

Critical review of post-mortem sperm retrieval (pmsr)



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Introduction

Post-mortem sperm retrieval (PMSR) is a procedure that has given rise to numerous legal and ethical concerns, including: consent for procedure, ownership and assignment of sperm as a possession, divergence on the inheritance of the offspring and conflict over the introduction of sperm retrieval in organ donation (Pastuzak, et al., 2013). There is no agreement on the use of PMSR at different levels from institutional to an international level. A report published in 2003 discussed the benefits of implementing guidelines to introduce a framework and therefore simplify concerns with respect to PMSR, which included (Tash, et al., 2003):

- Consent issues
- Resource availability
- Medical contraindications
- A 1-year time period for careful evaluation of the recipient.

Although PMSR is still fairly uncommon, the continuous increase in requests for In-vitro fertilization (IVF) with intra-cytoplasmic sperm injection (ICSI), resulted in an increased rate of PMSR requests (Kerr, et al., 1997).

Sperm retrieval techniques

With the advent of ICSI and IVF, numerous sperm retrieval techniques have been developed in order to tackle sperm retrieval from various entry points. The most commonly used techniques involve either an epididymal or testicular procedure by open surgery or percutaneous entry (See Table 1):

Table 1: Sperm retrieval techniques

| | |
|----------|-----------|
| Procedur | Percutane |
| e type | ous |
| | Open |

| | |
|----------|-----------|
| Epididym | MESA PESA |
| al | |

| | |
|-----------|----------|
| Testicula | COB TESA |
| r | |

Key: MESA - Microsurgical epididymal sperm aspiration; PESA - Percutaneous epididymal sperm aspiration; COB - Conventional open biopsy; TESA - Testicular sperm aspiration.

Micro surgical epididymal sperm aspiration (MESA)

An incision in the scrotum is performed to uncover the epididymis. Using a microscope the tunica is incised and a ductule is mobilised. An incision of the ductule then follows exposing the fluid within which is aspirated. Microsutures are then applied, when sufficient fluid is aspirated, to the ductule. In the case that no fluid is observed another ductule is mobilised for aspiration.

Microsurgery allows for a precise incision resulting in an aspiration free from any contaminating blood. With this technique a large number of motile sperms can be retrieved and preserved for future use. Also, it allows for preservation of the ductule in the case of further aspirations, if needed.

Nevertheless, no evidence is present to affirm that using microsurgery will result in better retrieval in the future. In addition, the technique is very laborious and time-consuming, needing a microscope and an experienced microsurgeon (Siber, et al., 1994; Girardi & Schlegel, 1996).

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Percutaneous epididymal sperm aspiration (PESA)

By using antiseptic the scrotum is thoroughly cleaned and consequently washed using saline to eliminate any excess antiseptic. In some cases, local anaesthetic is utilised (Gorgy, et al., 1998), then the epididymis head is put between the thumb and forefinger, where it is then punctured, from the scrotal skin, with a needle that is connected to a tuberculin syringe filled with 0.1 ml of washing medium. The plunger is then retracted that slowly punctures the ductule. The syringe is then rotated and partially withdrawn staying within the epididymis. Then the suction is released slightly and the syringe withdrawn. Examination of the aspirated sperm is then performed after flushing the fluid into a dish. In the case that motile sperm are not found, the procedure is performed again at a different location. As the location is selected blindly, numerous tries are needed in order to secure good quality sperm.

In this case, the procedure is quick, easy, does not need open surgery and easily repeatable. Nevertheless, since the punctured location is random, it cannot be controlled and occasionally ductules can be missed. In some cases, the epididymis can be very small and even covered with fat layers, making retrieval challenging. This can be overcome by using OFNA. Also, there is a higher chance of contacting a blood vessel and therefore contaminate the fluid with blood (Shrivastav, et al., 1994).

Testicular sperm aspiration (TESA)

In this case anaesthetic is needed, afterwards a butterfly needle is poked around the testicular fluid while suction is applied from another syringe. The <https://assignbuster.com/critical-review-of-post-mortem-sperm-retrieval-pmsr/>

fluid is then examined for sperm quality. Studies also show that color Doppler ultrasonography can be used to guide the syringe and go around blood vessels (Balenky, et al., 2001).

It is quite a simple technique that does not need any special training or equipment. However, there is a risk of puncturing the tunica blood vessels since it is done blindly. Puncturing multiple passages into the tissue may lead to damage and ultimately haemorrhage. Also, sample volume tends to be quite scanty (Craft & Tsirigotis, 1995).

Conventional open biopsy (COB)

An incision is made in order to expose a testis, afterwards an incision is also made to the tunica and a small piece of testicular tissue is sampled. Sutures are then made to the tunica and the incision closed. It is a simple method that can be performed by a general surgeon and yields a significant amount of tissue. However, testicular vessels can be damaged since it is an open surgery procedure, that would lead to the possibility of impaired testicular function as these are end-arteries (Schlegel & Su, 1997; Manning, et al., 1998).

Key ethical issues

Ethical issues can be assessed through fairness, choice and wellbeing of the stakeholders, in order to arrive to a plausible conclusion. I managed to identify the following as the stakeholders; deceased husband, family members (wife/partner, parents etc.), unborn child, physician and society.

Fairness

With regards to fairness the debate is driven by two main issues; firstly, the right of the father to an heir even after death. In such cases, it is suggested that the father conveys consent for artificial insemination prior to his death (Strong, et al., 2000; Orr & Siegler, 2002). This would make the decision more ethically justifiable. In cases where this is not available, inferred consent could also be accepted. However, although very little data is present with regards to the postmortem wishes of men, it is assumed that a large fraction of men would not want their spermatozoa used after their death (Pastuszak, et al., 2013). Nevertheless, strict regulation should always be implied, to eliminate abuse where possible (Strong, et al., 2000).

Choice

The issues of society with regards to PMSR centre about a fear of a continual acceptance of non-conventional practices especially in conservative societies which may lead society to become biased and aversely disapprove of such practices. However, this difference in viewpoint can be seen in all controversial debates, where society criticizes individuals of backing such practices for their own goals and desires. Therefore the introduction and implementation of legislation is important to provide a framework which may help society better understand the uses of PMSR.

In the case that family members want to perform sperm retrieval from the deceased based on verbal consent from previous conversations, would the physician be obliged to carry out this task? Basing the answer on the physician's autonomy, the physician is not obliged to enter in a patient-

doctor relationship, unless the patient has no other means for medically
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necessary care, which is not the case. This means that the physician will never be obliged to perform such duties even if sperm retrieval might be ethically justifiable in certain scenarios. This occurs especially if the physician conscientiously opposes sperm retrieval making him free to decline performing such tasks (Strong, et al., 2000). Also, another question arises, in that would the physician be morally obliged to decline performing practices which may cause harm to a future generation? The Human Embryology and Fertilisation Authority (HEFA) obliges physicians providing assisted reproductive technologies to assess the wellbeing of the unborn child before proceeding (Parliament of the United Kingdom., 2008). Deciding to perform such a procedure utilizing the sperm of the woman's partner can be a complex situation to tackle especially without consent.

Wellbeing

The main concerns when PMSR is sought are with regards to the deceased and the unborn child. Postmortem sperm retrieval affects the welfare of the deceased as it alters the values and beliefs of the deceased (Bahadur, 2002; Orr & Siegler, 2002). Also, the child would be considered the heir of the deceased, which has several permanent social implications, especially on the deceased's family, including, possession distribution and also the child's upbringing. This could in turn be in complete disagreement with the deceased values (Bahadur, 2002). Family members could also find interest in maintaining the family's lineage, which could also be in direct conflict with the deceased's wishes.

With regards to the unborn child there are issues too as children born

through PMSR will have no father, which may result in difficulties during their
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upbringing (Strong, et al., 2000). Nevertheless, the claim that post mortem insemination can lead to such dejected views is very complex as it tries to compare existence with something that does not exist. Nevertheless, it is still a very difficult task to raise a child without a father, which may lead to additional costs for the mother and the family which in turn may also be stigmatized (Weber, et al., 2009).

Policy and regulatory frameworks for PMSR

PMSR has now started to gain international recognition, with different countries starting to implement legislation in order to manage its practice and safeguard its use. Several countries have opted to completely abolish its use. In fact Sweden, Germany, Canada and some parts of Australia have legislation that prohibits the use of PMSR (Bahadur, 1996; Webb, 1996). In addition, regions in West Australia have legislation that prohibits post-mortem use of gametes (Webb, 1996). Israel allows the transfer of pre-embryos to the wife within a year from the death of the husband, even if there is no consent. However, upon death of the wife, the embryos would not be used (Benshushan & Schenker, 1998). In the U. K., the Human Fertilisation and Embryology ACT of 1990 does not forbid post-mortem sperm retrieval and storage however it does need prior written consent from the male (Parliament of the United Kingdom., 2008). In France on the other hand after a particular case the *Centre d'Etude et de Conservation du Sperme Humain* (CECOS) has embraced a practice of not allowing postmortem retrieval, a policy which was backed by the French courts (Aziza-Shuster, 1994). Thereafter, in 1994, France passed an act that prohibits post-mortem sperm retrieval (Lansac, 1996). On the other hand

other countries like Belgium and the USA permit PMSR, even in the absence of the males consent (Brahams, 1997; Brahams, 1996).

Conclusions

The advent of new practices to aid infertility cases, will challenge us with ever increasing ethical issues which most probably will only increase in number. This is why informed consent is a major issue that needs evaluation as it forms an essential part of many programmes. However, for consent to be impartial, all the information with regards to such practices must be given together with counselling to enable proper consent to be given. This means that ideally both male and female should give their consent in advance. Cases involving married couples that have prior consent even with first degree relatives, PMSR should be allowed, although it has to be in agreement with a special committee responsible of dealing with such cases. Cases that might deal with consanguinity or incest for example a mother to be inseminated with her son's spermatozoa should be prohibited both for ethical and genetic reasons. Also, cases where children are already present, and are heirs, should be also consulted and consent be obtained.

Nevertheless, this review is being written in order to address a number of issues important issues that come with PMSR. Since, such practice is still in its infancy and little data is present, it is difficult to reach any definite answers or conclusions, especially since there is little legislation to produce a framework of guidelines and practices. However, this review might help in furthering the discussion especially since ethical opinions will vary depending on cultural and religious values. Also, the issue is not merely medical and relies also on moral ethical and religious values. A debate will <https://assignbuster.com/critical-review-of-post-mortem-sperm-retrieval-pmsr/>

allow for common guidelines to be achieved and with time implemented for future practice and improvement on the subject.