Hydrosalpinx and ART

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Summary:

1. Introduction and definition
2. Different surgical procedures
3. Effects & side effects
4. Conclusions
Definition:

Cystic or tubular structure outside of ovary, with septation
Patients with Hydrosalpinx:

- IVF success rate

Causes:

a. Implantation failure
b. Miscarriage
c. EP

(Hum Rep 2001)
Detrimental role of salpinx fluid:

a. Embryo implantation
b. Toxic effect on embryo (Hum Rep 2003)
c. Flushing of embryo by hydrosalpinx fluid (Hum Rep 1998)
d. HOX A10 in endometrium
Wide spectrum of tubal pathology:

a. Slight tubal dilatation (uni or bilateral)
b. Previous tubal abortion
c. Negative tubal patency without hydrosalpinx

(Int J Ob/Gyn 2012)
NICE (2013) & Cochrane 2004:

Laparoscopic unilateral or bilateral salpingectomy should be recommended for all women with unilateral or bilateral hydrosalpinx before IVF
Other substitute methods:

a. Salpingostomy
b. Proximal tubal occlusion
c. Ultrasound guided transvaginal aspiration
d. Hysteroscopic insertion of device (Issure)
e. Sclerotherapy
f. Fulguration of internal tubal orifice (Jour Ob/Gyn 2015)
g. Antibiotic therapy (Clin Exp Rep Med 2012)
Still no consensus regarding the best method of the management of hydrosalpinx before IVF/ET
Salpingectomy, Proximal tubal occlusion (LPTO) & Issure are more popular for treatment of hydrosalpinx

(Ferti/ Steri 2017)
- Salpingectomy, LPTO, Issure:

a. Similar oocyte number, pregnancy rate and live birth in salpingectomy & LPTO (Meta-analysis Ferti/ Steri 2017)
b. Pregnancy rate and live birth of Issure was lower than salpingectomy & LPTO
c. Miscarriage of Issure was higher than 2 other methods

(Ferti/ Steri 2017)
What is the effect of salpingectomy on ovarian reserve?
Effects of salpingectomy on FSH, AFC, AMH: 

Not significant 

(Meta-analysis, J of Ova Research 2016)
Effects of salpingectomy on implantation, pregnancy rate & ongoing pregnancy rate: Significant

(Meta-analysis, J of Ova Research 2016)
Ovarian reserve tests & ovarian response to stimulation is better in unilateral salpingectomy versus bilateral

(Ferti/Steri 2016)
Meta-analysis 2017: overall we can rank:

1. LPTO
2. Salpingectomy
3. Issure
4. Tubal aspiration

(Ultrasound Ob/Gyn 2017)
Surgical treatment for hydrosalpinx prior to in-vitro fertilization embryo transfer: a network meta-analysis.

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Abstract

OBJECTIVE: The presence of hydrosalpinx impairs the outcome of in-vitro fertilization embryo transfer (IVF-ET). Surgical methods to either aspirate the fluid or isolate the affected Fallopian tubes have been attempted as a means of improving outcome. The aim of this network meta-analysis was to compare the effectiveness of surgical treatments for hydrosalpinx before IVF-ET.

METHODS: An electronic search of MEDLINE, Scopus, Cochrane Central Register of Controlled Trials (Central) and the US Registry of clinical trials for articles published from inception to July 2015 was performed. Eligibility criteria included randomized controlled trials of women with hydrosalpinx before IVF-ET comparing ultrasound-guided aspiration of the fluid, tubal occlusion, salpingectomy or no intervention. Ongoing pregnancy was the primary outcome and clinical pregnancy, ectopic pregnancy and miscarriage were secondary outcomes. A random-effects network meta-analysis synthesizing direct and indirect evidence from the included trials was carried out. We estimated the relative effect sizes as risk ratios (RRs) and obtained the relative ranking of the interventions using cumulative ranking curves. The quality of evidence according to GRADE guidelines, adapted for network meta-analysis, was assessed.

RESULTS: Proximal tubal occlusion (RR, 3.22 (95% CI, 1.27-8.14)) and salpingectomy (RR, 2.24 (95% CI, 1.27-3.95)) for treatment of hydrosalpinx were superior to no intervention for ongoing pregnancy. For an outcome of clinical pregnancy, all three interventions appeared to be superior to no intervention. No superiority could be ascertained between the three surgical methods for any of the outcomes. In terms of relative ranking, tubal occlusion was the best surgical treatment followed by salpingectomy for ongoing and clinical pregnancy rates. No significant statistical inconsistency was detected; however, the point estimates for some inconsistency factors and their CIs were relatively large. The small study number and sizes were the main limitations. The quality of evidence was commonly low/very low, especially when aspiration was involved, indicating that the results were not conclusive and should be interpreted with caution.

CONCLUSIONS: Proximal tubal occlusion, salpingectomy and aspiration for treatment of hydrosalpinx scored consistently better than did no intervention for the outcome of IVF-ET. In terms of relative ranking, proximal tubal occlusion appeared to be the most effective intervention, followed by salpingectomy.
ASRM:

- Recommend salpingectomy (evidence level B)
- LPTO or Aspiration not recommended
Salpingectomy for hydrosalpinx prior to in vitro fertilization

Practice Committee of the American Society for Reproductive Medicine in collaboration with The Society of Reproductive Surgeons

The American Society for Reproductive Medicine, Birmingham, Alabama


In vitro fertilization (IVF) generally is accepted as the treatment of choice for women with distal tubal occlusive disease who wish to conceive; the role of tubal reconstructive surgery is quite limited. Whereas surgery still may be considered for selected young women (< age 35 years) with mild tubal disease and no other coexisting infertility factors and for those who reject or have no practical access to IVF, the outcomes achieved with surgery otherwise are almost uniformly poor (1). Evidence indicates that the presence of hydrosalpinges adversely affects results achieved with IVF, decreasing live birth rates by approximately 50% (2, 3). Whether these adverse effects are common to all hydrosalpinges or may be limited to those that are larger and thus visible with transvaginal ultrasonography remains uncertain (4). Treatment of hydrosalpinges by salpingectomy or by proximal tubal occlusion does not appear to have a beneficial effect on IVF outcome. (5)

The odds ratio for implantation was significantly higher with hydrosalpinx (OR 2.98; 95% CI, 1.24–7.08) than without (OR 1.10; 95% CI, 0.56–2.16). The effect was observed in both fresh and frozen embryo transfer cycles. The likelihood of miscarriage also was 2.3-fold (95% CI, 1.6–3.5) higher among women with hydrosalpinges. The likelihood of ectopic pregnancy could not be evaluated precisely even in this data set, suggesting a small, if any, effect on ectopic rates. A second meta-analysis included nine published studies and five abstracts involving 5892 women, including many of the same studies used in the first meta-analysis (3). Delivery rates per cycle start were 13.4% in 1418 cycles with hydrosalpinx and 23.4% in 6735 cycles without hydrosalpinx (OR 0.58; 95% CI, 0.49–0.69).

**EFFECTS OF TREATMENT**

The Practice Committee of the American Society for Reproductive Medicine recommends that every patient with hydrosalpinx be counseled to consider salpingectomy before IVF.
Fulguration of internal tubal orifice:

- Monopolar roller ball electrode
- 40–60 W for 5–10 seconds
- Followed by aspiration and alcohol sclerotherapy

(IJRM 2015)
Clinical application of operative hysteroscopy in treatment of complex hydrosalpinx prior to IVF.

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Author information

Abstract

BACKGROUND: In vitro fertilization and embryo transfer (IVF-ET) is the best option for patients with hydrosalpinx. However, if hydrosalpinx is not pre-treated, the therapeutic outcomes of IVF-ET would be compromised.

OBJECTIVE: This study aims to investigate the safety and effects of operative hysteroscopy in the treatment of patients with hydrosalpinx prior to IVF-ET, who were not indicated for laparotomy due to extensive pelvic adhesion.

MATERIALS AND METHODS: The study analyses retrospectively data from 10 women with hydrosalpinx, who were unable to undergo laparotomy due to extensive pelvic adhesion and treated by operative hysteroscopy prior to IVF-ET, and was assessed the effects and safety of the procedure.

RESULTS: Postoperative hystero-salpingography demonstrated complete tubal occlusion of the diseased side in all cases. Being applied with IVF-ET for fertility after their hysteroscopy operation, 6 out of 10 patients acquired clinical pregnancy.

CONCLUSION: Hysteroscopic tubal occlusion of the proximal part of the hydrosalpinx can effectively prevent the hydrops backflow to endometrial cavity and benefit subsequent implantation in the course of assisted reproduction without significant complications.

KEYWORDS: Hydrosalpinx, Hysteroscopy, Infertility, Tubal occlusion
INFERTILITY SCREENING
Sonography, Hysterography, Hormonal blood test, Spermogram.

HYDROSALPINX
ART like IVF possible

LAPAROSCOPY
Tubal evaluation

Good prognosis
Tubal stage I-II
Mucosal stage I-II

Neosalpingostomy
Good result
Natural procreation or Stimulation ± IIU

Middle prognosis
Tubal stage III
Mucosal stage I-II
Moderate pelvic adhesions

Neosalpingostomy
Bad result

If good prognosis on unique tube

Bad prognosis
Tubal stage IV
Mucosal stage III
Bifocal pathology
Previous tubal plasty
Severe adhesions

Uni or bilateral Salpingectomy

IVF

Tubal stage from Mage [11], Mucosal stage from Boer-Meisel [10]
Conclusion:

- When hydrosalpinx is visible in ultrasound it can decrease implantation, pregnancy and take home baby rate and increase miscarriage rate.
- Omitting the hydrosalpinx significantly increase the implantation and pregnancy rate.
Conclusion, con’t

- No general consensus about the best surgical method for hydrosalpinx before IVF/ET, but salpingectomy or LPTO seem to have better rankings
Conclusion, con’t

Selection of surgical method depends on:
- Pelvic condition
- Ovarian reserve
- Bilateral or unilateral disease
- Degree of tubal destruction
- Presence or absence of infection
THANK YOU
2nd Debatable Topics on Obstetrics Gynecology & Infertility
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