

NATIONAL INSTITUTE FOR CLINICAL EXCELLENCE

INTERVENTIONAL PROCEDURES PROGRAMME

Interventional procedures overview of falloposcopy with coaxial catheter

Introduction

This overview has been prepared to assist members of the Interventional Procedures Advisory Committee (IPAC) advise on the safety and efficacy of an interventional procedure previously reviewed by SERNIP. It is based on a rapid survey of published literature, review of the procedure by specialist advisors and review of the content of the SERNIP file. It should not be regarded as a definitive assessment of the procedure.

Date prepared

This overview was prepared by Bazian Ltd in November 2002

Procedure name

- Fallopscopy.

Specialty society

- Royal College of Obstetricians and Gynaecologists.

Description

Indications

The investigation and treatment of subfertility in women.

One in six couples require investigation or treatment of subfertility.¹

Summary of procedure

Conventional investigation of subfertility in women often includes an examination of the fallopian tubes using hysterosalpingography (an X-ray test) or laparoscopy with dye injection to check the patency of the fallopian tubes. Occasionally salpingoscopy is performed. This is the inspection of the inside of the fallopian tubes from the outer fimbrial end, at laparoscopy or laparotomy.

Fallopscopy is a technique that allows direct inspection of the inside of the fallopian tubes. The fallopian tubes are approached through the cervix and uterus.

There are two main types of falloposcope: coaxial and linear everting catheter. The coaxial technique involves inserting a narrow catheter over a guidewire through the

cervix and uterine cavity into the fallopian tubes. The surgeon then passes a flexible endoscope through the catheter. Coaxial fallopscopy is usually carried out under local anaesthetic or mild sedation.

The linear everting catheter is a different kind of fallopscopy technique that does not require a guidewire.

The claimed advantages of fallopscopy over X-ray methods and laparoscopy are that it allows a direct, internal view of tubal abnormalities, and that balloon dilatation can be performed on obstructive lesions at the time of the procedure.

Literature reviews

Appraisal criteria

Studies of fallopscopy using the coaxial catheter technique were included. Studies that described the use of a linear everting catheter or did not specify which fallopscopic technique was used were excluded.

Studies that reported only non-clinical outcomes were excluded.

List of studies found

No controlled studies were found.

One study was found of diagnostic accuracy of fallopscopy compared with hysterosalpingography or laparoscopy.²

Eleven case series were found. The five largest are described in the table.³⁻⁷ Three of the studies are about investigation of fallopian tube blockage³⁻⁵ and two are about the treatment of fallopian tube blockage.^{6,7} The Appendix provides references to the smaller studies.

An English abstract was found of a study published in Hebrew that did not specify the fallopscopic technique used. The Appendix gives the reference to this study.

A narrative review was found, in French, that included a brief description of a case series of 145 tubes (number of women not provided). It was not possible to establish from the paper which fallopscopic technique was used. The Appendix gives the reference to this study.

Summary of key efficacy and safety findings

Authors, location, date, patients	Key efficacy findings	Key safety findings	Key reliability and validity issues
Surrey ES² Test validity study: diagnosis Five centres in USA and Australia Date not stated (published 1997) n = 20 women with previous hysterosalpingography or laparoscopy (HSGL): 16 women with at least one blocked tube (fallopосcopy in 20 blocked tubes and 5 patent tubes) 4 women with patent tubes (fallopосcopy in 5 tubes)	Of 20 tubes blocked on HSGL: - blocked on fallopосcopy: 3 tubes - patent on fallopосcopy: 17 tubes Of 10 tubes patent on HSGL: - blocked on fallopосcopy: not provided - patent on fallopосcopy: not provided Successful cannulation: 30/36 tubes Successful imaging: 28/32 tubes	'No complications occurred'	Blinding of fallopосcopists to result of previous tests not reported. No 'gold standard' test available.
Pennehou G³ Case series: diagnosis Paris, France 1990 to 1992 n = 66 (130 tubes) women with suspected tubal defects on prior hysterosalpingography, mean age 29 years, range 22–37	Catheterisation of fallopian tube technically successful: 110/130 tubes 'Correct' visualisation of tube: 30% of successfully cannulated tubes (33/110)	Complications: - uterine perforation: 3 tubes - tubal perforation: 1 tube	Uncontrolled case series. No clinical efficacy data provided.
Kerin J⁴ Case series: diagnosis Los Angeles, USA Date not stated (published 1990) n = 55 women with suspected tubal disease (84 tubes), age 16–44 years	Fallopосcopy unsuccessful: 9/84 tubes Normal tubal lumen: 32/75 tubes Obstructed tubes: 43/75 tubes	Complications: tubal perforation: 3 tubes 'no other complications occurred'	Uncontrolled case series. No clinical efficacy data provided. Women may be part of the same series as reported in other papers by Kerin J.^{3,4}

Authors, location, date, patients	Key efficacy findings	Key safety findings	Key reliability and validity issues
Kerin J⁵ Case series: diagnosis Los Angeles, USA Date not stated (published 1990) n = 44 women (71 tubes) • 36 suspected tubal disease • 8 with normal tubes on hysterosalpingography	Fallopscopy failed for technical reasons: 8/71 tubes Normal tubal lumen: 28/63 tubes Obstructions or defects: 35/63 tubes	Perioperative perforations, bleeding: none	Uncontrolled case series. Women may be part of the same series as reported in other papers by Kerin J.^{3,5} No clinical efficacy data provided.
Kerin J⁶ Case series: diagnosis and treatment Los Angeles, USA Date not stated (published 1990) n = 35 tubes • intramural or isthmic stenosis (15) • isthmic obstruction (5) • salpingitis isthmica nodosa (2) • nonobstructive tubal disease (10) • hydrosalpinx (2) • intratubal polyp (1) Direct balloon tuboplasty attempted in 32 tubes	Technical success: • breaking down non-obstructive intraluminal adhesions: 6/10 • dilating intramural or isthmic stenosis: 6/15 • negotiating isthmic stricture secondary to salpingitis isthmica nodosa: 1/2 bypassing complete fibrotic obstruction: 0/5	Complications: • perforation: 3 tubes • balloon breakage: 1 tube 'No evidence of postoperative pyrexia or other complications'	Uncontrolled case series. No description of women provided. No clinical efficacy data provided. Women may be part of the same series as reported in other papers by Kerin J.^{4,5}

Hyashi N⁷ Case series: treatment Fukuki, Japan Date not stated (published 1994) n = 36 women with bilateral obstruction (67 tubes), age 21–42 Mean follow up: 3 years	Technically successful recanalisations in 52/54 tubes with proximal obstruction coaxial fallopscopy (16 tubes) selective salpingography (36 tubes) Pregnancies: 5; no information on whether these occurred in women who received coaxial fallopscopy	Complications: • perforation: 3 tubes; no information on whether any of these were in women receiving coaxial fallopscopy • Complication rate up to 23% for distal obstructions (3/13 tubes)	Uncontrolled case series. Results with coaxial catheter not presented separately .
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Validity and generalisability of the studies

All the studies were carried out in centres applicable to the UK.

One study was found in which all participants received both coaxial catheter fallopscopy and conventional fertility investigation with hysterosalpingography and laparoscopy. The study was small and did not provide the information required to calculate sensitivity and specificity.

None of the case series provided data on clinical efficacy outcomes. The case series are small, so provide limited information on safety.

Specialist Advisor's opinions

Specialist advice was sought from consultants who have been nominated or ratified by their Specialist Society or Royal College

- Uptake of coaxial catheter fallopscopy is high in Australia.
- Images are often of poor quality.
- Normal and abnormal appearances of the fallopian tubes have not been comprehensively documented, so diagnosis is difficult.
- Abnormalities that can be treated at fallopscopy are rare.

References

Hull M, Glazener C, Kelly NJ, Conway DI, et al. Population study of causes, treatment, and outcome of infertility. *BMJ* 1985;91: 1693

Surrey ES, Adamson GD, Nagel TC, Malo JW, et al. Multicenter feasibility study of a new coaxial fallopscopy system. *J Am Assoc Gynecol Laparosc* 1997;4: 473–8

Pennehouat G, Risquez F, Naouri M, Thebault Y, et al. Transcervical fallopscopy: preliminary experience. *Human Reprod* 1993; 8: 445–9

Kerin J, Surrey E, Daykhovsky L, Grundfest WS. Development and application of a falloposcope for transvaginal endoscopy of the fallopian tube. *J Laparoendosc Surg* 1990; 1: 47–56

Kerin J, Daykhovsky L, Segalowitz J, Surrey E, et al. Fallopscopy: a microendoscopic technique for visual exploration of the human fallopian tube from the uterotubal ostium to the fimbria using a transvaginal approach. *Fertil Steril* 1990; 54: 390–400

Kerin J, Daykhovsky L, Grundfest W, Surrey E. Fallopscopy. A microendoscopic transvaginal technique for diagnosing and treating endotubal disease incorporating guide wire cannulation and direct balloon tuboplasty. *J Reprod Med* 1990; 35: 606–12

Hayashi N, Kimoto T, Sakai T, et al. Fallopian tube disease: limited value of treatment with fallopian tube catheterization. *Radiol* 1994; 190: 141–3

Appendix: Foreign language and small case series

Reference	Number of study participants
Paper in French: Dechaud H, Hedon B. Fallopian tube endoscopy in 1996. <i>Fertil Contracept Sexual</i> 1996; 24: 543 (not clear whether coaxial catheter or not)	145 tubes diagnosis
Paper in Hebrew: Menashe Y, Rosen DJ, Surrey E, Kerin JF. Falloposcopy--a new method for evaluation and treatment of infertility due to tubal factors. <i>Harefuah</i> 1993; 124: 8–12, 64 (not clear whether coaxial catheter or not)	82 treatment
Novy MJ, Thurmond AS, Patton P, Uchida BT, et al. Diagnosis of cornual obstruction by transcervical fallopian tube cannulation. <i>Fertil Steril</i> 1988; 50: 434–40 (not clear whether coaxial catheter or not)	28 treatment
Martensson O, Nilsson B, Ekelund L, Johansson J, et al. Selective salpingography and fluoroscopic transcervical salpingoplasty for diagnosis and treatment of proximal fallopian tube occlusions. <i>Acta Obstet Gynecol Scand</i> 1993; 72: 458–64	25 treatment
Rosch J, Thurmond AS, Uchida BT, Sovak M. Selective transcervical fallopian tube catheterization: technique update. <i>Radiol</i> 1988; 168: 1–5	25 treatment
Meyerovitz MF. Hysterosalpingography and fallopian tube cannulation: use of a double-balloon introducing catheter. <i>Radiol</i> 1991;181: 901–2	8 treatment
Tanaka N, Matsuuura K, Nishimura K et al. Clinical application and assessment of falloposcopic tuboplasty (FT catheter system) [Japanese]. <i>Japan J Fertil & Steril</i> 1998; 43: 269–74 (not clear whether coaxial catheter or not)	5 treatment