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SYMPOSIUM: REPRODUCTIVE SURGERY REVIEW

Current practice in tubal surgery and adhesion management: a review


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Abstract The diminished role of tubal surgery in infertile women following widespread access to IVF is now being reviewed as more patients and surgeons today consider tubal surgery as an effective alternative to assisted reproduction treatment in certain circumstances. The limitations of and lack of patient acceptance of assisted reproduction treatment for ethical and moral reasons have contributed to this change as well as advances in surgical techniques and instrument technology, notably developments in endoscopic surgery. Strategies in tubal surgery are largely unchanged but the mini-invasive nature of the endoscopic approach has added value because of less tissue trauma, better visualization of the operative field and more rapid healing, which make surgery using today's techniques an integral part of the treatment strategy in infertile couples. 

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Introduction

The almost universal availability of assisted reproduction treatment has led not only to a decline in the use of tubal surgery but also the number of skilled tubal surgeons that can undertake such procedures. Not surprisingly, leaders in assisted reproduction treatment have expressed their concern about this matter and some have thought it appropriate to write the obituary of tubal surgery (Feinberg et al., 2009).

Nevertheless, it is possible to identify several reasons to explain this situation and to argue that these two

techniques are complementary and not competitive in the management of infertile couples (Bosteels et al., 2009; Gomel, 1983). This review explains why tubal surgery should be at least considered and discussed as an option before performing assisted reproduction treatment such as IVF.

Why IVF is not the only paradigm?

The contribution brought by assisted reproductive technologies, especially IVF for infertile couples as well as for other conditions such as genetic disorders, the transmission of

which can be avoided by the judicious use of assisted reproduction treatment, is not under dispute. The technique can be widely applied empirically and it is the only therapeutic option for many couples, given the cause of their infertility and their personal circumstances, notably the woman's age and or the husband's sperm characteristics.

However, it should be acknowledged that assisted reproduction treatment in its various forms is complex and demanding, not just physically but also psychologically, given that failure is more common than success. Such stress leads many couples to abandon IVF or assisted reproduction treatment if their first treatment does not lead to a successful outcome, namely pregnancy and live birth. Assisted reproduction treatment is also expensive, involves invasive procedures and carries particular risks such as ovarian hyperstimulation syndrome. In addition there is still some residual concern about a small excess of congenital abnormalities in the newborn, especially when intracytoplasmic sperm injection is used. Finally, assisted reproduction treatment continues to raise ethical or religious issues in some cultures, which add to the stress that infertile patients experience. Thus, one may argue that assisted reproduction treatment, notably IVF and related techniques, should be reserved specifically for couples where it is the best or the only option to conceive and that tubal and endoscopic surgery should not be relegated to a second-rank status.

Advantages of tubal surgery

In certain situations, tubal surgery may be the better therapeutic option in infertile patients especially if the cause of the infertility is considered to be solely due to tubal disease. Thus, there are advantages if the outcome of the tubal surgery is successful restoration or improvement of tubal anatomy: (i) the couple may conceive naturally and on more than one occasion; (ii) compared with the cost of IVF, tubal surgery is less costly; and (iii) there are no ethical issues to address. Nevertheless, tubal surgery should be offered only when a couple's chances of normal pregnancy and outcome are better than those of IVF, which this review argues is not an uncommon situation.

Disadvantages of tubal surgery

There are some specific aspects of tubal surgery which have led to the dramatic decline in its use in the last two decades.

Loss of surgical skills by specialists in reproductive medicine and surgery

In the early years of IVF, oocyte collection was exclusively performed by experienced reproductive surgeons using trans-umbilical laparoscopy until the early 1980s when ultrasound-guided oocyte collection was introduced. Initially, this was performed trans-abdominally or by the trans-vesical and trans-urethral routes, but the subsequent introduction of the vaginal approach quickly gained wide acceptance and eventually became universal. This major breakthrough and its popularity due to its simplicity and fast

learning curve led to the lack of necessity for practitioners of reproductive medicine to learn or maintain the necessary surgical skills and techniques to be competent in undertaking reproductive surgery, especially for tubal disorders.

Inevitably, the techniques of tubal surgery, described so eloquently in the 1970s and later by authors such as Swolin (1967), Gomel (1977a,b) and Winston (1982), fell into disuse and were gradually abandoned in favour of the then-new IVF techniques, a process that was accelerated further by pressure from patients and others to whom IVF was the method of choice for having a child quickly and at the desired time.

Lack of training in tubal surgery

There followed a period when tubal surgery was practised by few proponents and was rarely an integral part of the training programmes in reproductive medicine and surgery. The consequence of this era was commented on by Watson et al. (1990), who emphasized how much the results of tubal surgery were a function of the caseload: 'the less a surgeon operated the worse the results. The reputation of the benefits of tubal surgery declined as it became common knowledge that it was not an easily accessible option as there were few trained surgeons and the few cases performed overall contributing to poor results cited, thus presenting justification for the protagonists of the "universal IVF" approach'.

Current considerations for tubal surgery and adhesion management

What is or should be the place of tubal surgery and adhesion management in infertility today? Can the teaching of tubal and related surgical techniques still be justified, especially at this time of rapid improvement in assisted reproduction treatment and its outcome? To answer these and other questions, issues such as definition of surgically treatable lesions and patient selection to name two should be addressed.

Definition of lesions

It is noteworthy that, despite the clarity in definitions of various tubal conditions and their treatment as well as the terminology used by the pioneers of microsurgery (Gomel, 1980; Mage et al., 1986; Winston and Margara, 1991), there has been non-compliance in using these principles by surgeons reporting their experience. Thus, it is timely to reinforce the importance of these early works. Surgeons should establish a clear distinction between incomplete obstruction (such as phimosis or fimbrial agglutination) where the treatment should be a fimbrioplasty, and total occlusion (such as hydrosalpinx) where the treatment is a salpingoneostomy (Figure 1). Furthermore, they should avoid using inappropriate or generalized, and so uninformative, terminology, such as salpingostomy instead of salpingoneostomy, for the treatment of hydrosalpinx. Similarly, more clarity is required when dealing with proximal tubal occlusion, where obstruction may be functional (spasm, mucosal plug) or organic (obliterative fibrosis, salpingitis isthmica nodosa, cornual polyps). The use of universally accepted terminology in describing tubal lesions and their treatment will

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