

Fertiloscopy and Challenges Ahead

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ABSTRACT

There have been suggestions that fertiloscopy should replace diagnostic laparoscopy in the routine assessment of infertile women without obvious lesions of the ovary or in the pouch of Douglas. While this is an attractive option that carries less risks and hence safer than conventional laparoscopy, fertiloscopy faces certain technical difficulties that have not been addressed in details. Furthermore, the emotional aspects of our patients and acceptance level among practitioners need to be evaluated as well.

This article will discuss the possible challenges faced in fertiloscopy based on the evidences available and from our personal experience in this procedure. The level of acceptance among patients would also be examined.

Fertiloscopy is a useful tool as the initial investigation in infertility. Complications can be minimized by careful selection of the patients and adequate training as there is a learning curve involved in this relatively new procedure. The level of acceptance among the patients and practitioners can be improved with detailed counselling and structured training respectively.

BACKGROUND

The 'FLY' (Fertiloscopy-Laparoscopy) study strongly suggests that fertiloscopy should replace diagnostic laparoscopy in the routine assessment of infertile women without obvious lesions of the ovary or in the

pouch of Douglas (1). This has been supported by reports that fertiloscopy is less invasive and safer than laparoscopy (2). Furthermore, fertiloscopy allows easier evaluation of the tubal mucosa because of the capacity to perform salpingoscopy and microsalingoscopy (3) (4).

While this is an attractive option, fertiloscopy is a relatively new technique and hence, experience of the surgeons in some centres appeared to be very limited. There are certain technical difficulties and possible complications that have not been discussed in details. It is important to highlight these especially to those who are new to fertiloscopy, so that this procedure can be performed successfully with minimal risks and morbidity to patients. In addition, patients' level of acceptance of such new technique must be considered, as in any other new procedures. On the other hand, the willingness of practitioners to learn and perform this procedure has to be addressed as well. A new surgical procedure always pose a challenge in terms of the learning curve involved and quantity of cases required before an acceptable level of confidence can be attained in performing it independently.

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RISKS OF FERTILOSCOPY

One of the major concerns when performing a fertiloscopy is the risk of rectal injury. This is especially so in the presence of posterior endometriosis, when there is a higher risk that the rectum will be adhered to the posterior vaginal vault. In this situation, the risk of rectal injury is high when inserting the trocar. It is thus imperative to perform a thorough and accurate vaginal examination in the clinical setting to exclude the presence a posterior nodule or mass in the Pouch of Douglas. In the presence of such contraindications, patient should be offered a conventional laparoscopy where both diagnostic and therapeutic procedures can be performed with less risks involved. More importantly, pelvic examination must be performed after a patient is given the anaesthesia before the start of the procedure; be it local, sedation or general anaesthesia (5).

The risk of bowel injury is further reduced by creating a hydroperitoneum through a veres needle, where 150-200cc of saline solution is instilled into the Pouch of Douglas under gravity at the beginning of the procedure. This has been described in our past publications. Hydroperitoneum creates a safety margin because the hydrostatic pressure of the saline will decrease the volume of the rectum, hence creating a wider working space in the Pouch of Douglas.

In a series of 3,667 procedures of transvaginal pelvic endoscopies in infertile patients without obvious pelvic pathology, full-thickness bowel injury occurred in 24(0.65%) procedures. After an initial experience of 50 procedures, the prevalence of bowel injury was 0.25%. (6) This is comparable to our series in which the rate of bowel injury was 3/1498, which translates to 0.2%. Bowel injury is almost always diagnosed during the fertiloscopy due to direct visualisation of the bowel lumen when the scope is introduced after trocar insertion. Bowel injury is usually extra peritoneal and is treated conservatively with antibiotics without major consequences. (7)

Risk of infection is extremely low due to the usage of disposable tools in fertiloscopy. In our series of 1498 patients, only 2 patients (0.1%) had infection which resolved with antibiotics. However, patient should be advised to monitor for signs and symptoms of infection after the procedure, and they must seek early medical advice should they experience increasing discomfort, fever or vaginal discharge. Thus, one has to be aware of the risk of infection particularly in patients with sequelae of PID and it is important to diagnose the complication accurately and intervene promptly. (8)(9)

VIEW AT TRANSVAGINAL HYDROLAPAROSCOPY

The view at transvaginal hydrolaparoscopy is limited and restricted to the posterior part of the true pelvis and the gynaecologist is more familiar with the panoramic view of the pelvic structures as seen at laparotomy or laparoscopy. Furthermore, gynaecologists who are used to performing laparoscopies would perceive the view in fertiloscopy as 'inverted'. Thus, it is worth asking whether inspection of the entire abdomen and anterior pelvis is necessary in infertility and, in the absence of tubo-ovarian pathology, whether anything can be gained from abdominal inspection beyond what can be seen with transvaginal hydrolaparoscopy. The range of interventions which can be performed alongside transvaginal hydrolaparoscopy is more limited than with laparoscopy; however, minor operative procedures such as biopsy and adhesiolysis can still be performed.(7)

The limited view can be compounded by presence of bleeding which occurs when the posterior uterine wall, parametrium or ovarian cyst is inadvertently traumatized by the Veres needle or trochar. Hence it is important to perform a pelvic examination before the start of the procedure to determine the direction of the uterus, especially so in patients with a retroverted uterus. The point of entry of the Veres needle should be 5 to 10mm below the cervix. In order to prevent the Veres needle from skidding on the vaginal mucosa, it is necessary to initially have the safety obturation mechanism deactivated, while the tip of the needle is pushed through the first millimetres of the mucosa. Then, the safety mechanism is released and the Veres needle is inserted with a firm movement. The axis of penetration must relate to the position of the uterus. In the presence of a retroverted uterus, the axis must be parallel to the inferior blade of the speculum, whereas the axis must be horizontal if the uterus is anteverted.

In some cases, there can be failure to enter the pelvic cavity with the Veres needle and this is most likely due to the lack of experience in this technique. Quite often, especially among surgeons new to this procedure, insertion of the needle was extra-peritoneal, and this rendered safe insertion of the trocar impossible. Successful introduction of the Veres needle into the pelvic cavity requires a stabbing inward movement for about 2 cm; any hesitance in movement tends to dissect the space between the vaginal mucosa and peritoneum. Instillation of the saline solution into this extra-peritoneal space causes major problems in any subsequent attempts to enter the pelvic peritoneal cavity (1).

PATIENT COUNSELLING

Cancellation of cases in operating theatre are most commonly due to abnormal pelvic examination prior to the procedure, for instance presence of pathology in the pouch of Douglas such as recto-vaginal endometriosis, fixed retroverted uterus or posterior fibroid obliterating the pouch of Douglas. In our series of 2000 cases, we have shown that the cancellation rate due to a pathology in the Pouch of Douglas was of 5, 8%. Cancellation of procedures may add on to the stress on patients, especially those who have endure much agony caused by their problem of infertility, and incur extra costs to the hospitals and tax payers. Such situations can be avoided should a proper examination is performed in the clinical setting, with or without the aid of an ultrasonography.

Technical issues aside, the emotional aspects and attitude of women towards fertiloscopy have hitherto never been explored extensively. There are concerns with regards to infection and its sequelae, especially in terms of the effect on one's fertility should infection occurs after fertiloscopy. Hence, it is prudent to counsel all patients with regard to the low risk of infection so that they can be reassured. This should be incorporated into the consent form, which should have written information on the procedure and the minor risks involved. In addition, there are also concerns with regards to the risk of dyspareunia after fertiloscopy. While dyspareunia was reported after culdoscopy at a rate of about 1.5% (10), it is extremely rare in fertiloscopy, and this is likely to be due to the small size of entry point and technique of entry (4.1 to 5 Fr which is equivalent to about 5mm in diameter, as compared to classical culdoscopy, which requires incision of 5 to 12mm in length created via peritoneal individualisation and surgical opening), thus resulting in less risk of infection, hematoma and granulation tissue formation. In rare cases where suturing are required to close the incision, we propose that the incision is closed in a linear fashion instead of a purse-string manner to reduce the formation of granulation tissue.

There are also concerns among younger patients who have doubts with regards to performing a procedure via the vaginal route, and such patients may not accept this kind of procedure without prior counselling. However, this is probably not as apparent as surgical patients who are given the option of NOTES procedure (Natural Orifice Transluminal Endoscopic Surgery). A woman requiring a cholecystectomy might wonder why her surgeon opts to remove her gallbladder, which is anatomically located in the upper abdomen, via the vaginal route. All these need to be addressed and explained to patients in order to allay their anxiety.

CONCLUSION

Many studies have concluded that fertiloscopy is the way to go at this point in time, due to its many advantages over the previously available diagnostic tools or procedures in the initial investigation of infertility. Nevertheless, in many countries, fertiloscopy is still a relatively new technique and its practice is still at an infant stage.

Even though the risks, technical difficulties and challenges in fertiloscopy have been described earlier, the risks involved are minor, and self limiting. In our series, we have not encountered any major complications which result in serious morbidity. The advantages of fertiloscopy far outweighs its risks, and hence practitioners should seriously consider offering this procedure to their patients, where indicated.

The risk of bowel injury and cancellations of procedure can be minimized by performing a careful vaginal examination, both in the clinic during consultation, and before the start of the procedure. In some cases, an ultrasonography may give added information which can help in patient's selection.

Technical difficulties such as difficulty in entry using Veres needle or trochar, limited visualisation and difficulty in performing simple diagnostic or therapeutic procedures such as ovarian drilling, simple adhesiolysis, endometriosis ablation or salpingoscopy/miscrosalpingoscopy and biopsy, are most likely attributed to lack of experience. The level of skill and confidence of a practitioner would improve with structured training in fertiloscopy, and experiences gained throughout the years.

It is our responsibility to create a greater awareness and understanding among our patients in fertiloscopy. The advantages of this procedure must be mentioned, when compared to the other investigative and treatment modalities available at this point in time. Patients who are being offered a fertiloscopy need to be counselled thoroughly with accurate descriptions of the procedure, minor risks involved with the related figures quoted, and they must be counselled about what to expect after the procedure. The possibility of a therapeutic procedure which might be performed during the fertiloscopy, or a further laparoscopic procedure, be it in the same setting or in the future, must be discussed. An informed consent which includes all the above information should be obtained.

It would be interesting to see how fertiloscopy would evolve from a 'new technique' to a 'bread and butter procedure' from here. There is no doubt that this process might take time, and in our opinion, the greatest challenge ahead is to change the mindset of our patients and the practitioners towards fertiloscopy.

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