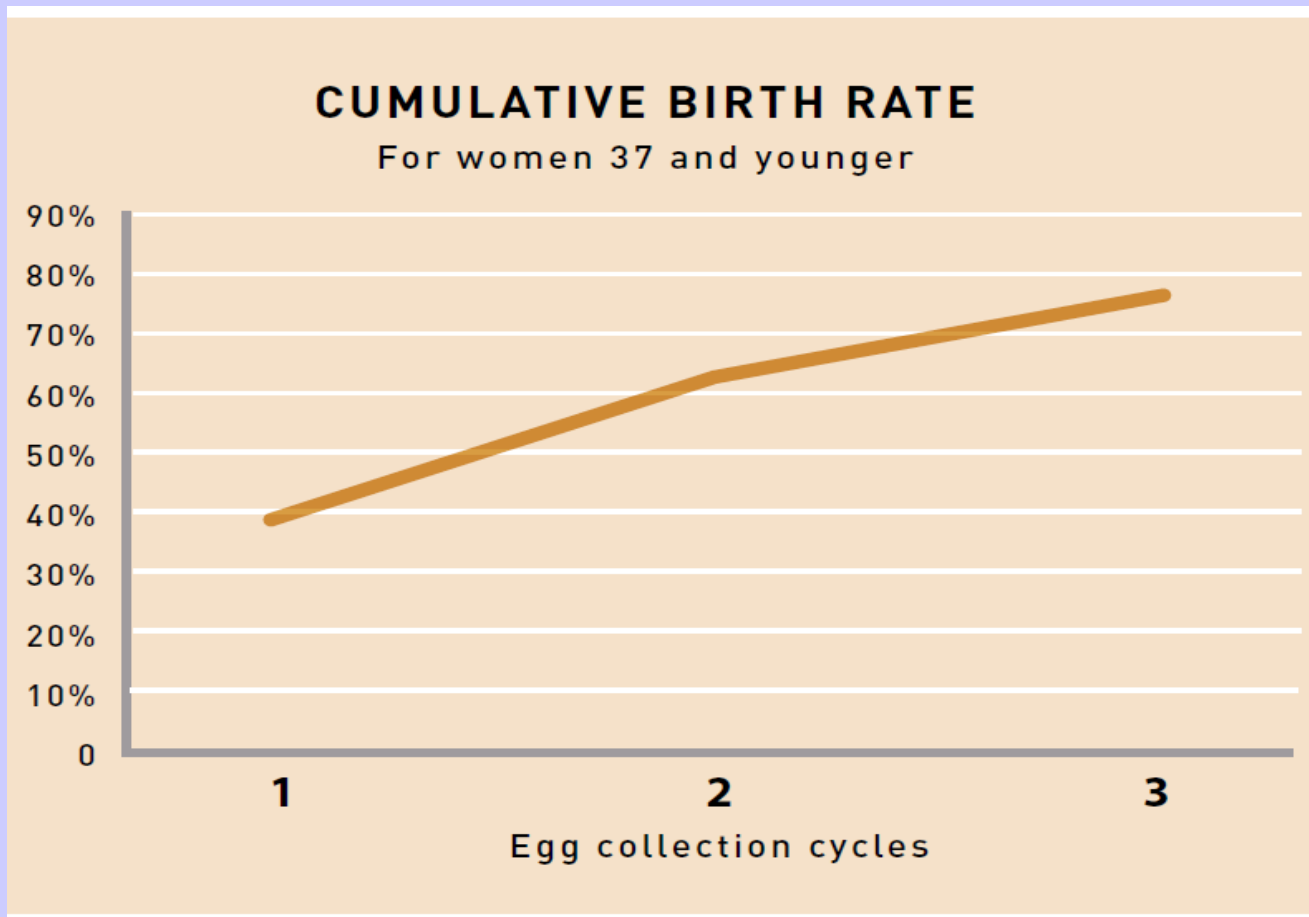


som^{ee}cards
user card

The amazing story of IVF: 37 years and 5 million babies later!



No doubt IVF is highly successful



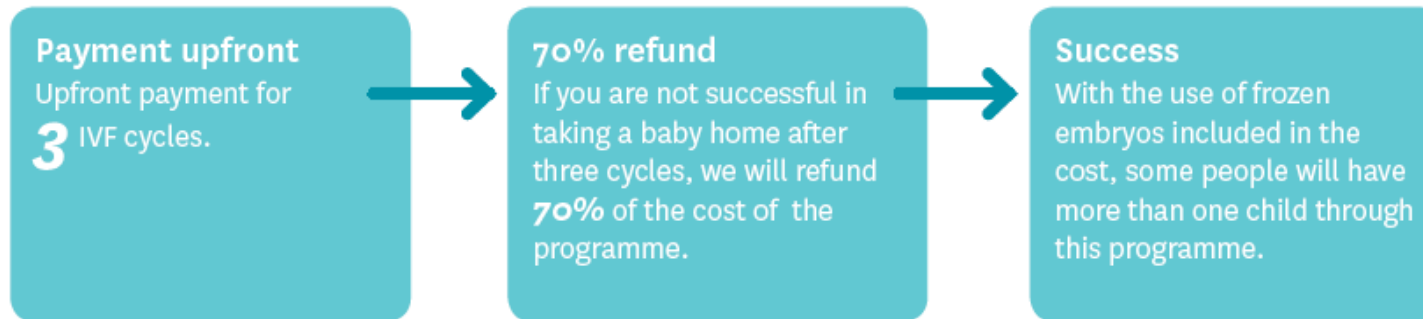
Be Sure with Fertility Cover

fertility
COVER

Only at Fertility Associates

Fertility Cover gives you three chances to have a baby and the comfort of knowing in advance what the cost of your treatment will be. If treatment should prove to be unsuccessful after 3 cycles of IVF, we will refund 70% of the cost of the programme.

How does Fertility Cover work?

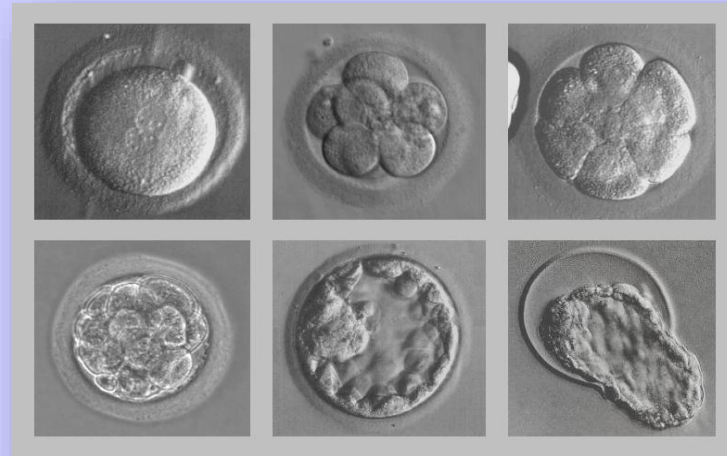
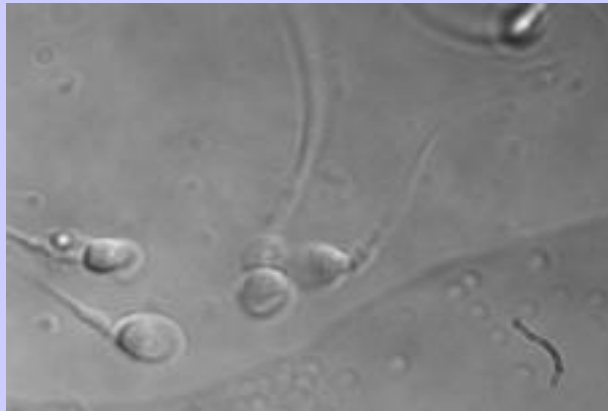


Criteria for eligibility can be found at: fertilityassociates.co.nz

At Fertility Associates, we understand that having a baby is what it's all about.

Fertility Associates

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leaders in fertility

Modern management of Infertility

IVF

IVF

More IVF

IVF: taking the fun out of
procreation since
1978.



Availability of highly effective ART has reduced the need for reproductive surgery as primary treatment

So Is reproductive surgery dead?

Certainly not

What you may get out of this session

- Role of this 'unsung' hero in modern practice
- Evidence base around controversial issues
- Pathways to help you counsel patients in making choices
- Newer techniques that might be available

Modern reproductive surgery

Investigations- peritoneal and tubal factors and uterine cavity

Surgical treatment of infertility-

- Laparoscopy
- Hysteroscopy

In-vitro fertilisation outcome-enhancing surgery

Surgery for fertility preservation

Modern reproductive surgery

Investigations- peritoneal and tubal factors and uterine cavity

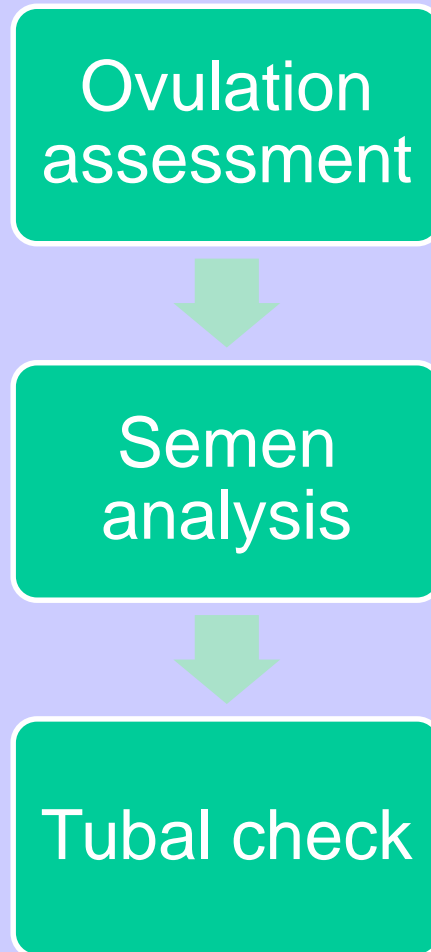
Surgical treatment of infertility-

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- Hysteroscopy

In-vitro fertilisation outcome-enhancing surgery

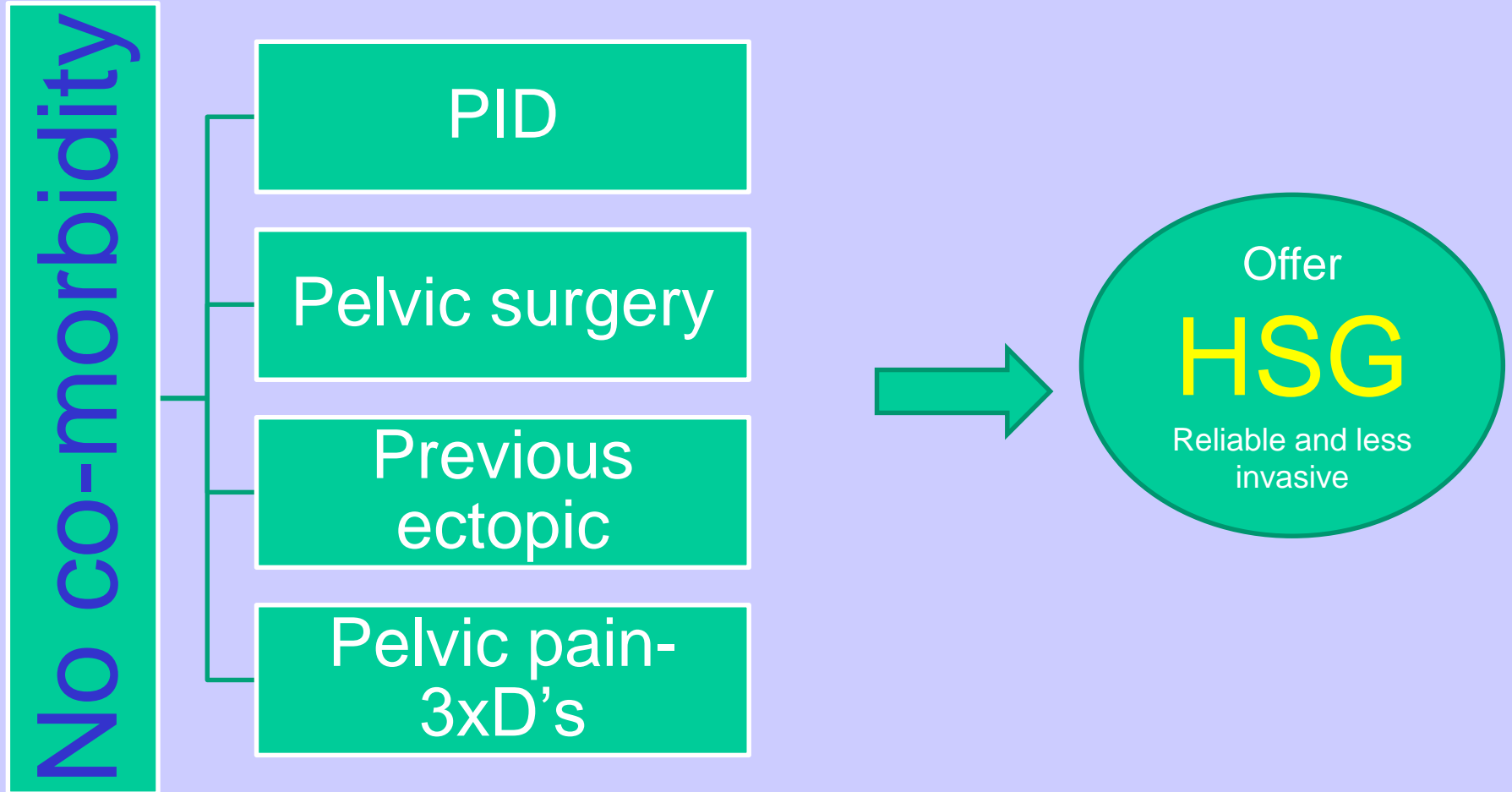
Surgery for fertility preservation

Only 3 tests are mandatory in fertility investigation



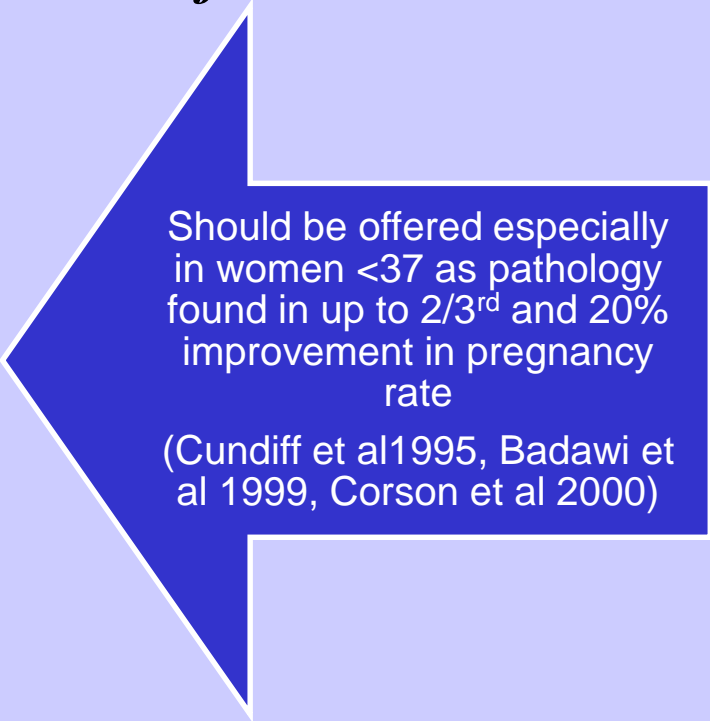
ESHRE 2000

HSG or Laparoscopy



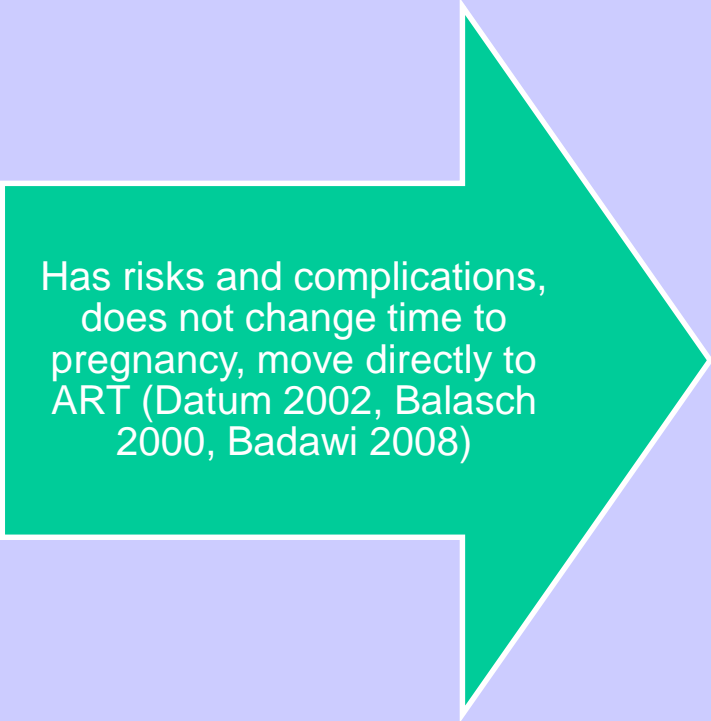
Diagnostic laparoscopy in UNEXPLAINED infertility

There is a considerable debate about the role of routine laparoscopy *in absence of co-morbidities*



Should be offered especially
in women <37 as pathology
found in up to 2/3rd and 20%
improvement in pregnancy
rate

(Cundiff et al 1995, Badawi et
al 1999, Corson et al 2000)



Has risks and complications,
does not change time to
pregnancy, move directly to
ART (Datum 2002, Balasch
2000, Badawi 2008)

A randomised-controlled trial showed that laparoscopy did not
increase the pregnancy rate *A.Badawy et al J Obstet Gynaecol. 2010;30:712-715*

Diagnostic laparoscopy in UNEXPLAINED infertility- NZ perspective

- Laparoscopy is readily available through public system whereas only 50% couples that I see qualify for publicly funded IVF
- Public funding for IVF is accelerated if there is a '**cause**' since unexplained infertility requires 5 years of duration for eligibility
- Unexplained infertility without co-morbidity in younger patient with sufficient ovarian reserve who is unable to afford private ART– **Laparoscopy is reasonable**

Modern reproductive surgery

Investigations- peritoneal and tubal factors and uterine cavity

Surgical treatment of infertility-

- Laparoscopy
- Hysteroscopy

In-vitro fertilisation outcome-enhancing surgery

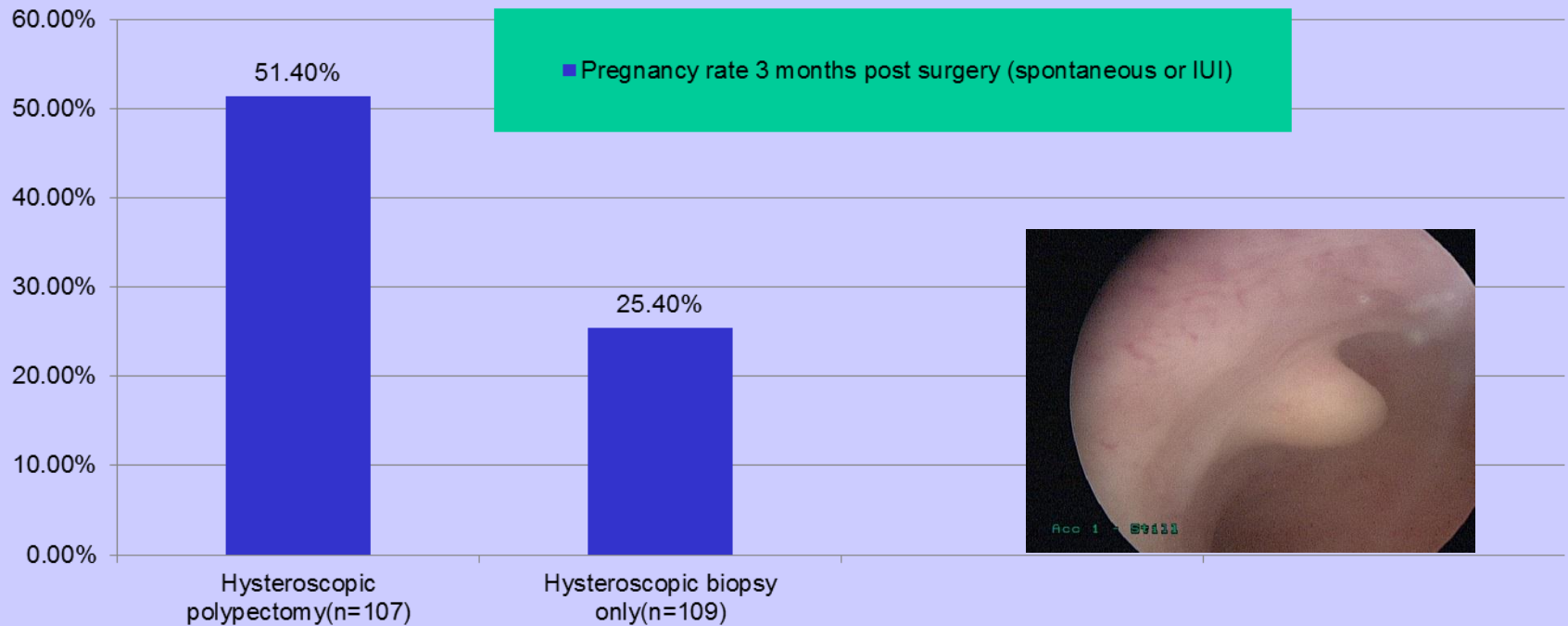
Surgery for fertility preservation

Surgical treatment of infertility

Hysteroscopy

- **Hysteroscopy polypectomy**
- **Hysteroscopy myomectomy**
- **Hysteroscopic metroplasty**
- **Hysteroscopic lysis of adhesions**

Hysteroscopic Polypectomy

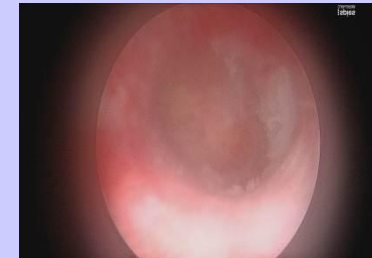
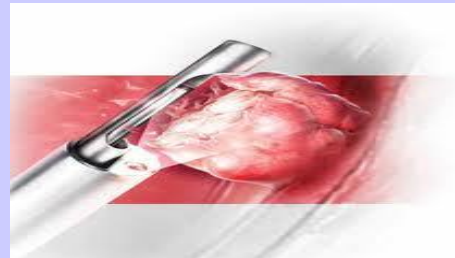


Over one-half of women in the polypectomy group conceived spontaneously within 3 months after surgery. This was independent of the size of the polyp

T. Pérez-Medina, J. Bajo-Arenas, F. Salazar, et al. Hum Reprod. 2005;20:1632-1635

Submucosal fibroid resection

- 37 yr old
- Nulliparous woman
- Trying for baby for 3 yrs
- Not keen to undergo any fertility treatment
- Underwent lap excision of mild endometriosis and hysteroscopic resection of submucosal fibroid



Sub mucosal fibroid resection using Myosure

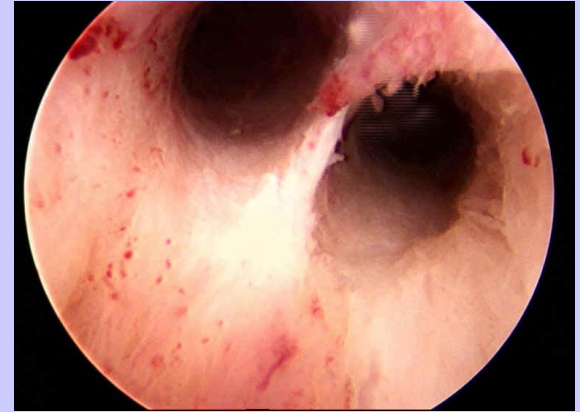
6 weeks pregnant at 4 month follow up

Hysteroscopic myomectomy

- A meta-analysis showed that submucous fibroids or intramural fibroids with a submucosal component decreased clinical pregnancy (RR 0.36, 95% CI 0.18 to 0.74) and implantation rates (RR 0.28, CI 0.12 to 0.65).
E.A. Pritts et al, Fertil steril 2009
- A randomised-controlled trial of 52 women reported that removal of submucous myoma led to
 - significant increase in pregnancy rate (from 27.2 to 43.3%)
 - decrease in miscarriage rate (from 50% to 38.5%) *Casini et al*

Hysteroscopic metroplasty (division of uterine septum)

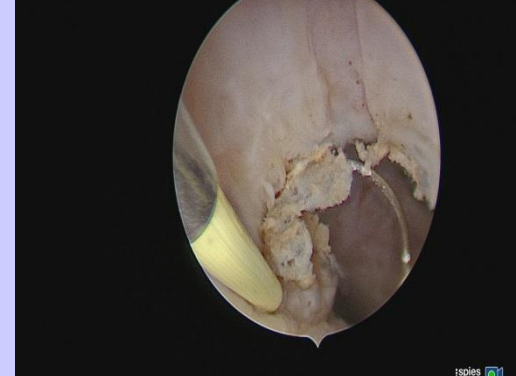
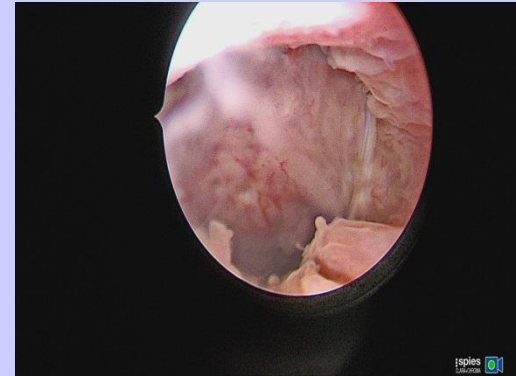
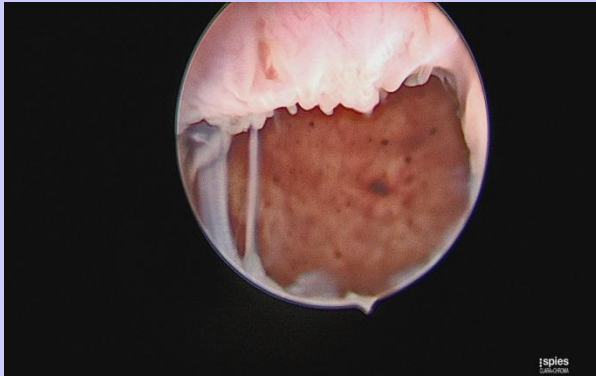
- No randomised-controlled trials
- In a prospective study the live birth rate was significantly higher in the metroplasty group than in the group with unexplained infertility (34.1% and 18.9%, respectively) *A. Mollo, P. De Franciscis, N. Colacurci, et al Fertil Steril. 2009;91:2628-2631*



Hysteroscopic lysis of adhesions

- No RCT
- *Roy et al* evaluated 89 women with infertility and reported that the pregnancy rate after hysteroscopic lysis of mild adhesions (58%) was higher than that of moderate adhesions (30%) and severe adhesions (33.3%).
- *Fernandez et al* studied 64 women with severe adhesions. Hysteroscopic removal of the adhesions led to a live birth rate of 32.8%
- *Tulandi et al* in a retrospective study of 43 women, we found an overall pregnancy rate of 51.2% and a live birth rate of 32.6% after removal of the adhesions.

Hysteroscopic resection of 'uterine niche'



Surgical treatment of infertility

Laparoscopy

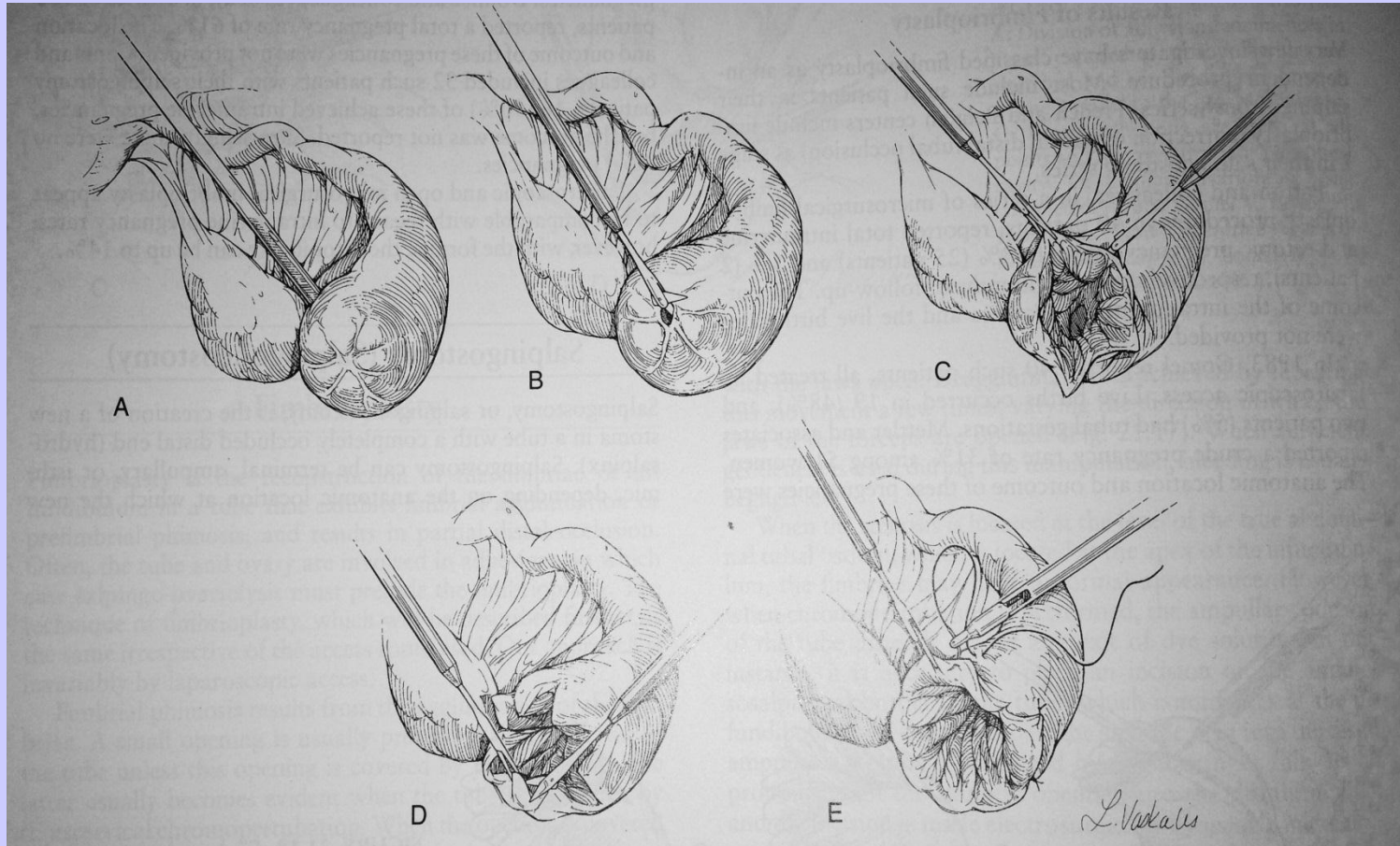
- **Laparoscopic tubal surgery**
 - **Salpingostomy**
 - **Fimbrioplasty**
 - **Tubal anastomosis**
- **Laparoscopic treatment of ovarian endometrioma**
- **Laparoscopic treatment of endometriosis**

Surgical treatment of infertility

Laparoscopy

- Laparoscopic tubal surgery
 - Salpingostomy
 - Fimbrioplasty
 - Tubal anastomosis
- Laparoscopic treatment of ovarian endometrioma
- Laparoscopic treatment of endometriosis

Laparoscopic Salpingostomy



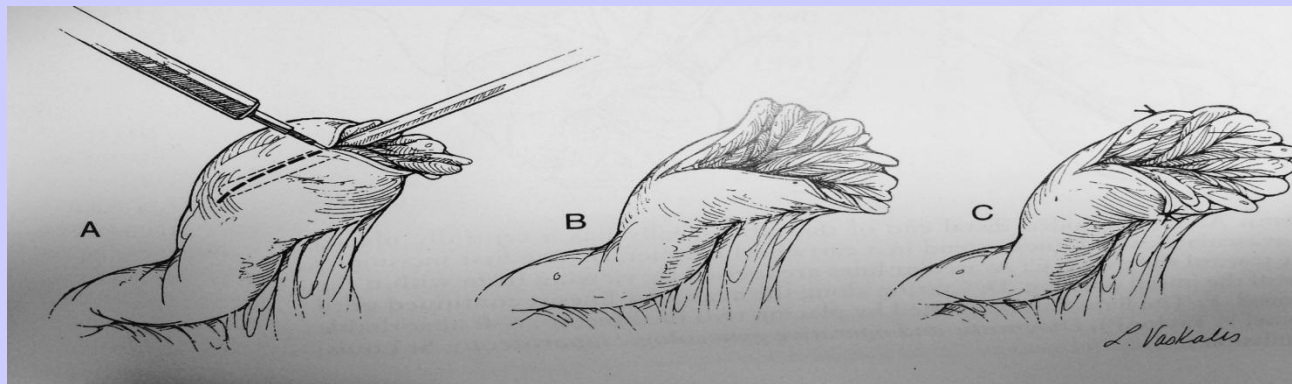
Laparoscopic tubal surgery- Salpingostomy

- In a randomised-controlled study, the rates of pregnancy and ectopic pregnancy 24 months after salpingostomy for hydrosalpinx by laparotomy were 43.7% and 5.0%, and after laparoscopic salpingostomy were 41.6%, and 3.9%, respectively. *B. Mossa et al 2005*

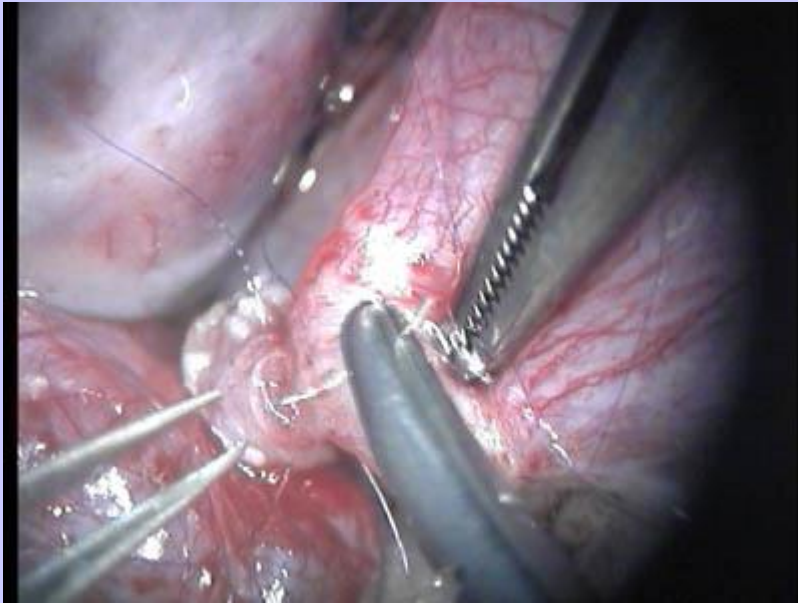
Laparoscopic tubal surgery

Fimbrioplasty

- For fimbrial phimosis, laparoscopic fimbrioplasty is associated with cumulative pregnancy rates of 35% and 58% at 12 and 24 months, respectively. W.A. Saleh et al Fertil Steril. 1997;67:474-480



Tubal anastomosis

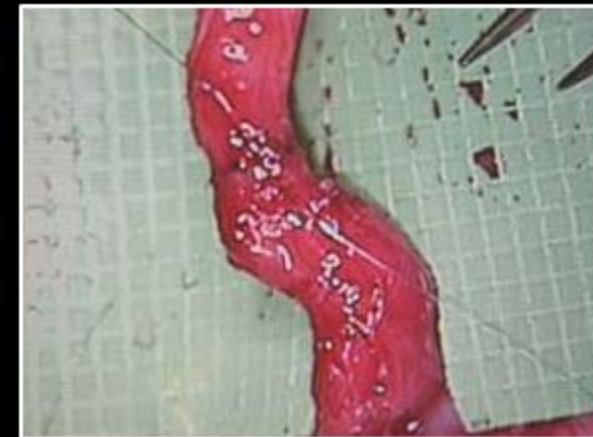
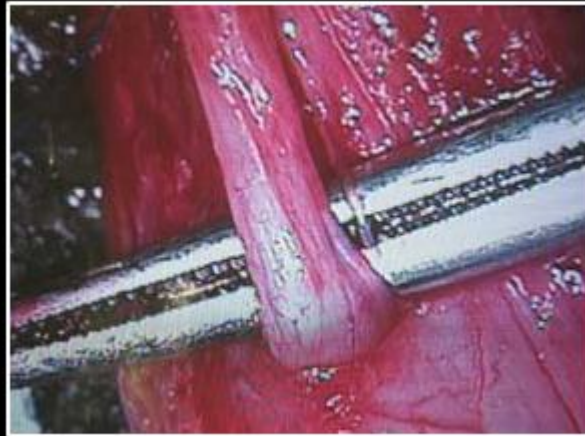


Tubal anastomosis

- The cumulative pregnancy rates after laparoscopic tubal anastomosis is 60.3% and 79.4% at 6 and 12 months after surgery, respectively. The ectopic pregnancy rate -3.2%. *T.K. Yoon, et al Fertil Steril. 1999;72:1121-1126*



Vasectomy reversal





Vasectomy reversal results

	US STUDY		F.G SERIES	
interval	pregnant	patency	pregnant	patency
0-2yrs	76%	97%	80%	100%
3-8yrs	53%	88%	61%	83%
9-14yrs	44%	79%	35%	70%
15 yrs	30%	70%	24%	59%

U.S overall 52%

30% > 8yr interval

F.G 43%

60% > 8yr interval

Surgical treatment of infertility

Laparoscopy

- Laparoscopic tubal surgery
 - Salpingostomy
 - Fimbrioplasty
 - Tubal anastomosis
- Laparoscopic treatment of ovarian endometrioma
- Laparoscopic treatment of endometriosis

Laparoscopic treatment of ovarian endometrioma

- In our practice, instead of relying on laparoscopy for diagnosis, we identify adnexal mass from diagnostic imaging.
- Ovarian endometrioma can be treated by fenestration and ablation or by excision or stripping the ovarian cyst wall.
- The 12- and 24-month cumulative pregnancy rates
 - after excision were 50% and 66.7%, and
 - after fenestration were 15% and 23.5%, respectively.
- Compared with the fenestration technique, excision of the endometrioma is associated with a higher pregnancy rate and a lower recurrence rate.

P. Beretta, M. Franchi, F. Ghezzi, et al.. Fertil Steril. 1998;70:1176-1180

A. Saleh, T. Tulandi. Fertil Steril. 1999;72:322-324

Surgical treatment of infertility

Laparoscopy

- Laparoscopic tubal surgery
 - Salpingostomy
 - Fimbrioplasty
 - Tubal anastomosis
- Laparoscopic treatment of ovarian endometrioma
- Laparoscopic treatment of endometriosis

Laparoscopic treatment of endometriosis

e JOURNAL

April / May 2009

REVIEW ARTICLE

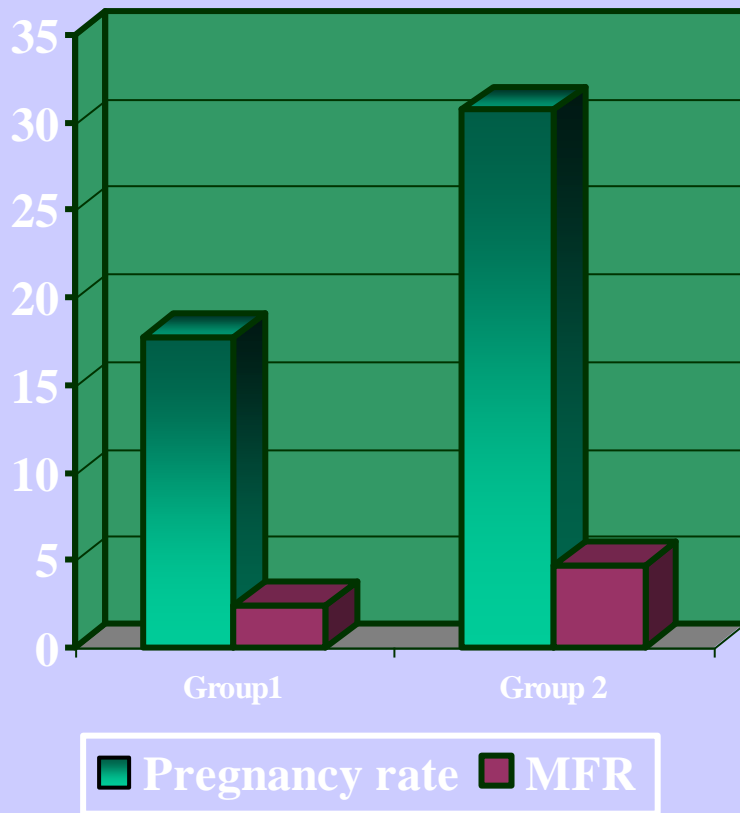
Endometriosis related fertility – current status

VP Singh MBBS, MD, FRANZCOG¹ and Lakshmi Ravikanti MBBS, FRANZCOG²

¹ Waikato Hospital, Hamilton & Fertility Associates Hamilton, Hamilton, New Zealand, vpsingh2@xtra.co.nz

² Waikato Hospital and Fertility Associates Hamilton, Hamilton, New Zealand

ENDO-CAN



**241 infertile women
with min (stage1) and
mild (stage2)
endometriosis**

**Group 1- Laparoscopy
only**

**Group 2- Laparoscopic
ablation/resection**

36 week follow up

So we know that surgery for endometriosis related infertility is useful for stage 1 & 2 but what about stage 3 & 4?

Surgery

30% spontaneous conception in 6 months

Symptoms improve 70-80%

Is onset of symptoms a matter of time?

Risk (in our series <1% major complications)

Cost/Access

IVF

IVF conception rates 45% with one cycle and 70% with 2 cycles

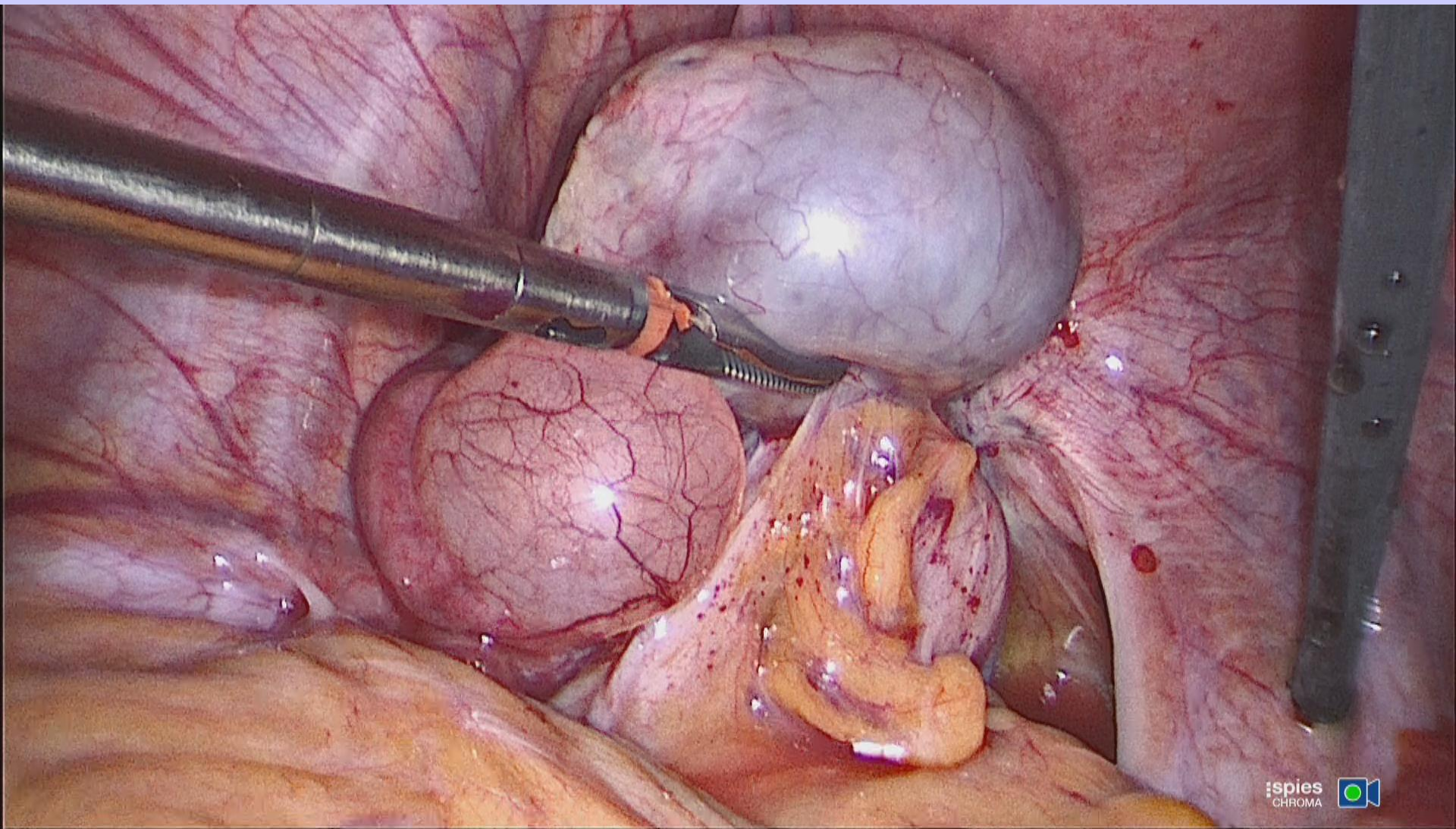
Easy recovery

Case

- Mrs J 29 yr , Mr J 30 yrs
- Trying for a baby 13 months
- Semen analysis- normal, Day 21 progesterone ovulatory
- K- 28 days regular, severe pain 2nd and 3rd day
- Occ deep dyspareunia, no dyschezia
- Always tired
- One episode of IMB, no PCB
- Pa- NAD
- Pv- Uterus anteverted, tender nodule right side uterosacral
- TVS-left ovarian endometrioma 3.08cm

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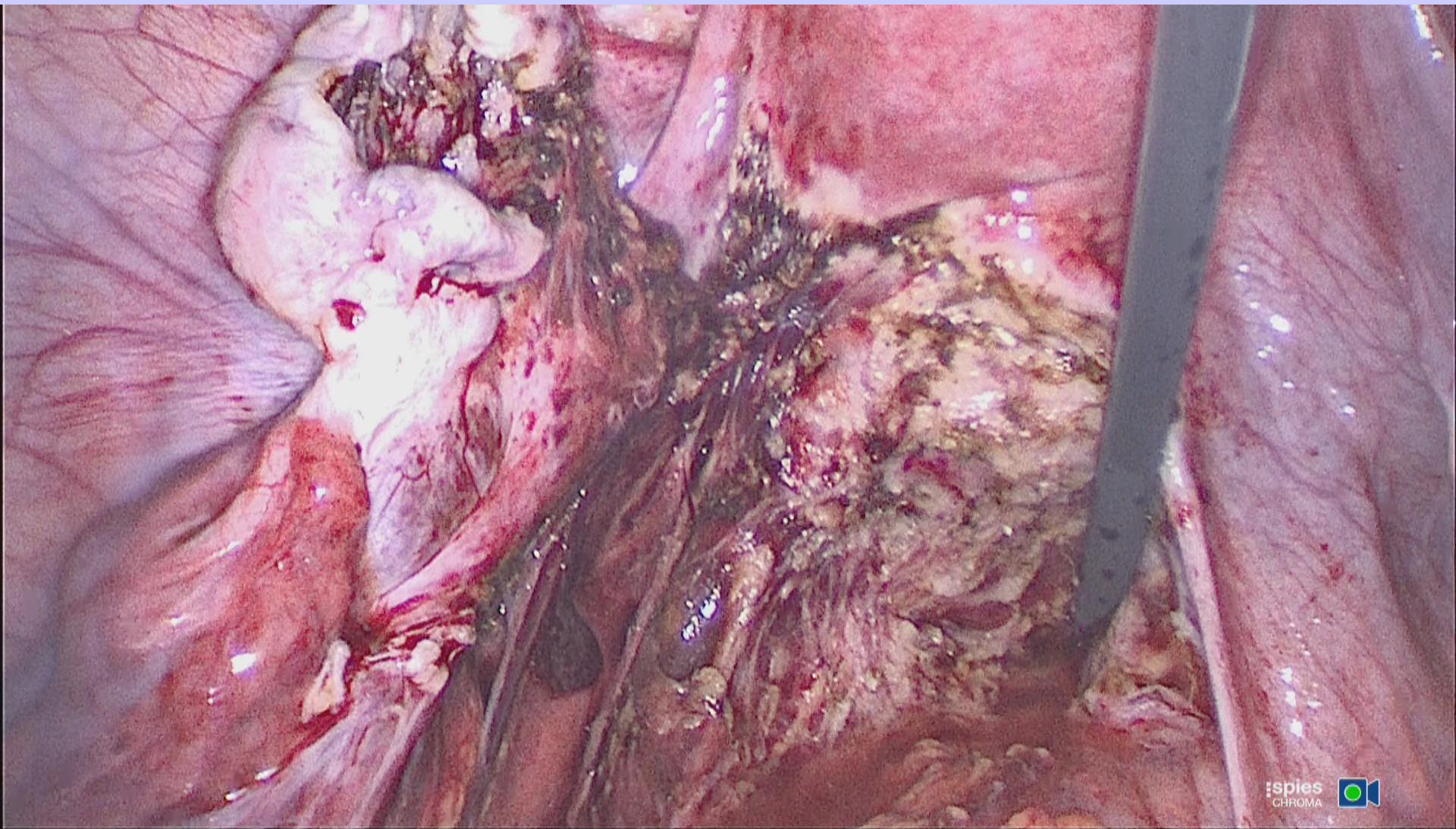
ispies
CHROMA



leaders in fertility

Fertility Associates

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ispies
CHROMA

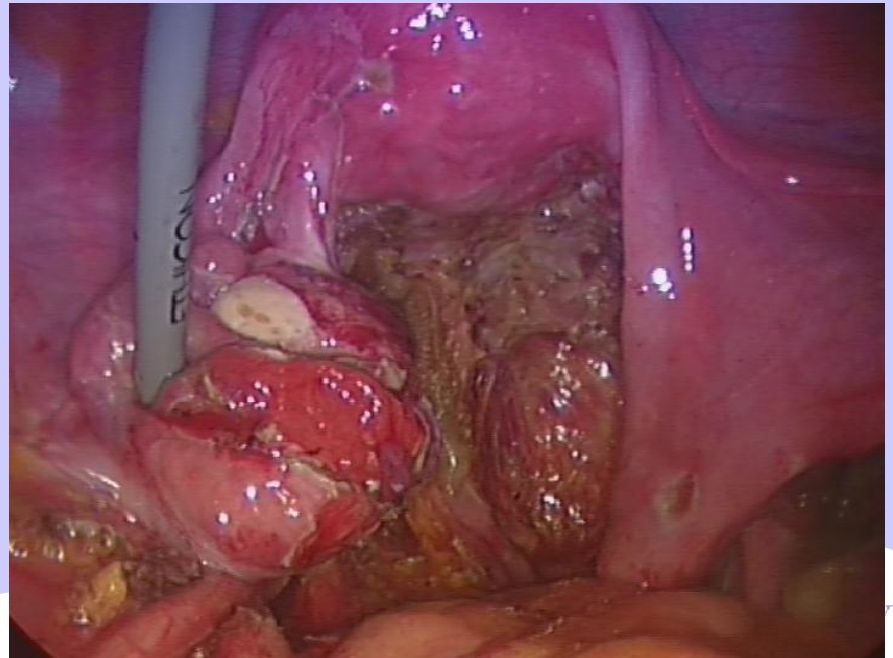
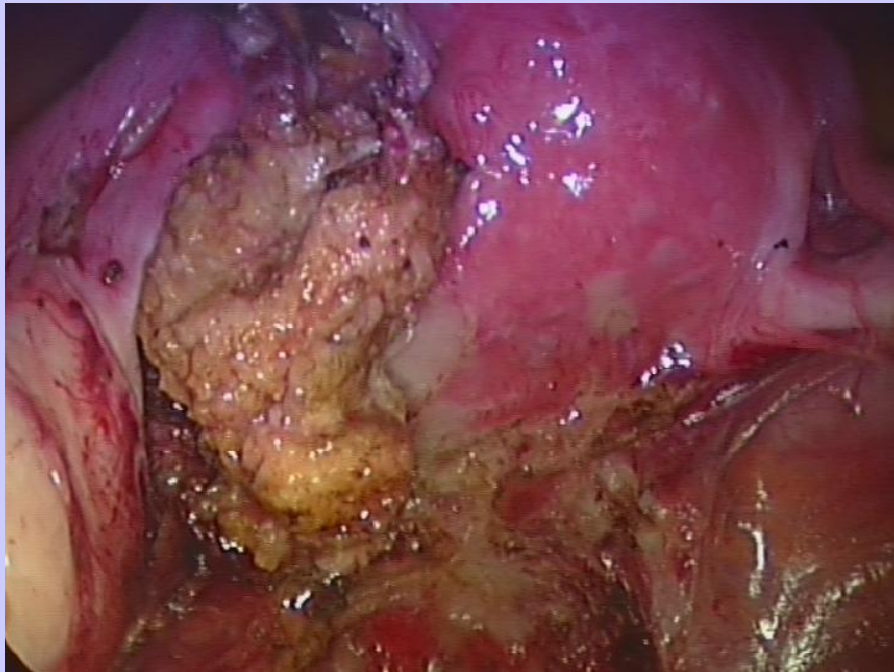
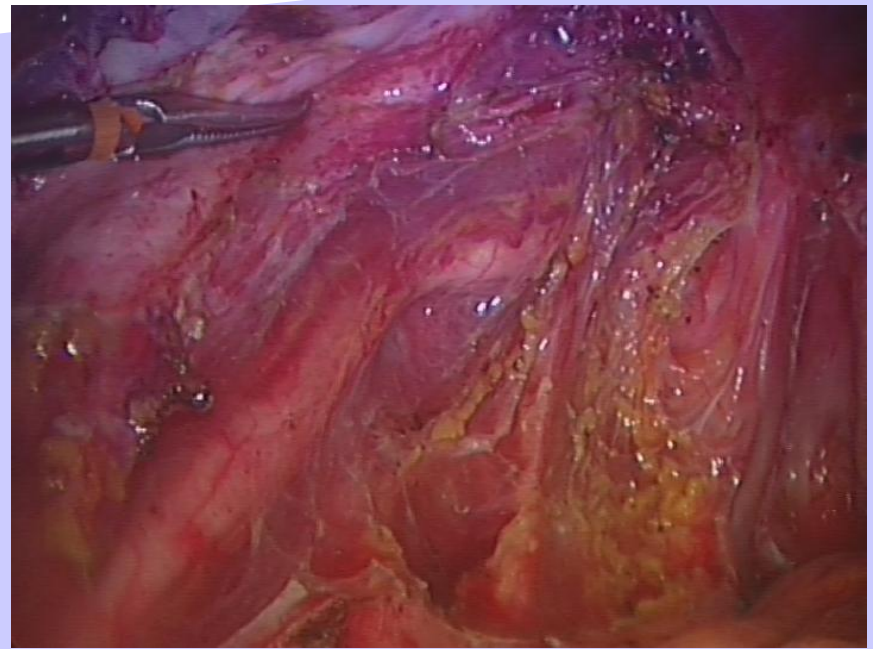
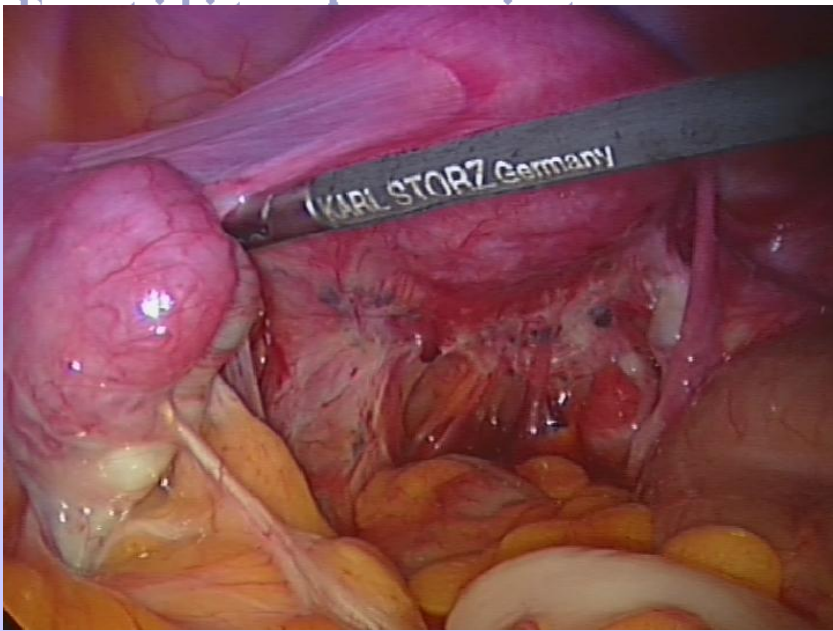


leaders in fertility

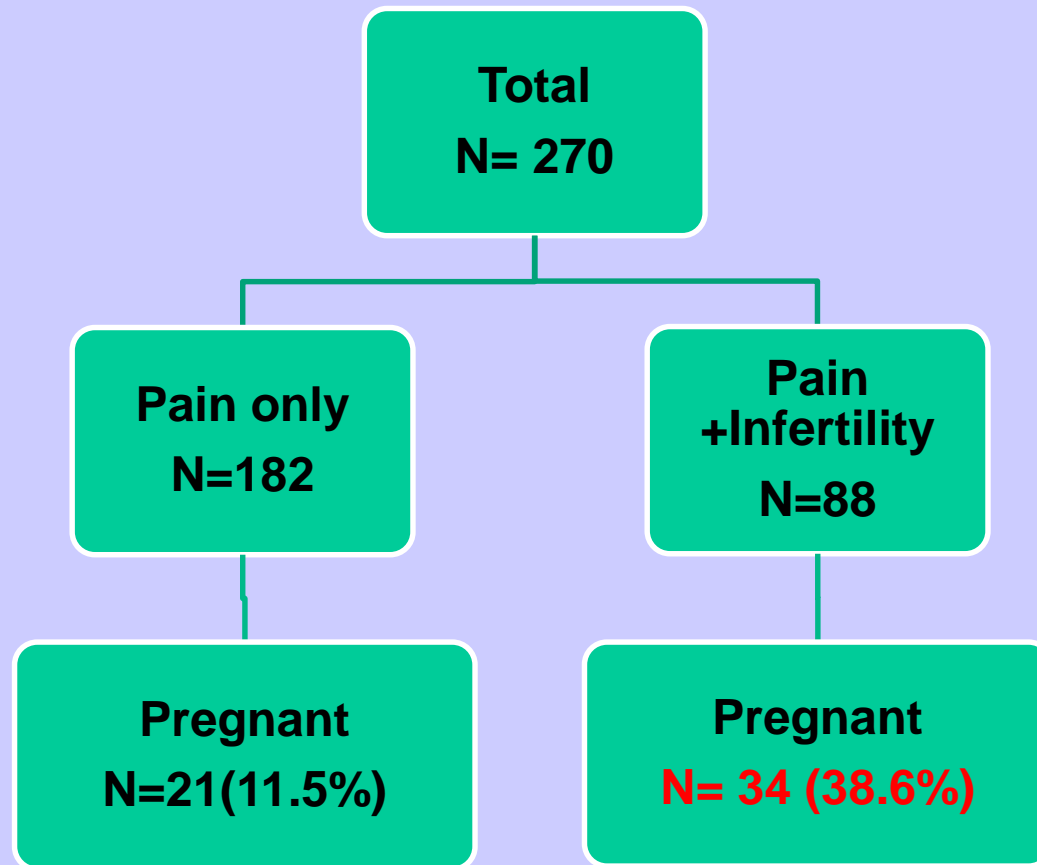
Hello Dr V.P Singh

This is.... Hope u remember me. I had my Laproscopic Excision 2 months back. And as you suggested me to try for a baby soon. I am pregnant. I had my 1st scan today,the baby is 6 weeks 2 days today. Its surprising and i am really happy at the same time.Thank you soooo very much for everything.Just wanted to let you know about the good news.

Regards



Stage III & IV -Pregnancy outcomes Waikato



Cumulative pregnancy rate (Life Table approach)

Group	No	1 yr	2 yr	3 yr
Adamson et al 1993	76	32.4%	47.9%	59.9%

Repeat surgery for advanced endometriosis

- In one study, the cumulative pregnancy rates in women with stage 3 and 4 endometriosis were 33.3% after initial surgery and 24% after reoperation. The cumulative pregnancy rate after a second cycle of IVF and in-vivo transfer of the embryo to the uterus was 69.6%. This study suggests that, compared with the initial surgery, the results of repeat surgery in women with advanced endometriosis are inferior to those of IVF and in-vivo transfer of the embryo to the uterus. *K. Pagidas Fertil Steril. 1996;65:791*
- Others supported their findings *P. Vercellini Hum Reprod. 2009;24:254*

In-vitro fertilisation outcome-enhancing surgery

Hysteroscopy

- Office hysteroscopy
- Hysteroscopic metroplasty
- Hysteroscopic myomectomy

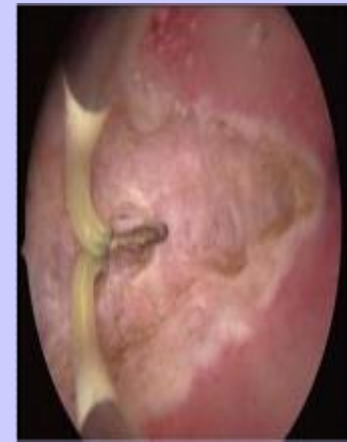
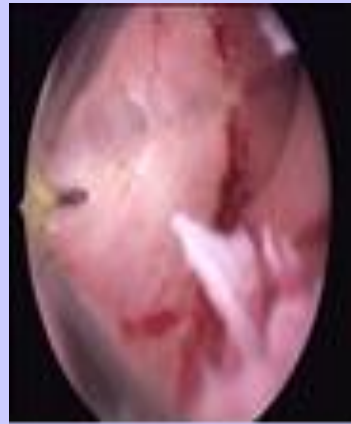
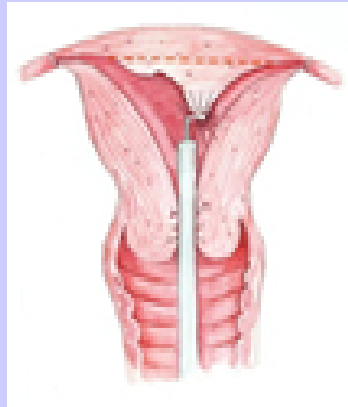
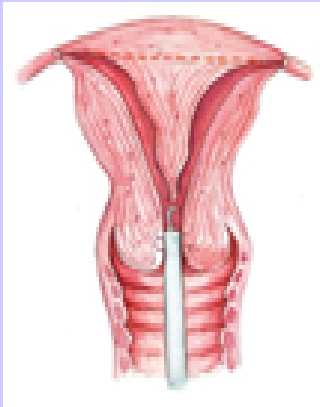
Laparoscopy

- Laparoscopic salpingectomy
- Laparoscopic proximal tubal occlusion
- Repeat surgery for advanced endometriosis
- Surgical management of ovarian endometrioma before in-vitro fertilisation
- Laparoscopic myomectomy

IVF outcome enhancing surgery- Office Hysteroscopy

- Hysteroscopy should be carried out at least after one failed IVF treatment.
- *Fatemi et al* studied 678 asymptomatic infertile women undergoing a first IVF treatment. They found endometrial polyps in 6% and submucous myomas in 1% of cases. Other findings were intrauterine adhesions (2%) and uterine septum (2%). The **overall prevalence** of intrauterine abnormalities among these women was **11%**.
- *Karayalcin et al* evaluated 2500 women before IVF treatment, and **found intrauterine pathology in 22.9%** of cases. These included endometrial polyps (7.7%), submucous myoma (3.8%), intrauterine adhesions (1.1%) and uterine septum (2.9%).

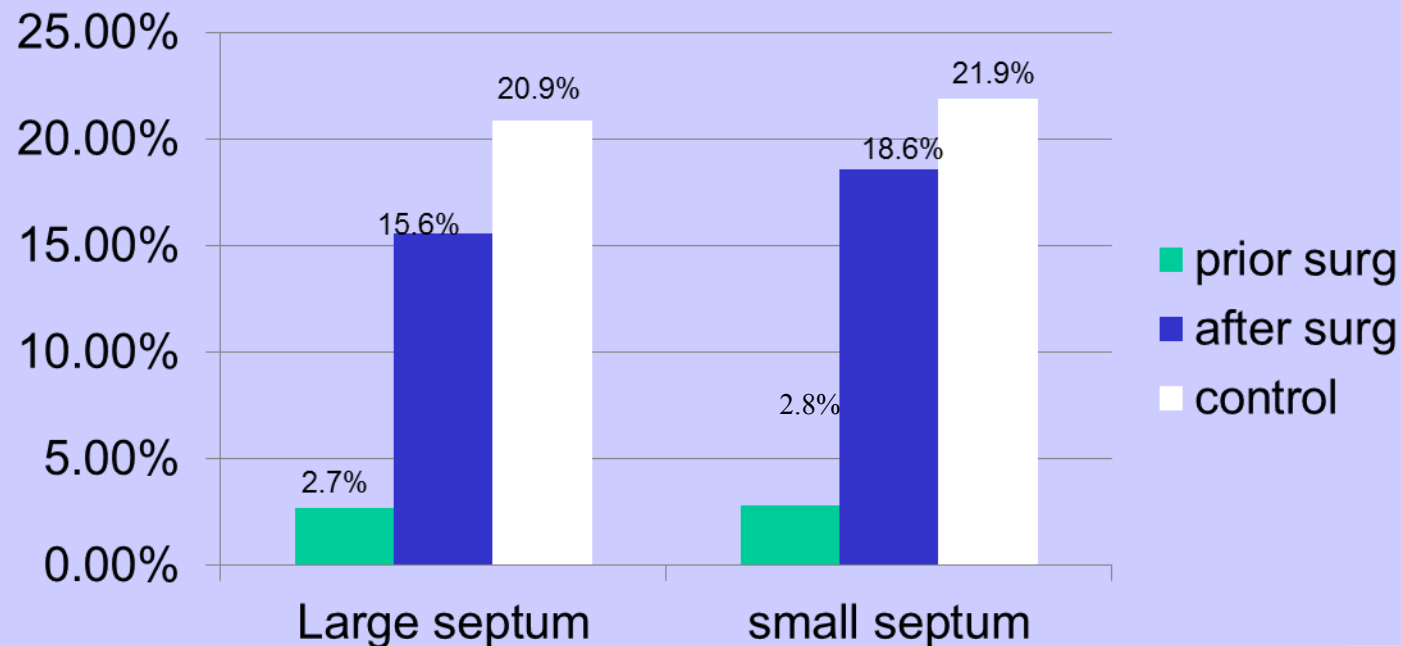
Hysteroscopic metroplasty before IVF





Tomazevic T, Ban H et al Septate, subseptate and arcuate uterus decrease pregnancy and live birth rates in IVF/ICSI - RBMO 2010

In a matched control study they evaluated the effect of uterine septum on IVF outcome among 2481 embryo transfers in IVF and ICSI cycles.



Hysteroscopic resection of submucosal fibroid

31 year old woman

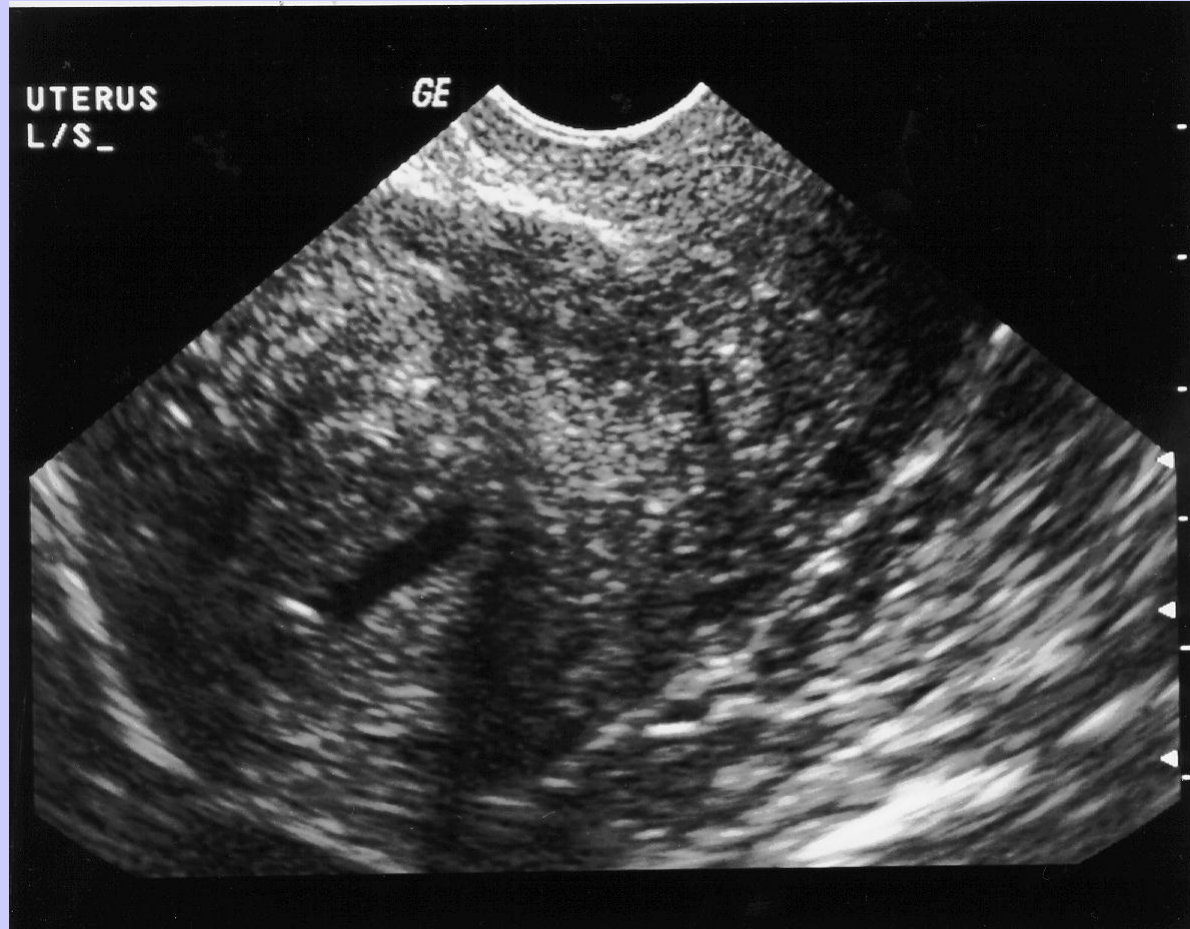
Primary infertility, Heavy menstrual bleeding

Failed fresh embryo replacement

Has 4 embryos in storage

No other significant medical history

Transvaginal Ultrasound



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Procedure: Hysteroscopic resection

General anaesthesia

No pretreatment/follicular phase

Transcervical resection of submucous fibroid

Procedure took 25 mins

Day stay surgery

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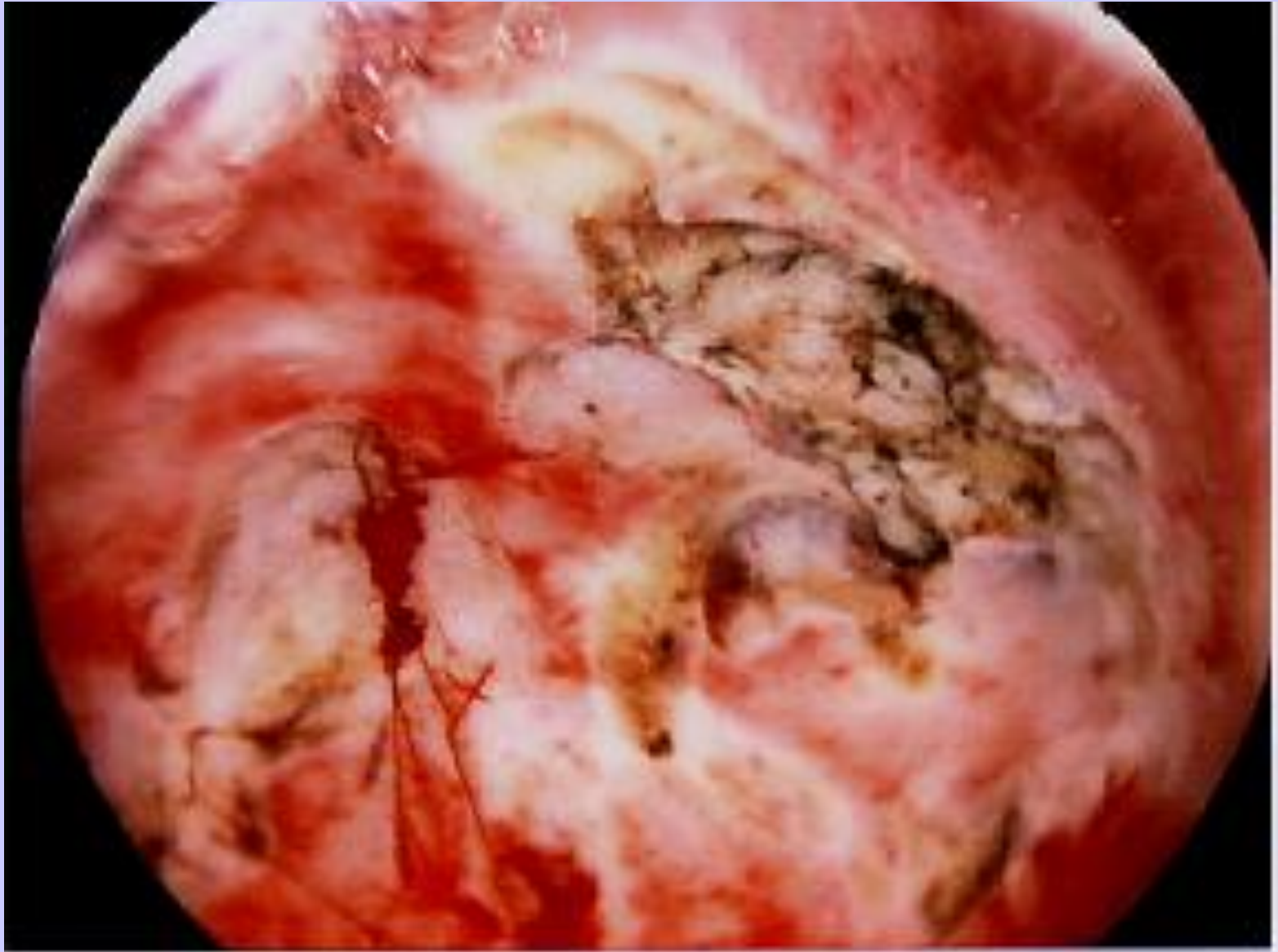
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3 month follow up

Menses lighter with only 3 days of bleeding

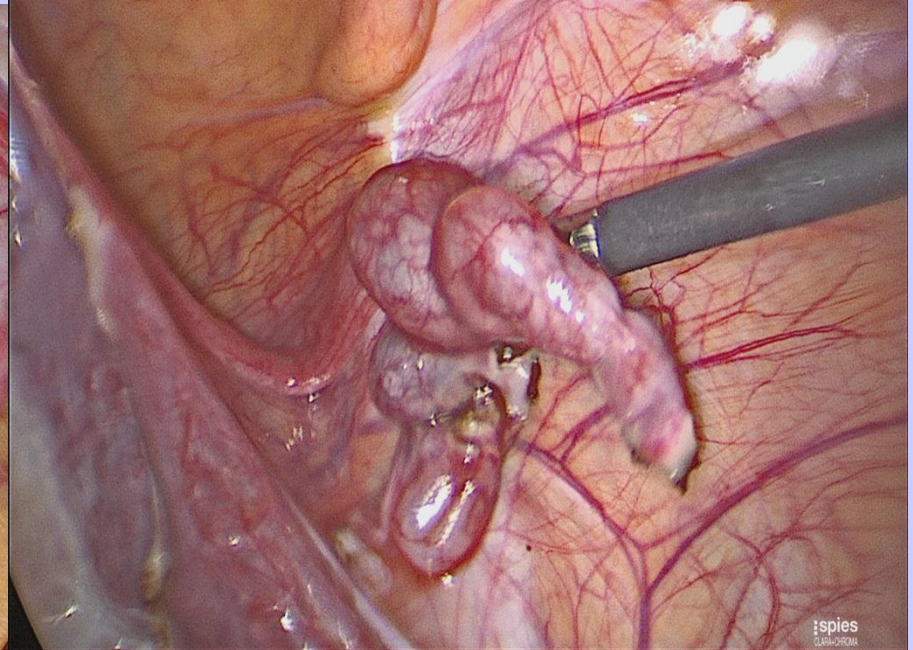
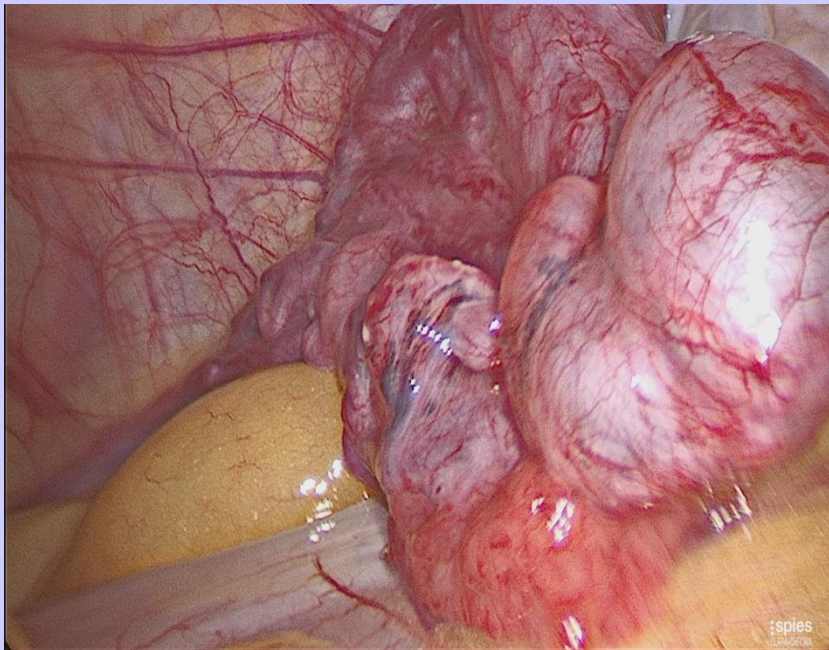
Hb 130 g/

Frozen Embryo transfer

Successful pregnancy

*'hysteroscopic resection of submucous fibroid
improves IVF success by up to 70%'*

Hydrosalpinx- bad news for IVF



Laparoscopic salpingectomy

- The presence of hydrosalpinx impairs IVF outcomes by decreasing the implantation and pregnancy rates.
- Caused by
 - the possible toxicity of hydrosalpinx fluid to the embryo or
 - by the mechanical effect of the fluid impairing implantation. *E. Camus et al. Hum Reprod. 1999;14:1243*
- Randomised-controlled trials have shown that pre-IVF salpingectomy leads to higher IVF-pregnancy and delivery rates.
 - Strandell et al reported that the delivery rate in the salpingectomy group (28.6%) was significantly higher than in the control group (16.3%).
 - Kontoravdis et al found that on-going pregnancy rates was 34.2% in the salpingectomy group and 18.7% in the control non-intervention group

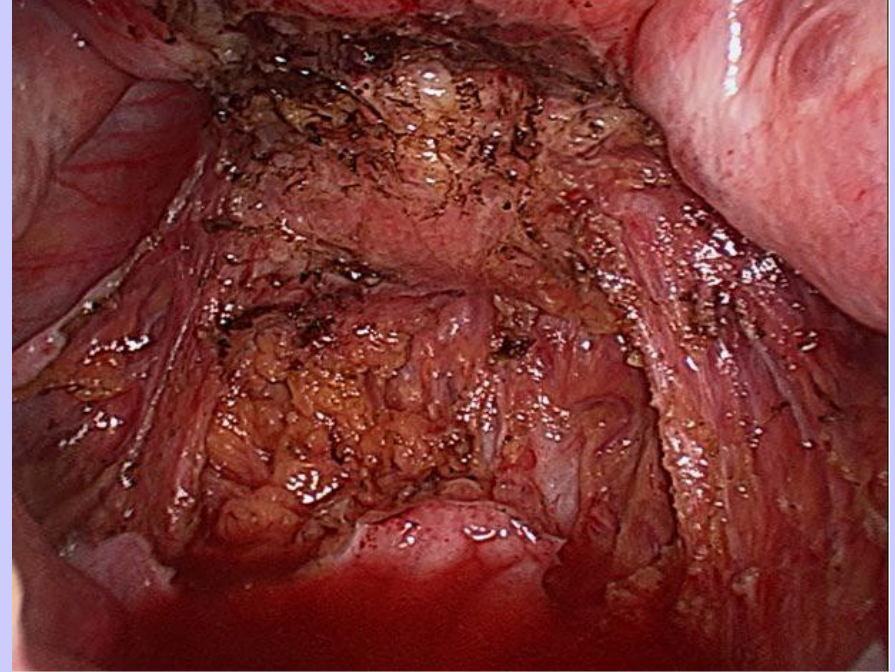
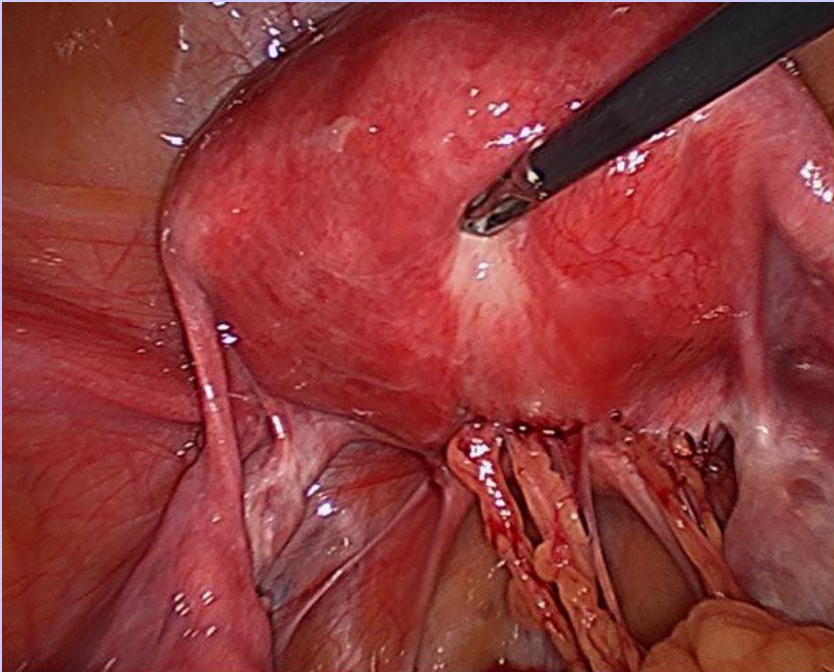
Laparoscopic salpingectomy or clipping?

- In women in whom the distal fallopian tube is buried in dense and severe adhesions, occluding the tube proximally close to the uterus is preferable
- In a randomised-controlled trial, the ongoing IVF pregnancy rates after salpingectomy or proximal tubal occlusion were similar.
- The resulting blocked tube proximally and distally, however, traps the hydrosalpinx fluid and the tube might become dilated.

Surgical management of ovarian endometrioma before IVF

- Over 200 studies
- It seems that small endometriomas of 4 cm or less do not influence IVF outcome
- Large endometrioma that interferes with oocyte retrieval needs to be operated
- It seems that the best surgical treatment of ovarian endometrioma remains excision
- In the presence of poor surgical plane between the ‘cyst wall’ and the surrounding ovarian tissue, fenestration and selective ablation of the wall of the endometrioma should be considered.

Does surgery for advanced endometriosis improve IVF outcomes?



Laparoscopic excision of endometriosis has a place in patients with failed IVF cycles

Dr. VP Singh, Dr. Lakshmi Ravikanti
Fertility Associates and Waikato Hospital, Hamilton, New Zealand



Introduction:

Endometriosis affects an estimated 10%–15% of all women of reproductive age 20%–50% of all women with infertility, and 25%–70% of women and adolescents with chronic pelvic pain (CPP) or pelvic pain and dysmenorrhea.

Barnhart et al¹ in a meta-analysis of 22 studies showed that women with endometriosis are about twice less likely to conceive with IVF when compared to women with tubal factor indicating endometriosis affects IVF pregnancy rates (OR 0.56). The IVF outcomes were worse in severe endometriosis when compared to mild endometriosis (OR0.60). Despite this data, it is a common practice in ART clinics to recommend that asymptomatic infertile women with Deep Infiltrating Endometriosis (DIE) should go straight to an IVF cycle due to the risks of surgery and higher chance of pregnancy with IVF. It is also reasonable common in ART clinics to find women who have not conceived after one or more IVF cycles and high clinical suspicion of DIE on examination or ultrasound scan or MRI scan. There is a significant paucity of data on the role of excision surgery for DIE in improving future IVF success in these women who fail to conceive after one or more IVF cycles and have a strong clinical possibility/radiological possibility of suffering from DIE.

Objective:

We hypothesised that in infertile women with previous IVF cycle failures and a diagnosis of DIE on subsequent laparoscopy, excisional surgery for DIE will improve their probability of IVF success in subsequent cycles.

Materials and Methods:

This is a retrospective case series analysis with a comparator group.

Study period: Consecutive cases over 5 years (Jan 2006–Dec 2010)

Study group: All cases with laparoscopic diagnosis and excision of deep infiltrating endometriosis on patients who had history of previous one or more IVF cycles without success and then proceeded to further IVF cycles after the laparoscopic excision of DIE. IVF outcomes of the subsequent cycles were compared to the comparator group. Other inclusion criteria were at least 1 failed IVF in the past, <40 year old at subsequent IVF cycle, FSH <15 prior to subsequent IVF cycle

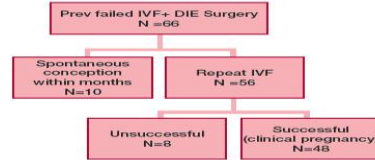
Matched Comparator group: As it was a retrospective study we found it difficult to have a suitable control group. We looked at consecutive patients with one or more failed IVF (matched to study group) without clinical, radiological or laparoscopic evidence of endometriosis.

Location: Fertility Associates Hamilton (IVF clinic), Anglesea Women's (private endometriosis service) and Waikato Hospital (public hospital endometriosis service). Authors performed all surgeries and subsequent IVF cycles.

Setting:



Results:



Demographic data:

	Study group	Comparator group
Number of women	66	387
Age at last IVF or TER	34.6	35.6
BMI	24.6	25.2
Basal FSH at last Measurement	8.3+/-3.1	7.5+/-2.5
No of previous IVF cycles	2.5	2.7

Characteristics of subsequent IVF cycle

	Study group (mean)	Comparator group (mean)
No. of Eggs	7.2	6.7
No. of normal Embryos	5.2	4.4
Fertilization rate	72%	66%
Proportion of cycles with transfer	100%	87%
Number of fresh embryos transferred	1.3	1.32
No. of embryos usable	2.9	2.4
No. of cycles, fresh and frozen	178	665
Cycles per woman	2.7	1.7
No. of women with clinical pregnancy	48/66 = 72.7%	194/387 = 50%

Comments:

- Study group was slightly younger, had more cycles (fresh and frozen) so had more embryos back
- Clinical pregnancy rate in study group was 73% versus 50% (P=0.01)
- We need at least twice as many patients in the study arm and proper case- controls for comparison



Fig 1 – Rectovaginal endometriosis



Fig 2 Post excision of rectovaginal endometriosis

Discussion:

It is unclear as to why women with endometriosis tend to have a lower chance of pregnancy in IVF cycles. Diaz² et al used healthy donor oocyte and introduced sibling oocytes into healthy recipients and recipients with endometriosis. They found no statistically significant difference in implantation rate or live birth in the 2 groups indicating uterine receptivity is not impaired in patients with endometriosis. In another well designed study by Simon³ et al showed that the IVF outcomes of oocyte donors with endometriosis was comparable to oocyte donors without endometriosis. It therefore likely that the poor oocyte quality is the key reason for lower IVF pregnancy rates in patients with endometriosis. There is very little data in the literature to understand if the surgical treatment improves the oocyte quality, embryo quality and IVF pregnancy rates.

In a retrospective case series Nezhath et al⁴, noted 22 pregnancies (15 spontaneous and 7 IVF pregnancies) after laparoscopic treatment of endometriosis in patients with previous history of failed IVF cycles.

Bianchi et al⁵ conducted a prospective cohort study with two treatment options: IVF without undergoing laparoscopic surgery (group A, n=105) and extensive laparoscopic excision of DIE before IVF (group B, n=64). They reported significantly higher pregnancy rates in the group B compared to group A after a subsequent IVF cycle (41% vs 24%, p=0.004).

Our study specifically looks at women who had previous failed IVF treatment and then have a diagnosis and comprehensive excision of DIE then go on to have further IVF cycle. We have shown a high IVF pregnancy rate in this group (73% vs 50% in the comparator group).

We acknowledge the significant biases in this type of study but in absence of good quality randomised trials on this subject we believe this is the best evidence available that shows a possible positive benefit in treating DIE prior to IVF cycles even in asymptomatic women.

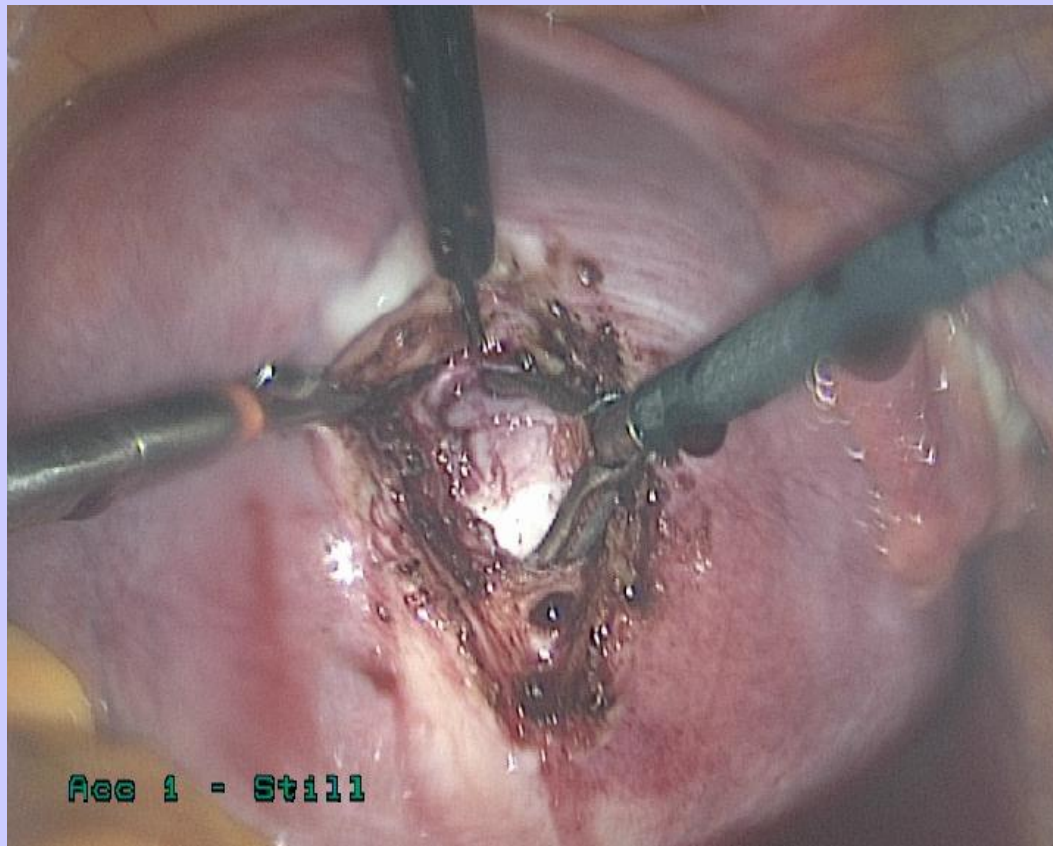
Conclusion:

In women with recurrent IVF failures, a diagnostic laparoscopy and comprehensive laparoscopic excision of endometriosis may improve the outcome of subsequent IVF cycles. More research on this subject is needed.

References:

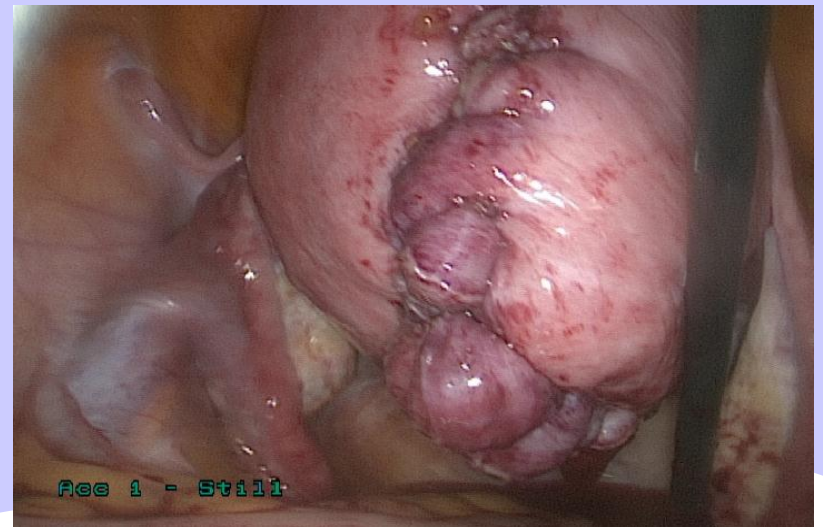
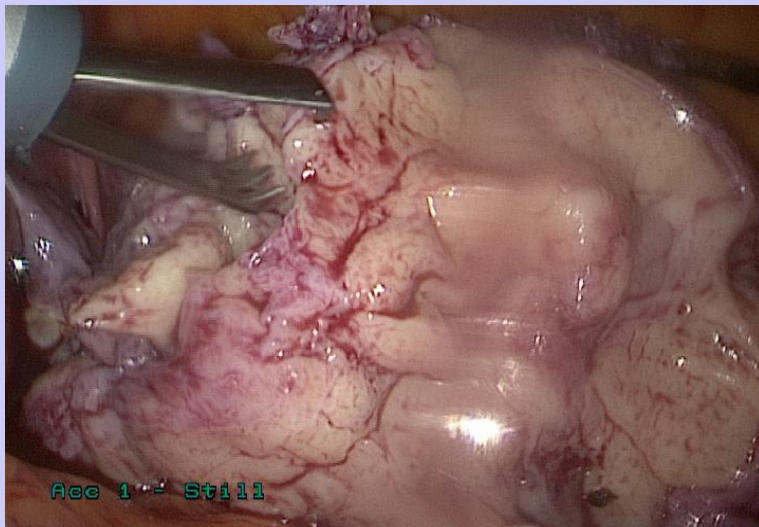
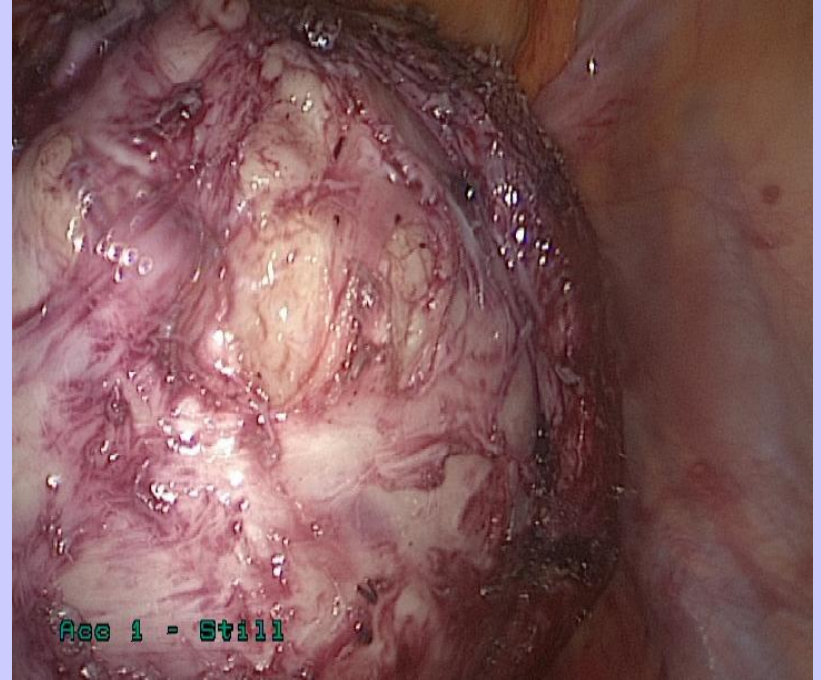
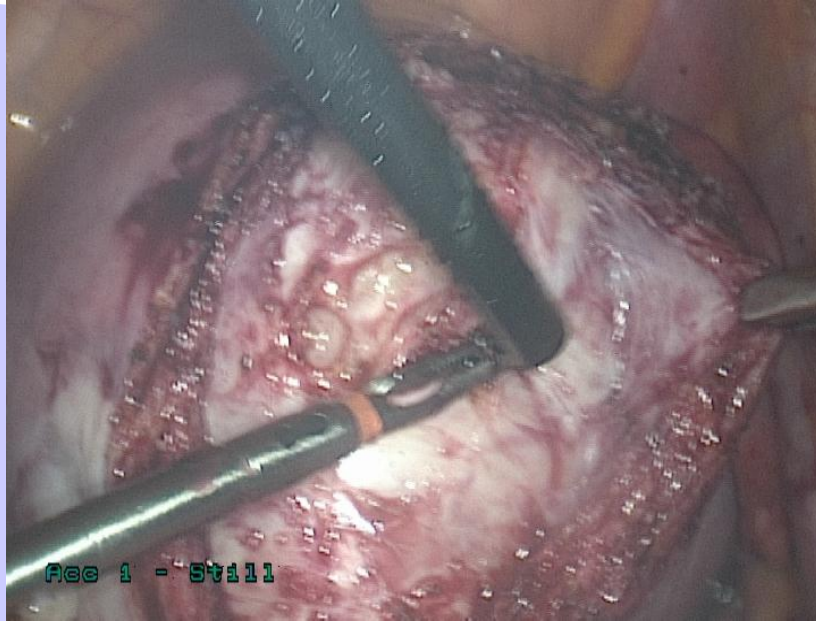
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Laparoscopic myomectomy

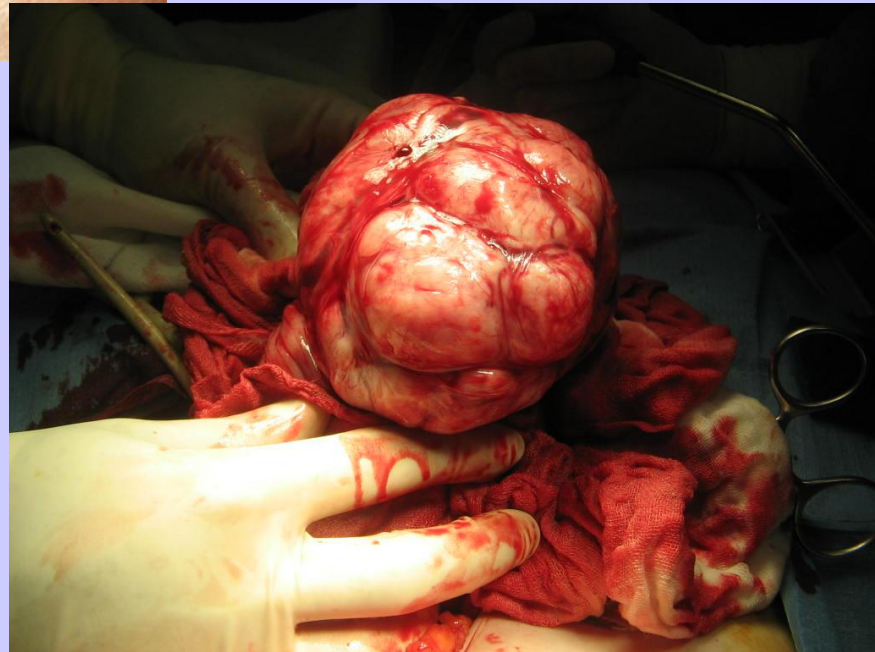


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Laparoscopic myomectomy

- In a randomised-controlled trial, intramural myoma with submucous component was found to be associated with decreased pregnancy rates.

M.L. Casini et al Gynecol Endocrinol. 2006;22:106-109

- The effect of intramural myoma on IVF outcome remains unclear.

- In a meta-analysis of 19 studies, no significant difference was found in IVF live birth rate in women with and without intramural myoma.

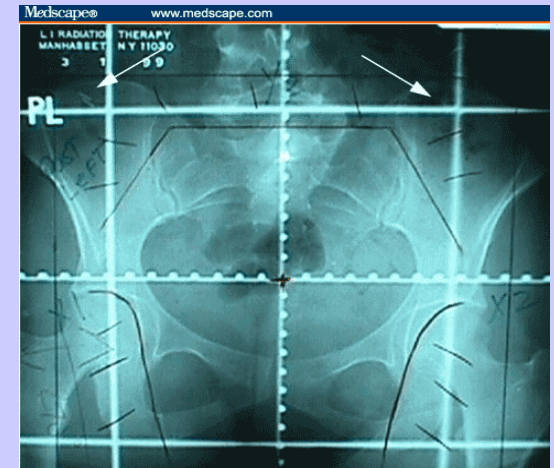
S.K. Sunkara et al Hum Reprod. 2010;25:418-429

Surgery for fertility preservation

Laparoscopic ovarian transposition

Ovarian tissue transplantation

Laparoscopic ovarian transposition



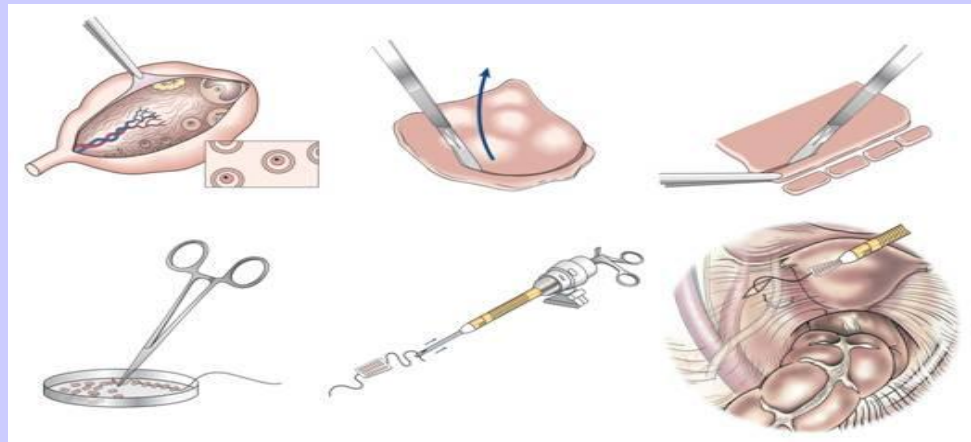
- Women with haematologic, neurologic, genitourinary, or low intestinal malignancies are often treated with pelvic irradiation. In order to protect the ovaries from the radiation, laparoscopic ovarian transposition (ovarian suspension, ovariopexy, or oophoropexy) could be carried out.
- In women younger than 40 years old, the procedure is associated with preservation of ovarian function in 88.6% of cases. S.E. Elizur et al. *J Gastrointest Surg.* 2009;13:1111-1115
- Among women with early cervical cancer who underwent laparoscopic ovarian suspension before radiation, normal ovarian function was found in 50–63.6%. J. Pahisa et al *Int J Gynecol Cancer.* 2008;18:584-589 , D.D. Feeney et al, *Gynecol Oncol.* 1995;56:3-7

Ovarian tissue freezing and transplantation

- The best method for fertility preservation is embryo cryopreservation, followed by oocyte and then ovarian cryopreservation.
- For pre-pubertal females, ovarian cryopreservation is the only alternative for fertility preservation.
- Today, at least 12 live births have resulted from transplantation of frozen-thawed ovarian tissue

Ovarian Tissue Freezing

- Some ovarian tissue removed laparoscopically and frozen, transplanted laparoscopically in to the ovarian fossa
- FA has permission to freeze
- No funding, \$500 to process tissue \$470 pa to store



Conclusions

- The role of reproductive surgery as primary treatment of infertility is limited.
- Laparotomy for treatment of infertility has been replaced by laparoscopy and hysteroscopy.
- Surgery plays a crucial role in enhancing IVF outcome and for fertility preservation.
- Hysteroscopic correction of intrauterine abnormality, including polyp, sub mucous myoma, intrauterine adhesions and uterine septum, enhances pregnancy and delivery rates.

Conclusions

- Removal of hydrosalpinx increases IVF delivery rate.
- Small endometriomas do not have to be removed before IVF treatment
- Laparoscopic ovarian suspension before radiation preserves menstrual functions in most cases.
- Fertility preservation should be offered to young women undergoing treatment with gonadotoxic agent

Thanks for the opportunity!



I HEAR HE'S IVF. LIKE WAY WANTED.