

Unilateral hydrosalpinx is more likely to be associated with negative IgG chlamydia antibodies and bilateral hydrosalpinges more likely to be associated with positive levels

J.H. Check^{1,2}, C. Dietterich²

¹Cooper Medical School of Rowan University, Department of Obstetrics and Gynecology,
Division of Reproductive Endocrinology & Infertility, Camden, NJ

²Cooper Institute For Reproductive Hormonal Disorders, P.C. Mt. Laurel, NJ (USA)

Summary

Purpose: To determine if previous exposure to chlamydia, as evidenced by positive serology, is associated with a greater degree of detectable hydrosalpinges, and to determine if positive serology is more associated with bilateral than unilateral hydrosalpinges. **Materials and Methods:** Retrospective study evaluating all patients who had either a unilateral or bilateral hydrosalpinges detected by laparoscopy. The group was further defined by these women in this group who had serum chlamydia antibody tests and transvaginal pelvic sonography (TVS). **Results:** Prior exposure to chlamydia infection as evidenced by positive serology was detected in 31 of 39 (79.4%) women. All eight women with negative serology had a unilateral hydrosalpinx, of which only one could be detected by TVS. Whereas 29.4% of 17 women with unilateral hydrosalpinges and positive serology were detectable by TVS, 35.7% of the 25 hydrosalpinges of the 14 women with positive serology and bilateral hydrosalpinges could be detected by TVS. TVS correctly identified 16 of the 53 (30.2%) hydrosalpinges seen by laparoscopy. TVS identified 15 of the 39 (38.5%) women who had at least one hydrosalpinges. **Conclusions:** Ultrasound alone will detect less than 50% of hydrosalpinges, since women negative for chlamydia exposure are more likely to have smaller unilateral hydrosalpinges not detected by ultrasound. Future studies are needed to determine if salpingectomy may not be needed to improve fecundity.

Key words: Chlamydia antibodies; IgG; Unilateral and bilateral hydrosalpinges; Transvaginal sonography.

Introduction

Tubal disease is one of the major causes of female infertility. Tubal infection with the gonococcus or chlamydia will frequently damage the fallopian tubes and cause a hydrosalpinx. Laparoscopy with chromopertubation is considered to be the gold standard in diagnosing hydrosalpinges, but is invasive and not cost effective for fertility evaluation. Hysterosalpingography has been found to be highly specific in the diagnosis of tubal occlusion but is less sensitive because a higher rate of spasm at the cornual junction. Transvaginal sonography (TVS) has been found to be highly specific in diagnosing a hydrosalpinx, but with a very low sensitivity because of failure to identify small hydrosalpinges. There have been many reports that found a hydrosalpinx can have a negative effect on development and/or implantation of embryos with in vitro fertilization - embryo transfer (IVF-ET) [1-3]. Some studies have suggested that only the large hydrosalpinges seen by sonography are the ones most likely associated with lower pregnancy rates with IVF-ET and would benefit from sur-

gical intervention [4, 5]. The objective of the present study was to determine if a larger size and/or bilateral presence of hydrosalpinges are more likely in women with previous exposure to Chlamydia.

Materials and Methods

A retrospective study was performed to initially include all women who were found to have unilateral or bilateral hydrosalpinges by laparoscopy. Women who did not have IgG Chlamydia antibodies measured or TVS examination prior to laparoscopy were then excluded. Patients were divided into two groups by positive or negative IgG Chlamydia antibody results. The groups were then evaluated according to the number of hydrosalpinges (unilateral vs. bilateral) and whether or not they were identified by TVS.

Results

There were 39 women who had 53 hydrosalpinges documented from the surgical records. Thirty-one women had positive IgG Chlamydia antibodies and the remaining eight

were negative. All eight women with negative IgG Chlamydia antibodies had a unilateral hydrosalpinx; only one of these was large enough to be seen on TVS. There were 17 women with positive IgG Chlamydia antibodies that had a unilateral hydrosalpinx; five of these 17 (29.4%) were large enough to be seen by TVS. Fourteen women with positive IgG Chlamydia antibodies had bilateral hydrosalpinges; ten of 28 (35.7%) were identified by TVS. In five women, neither hydrosalpinx was seen by TVS. Transvaginal sonography correctly identified 16 of the 53 (30.2%) hydrosalpinges seen by laparoscopy and 15 of the 39 (38.5%) women who had at least one hydrosalpinx.

Discussion

The majority of the women (31/39, 79.2%) with a hydrosalpinx have been previously exposed to a Chlamydia infection. When a unilateral hydrosalpinx is present, previous Chlamydia infection occurred in 17 of 25 (68%) compared to 100% (14 of 14) with bilateral hydrosalpinges.

Transvaginal sonography was able to identify 15 of the 45 (33.3%) hydrosalpinges in the 31 women with prior Chlamydia exposure, while only one in eight (12.5%) was observed by TVS in women without Chlamydia exposure. These data suggest that there may be a different etiology for hydrosalpinges with negative Chlamydia exposure, e.g., possible adhesions at the terminal end of the tube without chronic infection. Further studies are needed to determine if salpingectomy may not be so important to improve fecundity in this minority group. There had been a concept that if at least one tube is open, it may not be necessary to perform a salpingectomy because the other patent tube allows escape of infected fluid. Possibly, the need for surgery may only be in those with a unilateral hydrosalpinx ex-

posed to chlamydia, but it has been shown by dramatic anecdotal cases that salpingectomy for unilateral hydrosalpinx may improve pregnancy rates even when the contralateral tube is patent [6-8].

References

- [1] Nackley A.C., Muasher S.J.: "The significance of hydrosalpinx in in vitro fertilization". *Fertil. Steril.*, 1998, 69, 373.
- [2] Camus E., Poncelet C., Goffinet F., Wainer B., Merlet F., Nisand I., Philippe H.J.: "Pregnancy rates after in-vitro fertilization in cases of tubal infertility with and without hydrosalpinx: a meta-analysis of published comparative studies". *Hum. Reprod.*, 1999, 14, 1243.
- [3] Bildirici I., Bukulmez O., Ensari A., Yarali H., Gurgan T.: "A prospective evaluation of the effect of salpingectomy on endometrial receptivity in cases of women with communicating hydrosalpinges". *Hum. Reprod.*, 2001, 16, 2422.
- [4] de Wit W., Gowrising C.J., Kuik D.J., Lens J.W., Schats R.: "Only hydrosalpinges visible on ultrasound are associated with reduced implantation and pregnancy rates after in-vitro fertilization". *Hum. Reprod.*, 1998, 13, 1696.
- [5] Strandell A., Lindhard A., Waldenström U., Thorburn J.: "Hydrosalpinx and IVF outcome: cumulative results after salpingectomy in a randomized controlled trial". *Hum. Reprod.*, 2001, 16, 2403.
- [6] Choe J., Check J.H.: "Salpingectomy for unilateral hydrosalpinx may improve in vivo fecundity". *Gynecol. Obstet. Invest.*, 1999, 48, 285.
- [7] Kiefer D.G., Check J.H.: "Salpingectomy improves outcome in the presence of a unilateral hydrosalpinx in a donor oocyte recipient: A case report". *Clin. Exp. Obstet. Gynecol.*, 2001, 28, 71.
- [8] Katsoff B., Check J.H.: "A case report to influence therapeutic philosophy when presented with the findings on laparoscopy of a unilateral hydrosalpinx with a contralateral diseased but patent fallopian tube without hydrosalpinx". *Clin. Exp. Obstet. Gynecol.*, 2005, 32, 99.

Corresponding Author:
J.H. CHECK, M.D., Ph.D.
7447 Old York Road
Melrose Park, PA 19027 (USA)
e-mail: laurie@ccivf.com