What effect does hydrosalpinx have on assisted reproduction?

The role of hydrosalpinx in IVF: simply mechanical?

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I read with interest the manuscript by De Wit et al. (1998) which sheds a new light on the hotly debated subject of the adverse role that hydrosalpinx plays in in-vitro fertilization (IVF). The authors need to be congratulated for successfully showing that women with hydrosalpinges are indeed a heterogeneous group: when hydrosalpinges are clearly visualized by ultrasound, the implantation rate (IR) and pregnancy rate (PR) are markedly reduced compared with other women with hydrosalpinges that were identified by hysterosalpingography or laparoscopy, but not seen on ultrasound. It is unfortunate that in this retrospective study no measurements of the size of the hydrosalpinx were taken, a point also missed in the first study using ultrasound as the diagnostic method for hydrosalpinx (Andersen et al., 1994). Prior investigations, unfortunately again not using size measurements, suggest that women with ‘marked’ distension of one or both Fallopian tubes have a poorer outcome compared to women with ‘slight’ distension (Strandell et al., 1994). However, Andersen et al. (1996), without reporting on measurements, could not find a difference ‘in the largest diameter of the hydrosalpinx between those patients who conceived as compared to those who failed to conceive’. Clearly the impact of the size of the hydrosalpinx needs to be assessed in the ongoing prospective trials to clarify this controversy.

While some of the definitions used in De Wit’s manuscript are not shared by most investigators (such as ‘giving a score of one implantation for cases of miscarriages before ultrasonography was performed, in cases of ectopic pregnancy, and when no gestational sac was observed’), the conclusions are critical nonetheless. With more recent publications showing no embryonic toxicity of the hydrosalpinx fluid in humans (Granot et al., 1998; Strandell et al., 1998), unlike earlier studies in mice (Mukherjee et al., 1996; based on which the authors’ recommended ‘prophylactic salpingectomy’), it is clear that the most likely effect of hydrosalpinx is simply mechanical. It is logical to assume that embryonal apposition to the endometrial surface will be compromised when a fluid interface exists. De Wit’s data also indicate that surgical therapy (salpingectomy or proximal tubal interruption) should only be offered to women whose hydrosalpinx is clearly visible on ultrasound because these women are at increased risk of having reflux of hydrosalpinx fluid into the uterine cavity (Mansour et al., 1991; Russell et al., 1991; Strandell et al., 1994; Andersen et al., 1996; Bloechle et al., 1997; Sharara and McClamrock, 1997). Which size is critical remains to be defined, but it is this author’s experience that a diameter >3 cm prior to initiation of ovarian stimulation is associated with a high chance of enlargement during ovarian stimulation and reflux of fluid into the endometrial cavity. It has been our practice to offer surgical correction prior to IVF only to those women regardless of the findings of hysterosalpingography or laparoscopy. If reflux is identified at the time of oocyte aspiration, we recommend that all embryos be cryopreserved and replaced after surgical correction of the hydrosalpinx (Sharara and McClamrock, 1997). Indiscriminate salpingectomies on women with hydrosalpinx is clearly not the answer (Puttemans and Brosens, 1996).

Despite their important contribution, I wish that De Wit et al. (1998) addressed whether they had any patients with hydrosalpinx fluid reflux into the endometrium. This may be inherent to the deficiencies of a retrospective study, however a review of the surgical notes or ultrasound still pictures of the endometrial lining at the time of oocyte aspiration may shed light into this very important issue. We previously published that reflux can occur only after human chorionic gonadotrophin (HCG) administration in some patients, which could be totally missed if the endometrium is not evaluated at the time of oocyte retrieval (Sharara and McClamrock, 1997). We believe that these women have the worst prognosis at conception, and benefit markedly from surgical correction of the hydrosalpinx prior to IVF. This investigator believes that the endometrium should be assessed first, and all future and currently ongoing prospective trials dealing with the impact of hydrosalpinx on IVF outcome have to record the maximal diameter of the hydrosalpinx, whether it is present on baseline ultrasound prior to initiation of ovarian stimulation, whether it enlarges in response to gonadotrophins, and whether fluid reflux to the uterus is clearly visible by ultrasound on the day of gonadotrophin start, on the day of oocyte aspiration, and the day of embryo transfer. Only then would we have the correct answers to counsel our patients appropriately, and help them avoid unnecessary surgery.

References
Bloechle, M., Schreiner, T. and Lisse, K. (1997) Recurrence of hydrosalpinges...
What is a hydrosalpinx? A plea for the use of a proper terminology in scientific discussion

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I read with great interest the study of De Wit et al. (1998), where they could clearly demonstrate that hydrosalpinges exert a negative effect on implantation and pregnancy rates in patients undergoing in-vitro fertilization (IVF) and embryo transfer. However, the terminology they use is misleading and may be the cause of the conflicting results reported in the literature (Anderson et al., 1994; Strandell et al., 1994; Vandromme et al., 1995; Akman et al., 1996; Sharara et al., 1996; Ng and Po, 1997). Hydrosalpinx is a Greek word and means a Fallopian tube filled with water or fluid. Using ultrasound, hydrosalpinges are documented as cystic elongated masses in the adnexa, sometimes these cystic masses are tortured around the ovaries. As a tube filled with fluid should be recognized as a cystic mass, all hydrosalpinges should be visible by ultrasound. Distally occluded tubes which are not filled with fluid are, by definition, not hydrosalpinges. Why is this discrimination important?

In the discussion of the negative effects of hydrosalpinges on pregnancy rates after IVF/embryo transfer treatment, the tubal fluid plays a crucial role. Due to a leakage of tubal fluid into the uterine cavity: (i) a direct toxic effect on the embryos transferred is postulated (Mukherjee et al., 1996); (ii) a negative effect of endometrial integrin expression has been found (Lessey et al., 1994; Meyer et al., 1997); (iii) a mechanical problem, i.e. disturbed contact between endometrial surface and embryo or even washing out the embryo through the cervical channel is discussed (Mansour et al., 1991; Bloechle et al., 1997).

To resolve these problems, tubal surgery, reconstruction or removal, have been intensively debated (Anderson et al., 1996; Puttemans and Brosens, 1996). To obtain more information on patients with hydrosalpinges undergoing IVF/embryo transfer treatment, we need more and prospective data. We have to learn to discern those patients who may profit from surgery and those who will not but, first of all, we must use clear and proper terms, since distally occluded tubes and hydrosalpinges are different entities, as De Wit et al. (1998) have clearly demonstrated by their study.

References


References