

## OPINION

# Post-coital sperm retrieval could lead to the wider approval of assisted conception by some religions

**Anthony Hirsh**

The London Women's Clinic, 115 Harley Street,  
London W1N 1DG and The Roding Hospital, Redbridge, Essex,  
IG4 5PZ, UK

In the Monastery of Vatopedi on Mount Athos in Greece, the girdle (belt) of the Virgin bestows blessings on white ribbons for the wrists of infertile husbands and their wives, and this liturgy has resulted in natural conceptions for centuries. The procedure is economic and non-invasive, and therefore ideal for patients, but is unorthodox to contemporary medicine. In 1766 John Hunter advised a linen-drafter with hypospadias to use a warm syringe to introduce his semen into his wife, but this first recorded and successful case of homologous artificial insemination (AIH) was not reported by Hunter due to the social and religious attitudes of his era. In 1897 the notoriety and public attention attracted by physicians practising 'assisted insemination' prompted the Roman Catholic Church to formally condemn AIH (Poynter, 1968).

The views of religious authorities have been considered by clinicians and governments (Department of Health and Social Security, 1984; United States Congress, 1988; American Fertility Society, 1990) at every stage in the evolution of assisted reproduction technology (ART). Physicians must follow their Hippocratic obligations to relieve the suffering of childless couples, and it would be ideal if reproductive medicine could satisfy all religions, patients and society by offering only treatments or procedures which result in natural conceptions. This is the ultimate objective of infertility research, underlying the practice of gynaecologist and andrologist treating the wife and husband individually, to which most religions have no fundamental objections.

In different faiths, the official attitude to assisted conception depends on a balance between the importance of procreation and the acceptability of the techniques proposed, but is modified by the relative dominance of centralized religious authorities and the diversity of observance within their communities (United States Congress, 1988; Schenker, 1992). In the Islamic, Jewish and Hindu religions, where the duty of married couples to reproduce is paramount, most ART procedures are acceptable if all other treatment has failed. Buddhism does not impose such a finite duty or rigid laws, so there is relative freedom in the choice of ART. In Christianity, where barren marriages are as valid as those with children, there are often fundamental objections to clinical procedures which could undermine the dignity of marriage and the intimacy of coitus.

ART requires seminal fluid, but masturbation is anathema to most religions, as well as to society in general, and is embarrassing for most men. In Jewish law the strict prohibition on 'wasteful' masturbation can be relaxed to permit diagnostic seminal fluid analysis, AIH and in-vitro fertilization (IVF), due to the overriding importance of the first commandment to 'be fruitful and multiply' (Philipp, 1994), but it is preferable to rely on a post-coital test (PCT) or to obtain semen after intercourse from a perforated non-spermicidal collection device. Islam will, rarely, permit masturbation by young men to protect themselves from committing adultery, but does not object to the provision of seminal fluid for diagnosis or assisted conception, providing adequate precautions are taken to avoid mixing or confusing the husband's spermatozoa with others (Shoukfeh, 1988, 1995). Hinduism and the Protestant and Anglican Churches can also accept semen analysis and most ART if the gametes are from a married couple.

The Vatican's instruction on respect for human life (Congregation for the Doctrine of the Faith, 1987) forbids all forms of non-coital technology, which are considered morally illicit because they separate procreation from the act of intercourse, and involve masturbation and third parties in the utilization of semen. It follows that donor sperm insemination (DI) can be compared to adultery, infidelity or rape, and is far more difficult to accept by all religions, but the principal reasons in Islam and Judaism are the loss of identifiable lineage and the danger of incestuous marriage. DI is, in theory, permitted where all treatment has failed in the Hindu faith, using spermatozoa from a close relative of the husband, and has been permitted by some Jewish Rabbinical authorities, often from a non-Jewish donor, thereby minimizing the risk of consanguinity. Buddhism suggests refraining from DI if possible, but it is never permitted by Roman Catholicism, Eastern Orthodox Christianity or Islam because at this finite boundary the infertility is accepted as predestined. No religion rejects any child, however conceived, and so the 'sins' of parents enticed by 'forbidden' ART would not in practice disadvantage their progeny.

With the advent of intracytoplasmic sperm injection (ICSI: Palermo *et al.*, 1992), the opportunity of biological fatherhood has been extended to almost all men with infertility previously considered incurable, particularly in severe oligozoospermia where a semen sample is required (Van Steirteghem *et al.*, 1993). The combination of surgical sperm retrieval and ICSI has become established as a treatment for irremediable obstructive azoospermia (Tournaye *et al.*, 1994, Silber *et al.*, 1995), and

primary testicular failure where there are but few spermatozoa (Devroey *et al.*, 1995), or even spermatids (Edwards *et al.*, 1994), on testicular biopsy. Surgical retrieval of spermatozoa, including vas deferens aspiration in ejaculatory failure (Hirsh *et al.*, 1993), should be an acceptable procedure to most religions because it does not involve masturbation or ejaculation.

Religious viewpoints could benefit most from ICSI due to the avoidance of DI, with subsequent decline in patient demand, as occurred after the introduction of IVF for male infertility (Cohen *et al.*, 1985). As its success becomes widely appreciated, there could be a revision of religious attitudes away from the occasional approval of DI in favour of ICSI using the husband's spermatozoa. The Roman Catholic and Eastern Orthodox Churches, while appreciating the advantage of avoiding DI, do not accept IVF due to the likelihood of embryo waste, which devalues the life so created. There is also the continuing requirement of seminal fluid, which is not produced during conjugal love, the only setting considered worthy for procreation.

Jewish law has advised that samples of semen for analysis should be obtained from the wife's vagina after intercourse, thereby obviating the need for the husband to provide semen by masturbation (Abraham, 1984), but reliance on a fraction of a specimen was considered unsuitable for accurate fertility assessment by Gordon *et al.* (1975). In view of recent advances in ART, this concept could now be extended to post-coital retrieval of spermatozoa from the vagina or cervix for assisted conception. Since semen ejaculated during intercourse is likely to be superior in quality to that provided by masturbation (Sofikitis and Miyagawa, 1993), the aspirate could provide a harvest of a million or more motile spermatozoa suitable for standard IVF or gamete intra-fallopian transfer (GIFT). Bacterial contamination is unlikely, since vaginal or cervical pathogens, and pelvic inflammatory disease, are rarely encountered in women undergoing intrauterine insemination (Muharib *et al.*, 1992).

Combining post-coital sperm retrieval with IVF (PC-IVF), or with ICSI (PC-ICSI), even in reserve, might be an acceptable compromise for couples and religious authorities unhappy about third party intervention in the sexual act, and also clinicians who should be confident of retrieving at least the minimal motile sperm requirement for ICSI. The husband's sperm production should be normal in most religious couples, who would not have presented with male infertility, and with the power of ICSI and intricate sperm isolation expertise available, vaginal sperm loss is thus unlikely to be problematic. There are obvious economic considerations, and patients may require extra counselling regarding the risks of a stimulated cycle if either PC-IVF or PC-ICSI is selected in preference to AIH for religious reasons, but a similar situation already exists where IVF or ICSI are undertaken to avoid DI for personal reasons, generally without reservation. GIFT is acceptable to some religious groups, since extracorporeal fertilization is avoided, but post-coital GIFT might not gain the full confidence of clinicians or embryologists without ICSI in reserve as a precaution against inadequate sperm retrieval.

The proposed post-coital cycle could be preceded by a

preliminary PCT or vaginal aspiration to ascertain whether viable spermatozoa can be retrieved after coitus, especially in oligozoospermia, asthenozoospermia, immunological infertility or where there is hostile cervical mucus. The spouses would be permitted to make love at home up to a few hours before the wife undergoes transvaginal follicular aspiration in association with vaginal or cervical sperm retrieval. Some couples would be averse to making love to 'order', but this is pertinent to most infertility therapy. During coitus there could be the remote possibility of dyspareunia with rupture of stimulated follicles, but premature ovulation is highly unlikely with precision timing of oocyte retrieval in cycles under long term gonadotrophin releasing hormone agonist control (Kingsland *et al.*, 1992). Coitus during a stimulated cycle also raises the possibility of natural fertilization of uncollected oocytes, but this has not been a recognized problem in GIFT where spermatozoa are released freely into the oviducts.

Post-coital assisted conception could thus remove the necessity for masturbation, semen collection devices, or coitus interruptus, by infertile orthodox religious husbands, or indeed any man with difficulty, or reluctance, in providing a semen sample. It thus raises fresh issues for couples with personal reservations about undergoing ART. Since the entire ejaculate would be located naturally in the vagina, the clinical procedures would be restricted to the wife, which may be advantageous in certain cultures. No semen would be 'spilled in vain' and therefore PC-ICSI, with only few spermatozoa required, might be more appropriate for Jewish orthodox couples than AIH or IVF, which require entire ejaculates, with the major portions discarded during sperm separation.

Post-coital techniques could also gain approval from Catholicism because the procreative intention would not be replacing coitus, but assisting it. The technical means, including extracorporeal fertilization and embryo transfer, might then be viewed as helping the conjugal act to reach its natural objective. However, there is deeper concern about the generation, storage and possible destruction of surplus embryos. Natural cycle IVF is sometimes acceptable because it avoids the creation of spare embryos. Natural cycle IVF (Zayed *et al.*, 1995), natural cycle ICSI (Norman *et al.*, 1995), or natural cycle PC-IVF or PC-ICSI with single embryo transfers would decrease the conception rate, but hormonal stimulation is avoided with its hazards of hyperstimulation and multiple pregnancy. Embryo hatching might ultimately improve the success rate of single embryo transfers, but with caution, because the uterus acts as an effective filter against the transmission of mutations. Since we are uncertain about the long term genetic effects of ICSI, which by-passes the natural events of sperm selection, sperm competition, and fertilization (Silber *et al.*, 1995), perhaps PC-ICSI should not be encouraged until this has been clarified. However, motile spermatozoa retrieved from cervical mucus might have already undergone a process of natural selection.

The highest technology should not be the first line treatment of male (or female) infertility. Conceptions can occur after conservative, medical or surgical treatments; however the diagnosis and monitoring of the husband has traditionally involved serial seminal fluid analysis (Hirsh, 1992). There is a poor correlation between the conventional semen analysis

and male fertility, which is more directly related to cervical mucus penetration, and the PCT, due to sperm dysfunction (Hull *et al.*, 1985). Since masturbation is considered improper by most religions, seminal fluid analysis may not be essential if the PCT reveals even few live spermatozoa and PC-ICSI is being contemplated for religious or personal reasons.

The success of ART, especially ICSI, in resolving most male fertility problems has led to a high plateau in the improving benefits infertile couples have derived from reproductive medicine, which has enabled us to revise protocols and adapt our counselling accordingly. The huge advantage in avoiding DI is of fundamental personal importance to all infertile couples, whatever their religious views. By obviating the necessity for providing semen, the use of post-coital sperm retrieval would be in accordance with the Old Testament prohibition of masturbation, and may be regarded as preserving the dignity of marriage and the intimacy of coitus in line with the concepts of Christianity. Whether in natural or stimulated cycles, this could enable orthodox religious couples of all faiths to adhere more closely to ancient religious laws while benefitting from modern technology. Religious antipathy to ART could be reversed if post-coital sperm retrieval is acceptable to both science and religion, and thus reproductive medicine could be realigned towards this more natural and aesthetic approach, thereby enabling more couples to benefit from begetting families.

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