

# International Federation of Fertility Societies

## Global Standards of Infertility Care

### Standard 9

### Tubal Surgery

#### Recommendations for Practice

Name	Tubal surgery
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#### Introduction

The goal of IFFS Practice Standards are to provide policy- and decision-makers and the clinical and scientific community with a set of recommendations that can be used as a basis for developing or revising institutional or national guidelines on selected practice recommendations for infertility practice.

The document addresses minimal standards of practice but does not provide rigid guidelines but rather gives recommendations that provide the basis for rationalizing the provision of infertility services in view of the most up-to-date information available.

Because country situations and programme environments vary so greatly, it is inappropriate to set firm international guidelines on infertility practice. However, it is expected that institutional and national programmes will use these guidance documents for updating or developing their own infertility guidelines in the light of their national health policies, needs, priorities and resources. The intent is to help improve access to, quality of, and safety of infertility and assisted conception services. These improvements must be made within the context of users' informed

choice and medical safety. Adaptation is not always an easy task and is best done by those well-acquainted with prevailing health conditions, behaviours, and cultures.

### **Scope of this Practice Standard**

Surgical treatment for peritubular adhesions, proximal and distal tubal occlusion; reversal of sterilization; salpingectomy for hydrosalpinges prior to IVF treatment.

### **Rationale**

Following the successful introduction of IVF, debate from the 1990's has favoured utilising this progressively improving modality for management of tubal related infertility. Tubal reconstructive surgery however should still be considered for the following reasons:

- Established successful long-term outcome following tubal microsurgery <sup>(1)</sup>.
- Clinical effectiveness and cost effectiveness of surgery particularly in publicly funded programs <sup>(2)</sup>.
- Avoidance of IVF for ethical and religious reasons. Preference for natural methods of conception.

### **Recommendation 1: Assessment for Tubal Surgery**

- The patient's age and declining fertility should be considered when advising a patient to undergo tubal assessment or corrective surgery.
- Couples should be screened to exclude ovulatory disorders and semen abnormalities as these factors may preselect a couple for IVF treatment.
- With a known history of pelvic inflammatory disease, pelvic surgery, ectopic pregnancy or endometriosis laparoscopy and dye studies is preferred for pelvic assessment in preference to hysterosalpingography or hysterocontrastsonography (HyCoSy). A finding of proximal tubal

obstruction by hysterosalpingography necessitates confirmation by either fluoroscopic or hysteroscopic selective tubal catheterisation.

- Practitioners should have the necessary skills for and be prepared to undertake interventional procedures as part of a diagnostic laparoscopy procedure and the patient consented appropriately. Laparoscopic staging of tubal pathology as to site, type and extent of disease process particularly in relation to hydrosalpinx is important for prognosis and deciding to have tubal surgery or IVF.
- See separate guidelines for assessing tubal patency.

### **Recommendation 2 Open microsurgery and laparoscopic tubal surgery**

There is insufficient evidence to recommend one particular approach to surgery. The technique adopted should be determined by the skill of the surgeon and the available equipment.

For comprehensive review of randomised, controlled, cohort and case series studies see RCOG NICE Guidelines 2004, Cochrane Database of Systematic Reviews Issue 3, CD002125 and Issue 2 CD000221.

### **Recommendation 3 - Proximal Tubal Disease**

When available, selective salpingography and tubal catheterisation or hysteroscopic tubal cannulation should be considered as they are less invasive treatment options with proven pregnancy results <sup>(4)</sup>.

Review of available case series indicates that about 50% of women achieve a term pregnancy following tubocornual anastomosis<sup>(3)</sup>. A case series study reported that up to 53% of women with proximal tubal obstruction achieved a live birth after 3.5 years following tubocornual anastomosis <sup>(5)</sup>. Tubocornual anastomosis should only be attempted by surgeons trained in microsurgical techniques and with the appropriate equipment. Alternatively IVF should be considered.

#### **Recommendation 4 - Tubal Adhesions**

Surgical correction of peritubular adhesions, preferably with minimal access techniques is recommended when the adhesions are AFS stage I and II and in the absence of distal tubal occlusion.

A cohort study with three year follow up reported that the success rate of tubal surgery including division of adhesion declines with extent of disease process, being more effective than no surgery in 67% versus 24% in Stage I ( $p<0.05$ ), 41% versus 10% for Stage II ( $p<0.05$ ) and 12% versus 3% (non-significant) for Stage III disease<sup>(6)</sup>.

#### **Recommendation 5 - Distal Tubal Occlusion**

Salpingoneostomy for <3cm diameter thin walled hydrosalpinges free of adhesions should be considered and gives best results compared to fallopian tubes with both external and internal pathology.

Intraoperative or preoperative salpingoscopy enabling direct endoscopic evaluation of tubal mucosa may facilitate a decision to perform conservative salpingoneostomy or on the basis of extensive tubal pathology salpingectomy in preparation for IVF<sup>(8)</sup>.

Live birth rates of 20-30% have been reported following salpingoneostomy<sup>(9,10,11,31,32,33,34)</sup> with up to 40% following 50 months of follow up<sup>(11)</sup>. Systematic reviews have not found significant difference in results when using different energy sources e.g. CO2 laser, diathermy or type of magnification and either laparotomy or laparoscopic approach to surgery<sup>(12)</sup>. There was no improvement in pregnancy rate with use of postoperative hydrotubation with antibiotics and steroids or by carrying out second look laparoscopy and adhesiolysis. Data from retrospective case series suggest that most pregnancies occur between 12-24 months after surgery<sup>(9,11,32,35,36,37,38)</sup>.

Commencing IVF concomitantly or after this period of time seems a sensible progressive step.

### **Recommendation 6 - Hydrosalpinx and IVF**

Salpingectomy should be considered for women with hydrosalpinges prior to IVF treatment. This should be undertaken laparoscopically with great care taken not to interfere with ovarian blood supply via the infundibulopelvic fold.

Cochrane review of three randomised controlled trials has indicated that laparoscopic salpingectomy should be considered for women with hydrosalpinges prior to IVF treatment. The odds ratio for pregnancy and ongoing pregnancy and live birth were increased for laparoscopic salpingectomy<sup>(13)</sup>. The Practice Committee of the American Society for Reproductive Medicine endorse the above view concluding that 'live birth rate achieved with IVF among women with hydrosalpinges is approximately one half that observed in women without hydrosalpinges' <sup>(14)</sup>. There is insufficient data to comment on effectiveness of laparoscopic salpingoneostomy, aspiration of hydrosalpinx fluid, hysteroscopic tubal occlusion or antibiotic treatment in conjunction with IVF oocyte recovery<sup>(13)</sup>.

Other approaches that have been reported include ethanol and hysteroscopic occlusive devices including Essure, but the results of randomized controlled trials against other methods are awaited before they can be recommended<sup>(40)</sup>.

### **Recommendation 7 - Reversal of Sterilisation**

Surgical reversal of sterilization offers a high chance of tubal patency and fertility and should be offered to women wishing to conceive after Filshie or Hulka Clip and Fallope Ring sterilization. It is essential that surgeons are trained in microsurgical techniques and appropriate equipment is available.

Request for renewed fertility arises because of a new partner, improved economic circumstances or more rarely death of a child. Current options for renewed fertility include IVF and surgical reanastomosis of the fallopian tubes. There are financial and clinical implications in treatment choice particularly in women over 40 years of age with reduced fecundity. To enable couples to reach a decision regarding IVF or reversal, data on cumulative live-birth rates after in-vitro fertilisation should be presented. <sup>(16)</sup> The main factors influencing successful reanastomosis are the site of anastomosis, length of residual fallopian tube and surgical technique <sup>(17,18,19,20)</sup>.

For the most commonly encountered Filshie or Hulka Clip and Fallope Ring sterilisation microsurgery offers a high chance of tubal patency and fertility. Case series have suggested live birth rates of 80-90% are achievable in women younger than 40 with reduced success in women aged 40 or older <sup>(21,22,23,24,25,28)</sup>. Recent experience from two microsurgery centers confirmed a live birth rate of 40% with age of conception varying from 40 to 47 <sup>(26)</sup>. The total direct cost per treatment and live birth compared very favourably to IVF live births in a similar age group <sup>(16)</sup>. Reanastomosis offers the prospect of spontaneous pregnancy and an opportunity to have more than one child before reconsidering contraceptive options. It also restores the capacity for conception with each ovulatory cycle.

A non-randomised study comparing cumulative delivery rate and costs for IVF and reversal surgery found that for the less than 37 years old group there was a significantly higher success rate for reversal with lower costs. For patients over 37, IVF had non-significantly higher pregnancy rate compared to reversals however the IVF group were aged up to 42 and no indication was given how many were over 40. Reversals in this study were performed via laparotomy and 5-day hospitalisation, which would have influenced cost comparisons<sup>(39)</sup>.

The live birth rate for patients aged over 40 following reanastomosis suggest that conception may occur more readily with natural ovulatory cycles than in stimulated cycles.

The reversal procedure can be performed via a 3-5cm suprapubic incision and uterine manipulation enabling patients to be discharged the same day or following an overnight hospital stay <sup>(26)</sup>.

Ectopic pregnancy rates of 1-2% have been reported following proximal (isthmic - isthmic) anastomosis <sup>(26)</sup>.

In younger women particularly when they wish to consider having only one child in a new relationship IVF may be a more realistic option because sterilisation will continue to provide contraception following a successful birth.

### **Recommendation 8 – adhesion prevention**

Careful tissue handling is essential in reproductive surgery however, adjuvant therapies do not improve the chance of pregnancy.

Teaching and maintenance of preventative surgical technique for laparotomy and laparoscopic surgery are pivotal in reducing postoperative surgical adhesions. These techniques encompass gentle tissue handling, meticulous haemostasis, minimising ischemia and tissue dryness, use of non-reactive sutures and prevention of infection.

Successful adhesion preventive measures in the experimental animal including the use of hypothermia and insufflation with 3% oxygen should be considered for routine use following confirmation of usefulness in clinical studies <sup>(7,39)</sup>. Whilst effective in reducing adhesion, there is no evidence from published studies that surgical barriers influence fertility, pain and incidence of postoperative adhesions.

### **Summary**

Reproductive centers with appropriate facilities should consider providing complimentary strategies for patients with tubal disease utilising appropriate micro or laparoscopic surgery concomitantly with in-vitro fertilisation. The choice of initial

treatment should be dependent on local expertise and available funding for all programs.

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