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Primary infertility due to retrograde ejaculation: Case series

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Abstract

Infertility is a worldwide problem that causes emotional and psychological distress in both men and women. Male, female and combined male and female factors play a role. Global data shows that the percentage of infertility that is attributable to males ranged between 20 and 70%. It is caused by physiological, genetic, environmental, social factors as well as retrograde ejaculation.
Two couples presented to our facility with primary infertility for 6 and 8 years respectively. The male partners had surgical interventions. First one had a bladder surgery on account of urinary retention while the other one had a road traffic accident and was operated in the pelvis prior to his marriage. Both of them had testicular biopsy prior to presentation, which revealed presence of sperm cells. They also observed a failure to ejaculate after intercourse and noticed a change in the color of their urine following the surgical intervention. Urinalysis revealed presence of sperm cells. They both had two cycles of Intrauterine Insemination (IUI) following which one of them conceived in the second cycle, and the other one had two failed IUI cycles, subsequently conceived via in vitro fertilization and embryo transfer (IVF and ET).
Retrograde ejaculation is a cause of infertility and such cases are managed with assisted conception using Intrauterine Insemination (IUI) or Invitro fertilization and embryo transfer (IVF+ET). Testicular biopsy should however be avoided in such patients. It should rather be performed for sperm harvesting and be used for intracytoplasmic sperm injection (ICSI).

Key words: Primary infertility, retrograde ejaculation, case series.

Introduction

Infertility is a worldwide problem that causes emotional and psychological distress in both men and women. Male, female and combined male and female factors play a role. Global data shows that the percentage of infertility that is attributable to males ranged between 20 and 70%[1] and not much effort has been made at addressing the problem. It remains a gender inequality issue, as in many cases, the burden of the problem lies on the female partner. It is caused by physiological, genetic, environmental, social factors as well as retrograde ejaculation.[2,3,4]

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Ejaculation is an essential step in normal human reproduction and its failure leads to infertility. Many ejaculatory disorders can have both psychological as well as organic causes; however, retrograde ejaculation is unique in that as it is almost exclusively organic in origin.[5] Despite being a common type of ejaculatory dysfunction, it is responsible for only 0.3–2% of infertility.[6] The combination of dry orgasm and issue with fertility make the condition distressing to both patient and their partner especially when trying to conceive.[7]
Retrograde ejaculation is a malfunctioning of the bladder sphincter, leading to ejaculation of the sperm into the bladder and is sometimes referred to as a "dry orgasm".[8] It is an uncommon cause of male infertility. Men often notice during masturbation

that they do not have semen release but there is an orgasm. In retrograde ejaculation, the bladder neck muscles are either very weak or the nerves controlling the muscles have been damaged.[9]

It may also be as a result of Autonomic nervous system dysfunction, prostatic surgeries, retroperitoneal lymph node dissection for testicular cancer if nerve pathways to the bladder sphincter are damaged, with the resulting retrograde ejaculation being either temporary or permanent.[10,11] Other causes of retrograde ejaculation includes side effect of medications, such as tamsulosin,[12] antidepressant and antipsychotic medication,[13] and as a complication of diabetes with subsequent neuropathy of the bladder sphincter.[8,9]

Diagnosis is usually by way of a urinalysis performed on a urine specimen that is obtained shortly after sexual relationship. In cases of retrograde ejaculation, the specimen will contain an abnormal level of sperm.[14]

A physical examination of the genitals is applied to ensure that there are no anatomical problems.

The treatment depends on the cause. Surgery rarely is the first option for retrograde ejaculation and the results have proven to be inconsistent. Medications only work if there has been mild nerve damage caused by diabetes, multiple sclerosis or mild spinal cord injury.[13]

For couples that are infertile, the male partner's urine may be centrifuged and used for intrauterine insemination, in-vitro fertilization and embryo transfer. Sperm cells harvested from the testicles may also be used for intracytoplasmic sperm injection.[1,8,15]

Case reports

Case 1: Mr M M is a 32 year old civil servant who was married to a 24 year old woman at the time of presentation, and was operated a year prior to his marriage on account of recurrent urinary problems and was told that he has a small bladder. The extent of the surgery was not known by the patient. He presented to our centre with history of failure to conceive for 6 years and also noticed that he was having an ejaculatory sexual relationship. He sought care in various places and had testicular biopsy in one of the peripheral hospitals where the presence of sperm cells was confirmed and was advised to go for assisted reproductive procedure. He had a hormonal profile that showed normal results as follows: FSH [9.3mIU/ml], LH [8.14mIU/ml], Prolactin [248.8uIU/ml], and Total serum testosterone [2.41ng/ml]. Urinalysis revealed the presence of sperm cells with a sample collected after sexual relationship.

Hysterosalphingography done for the wife confirms bilateral patent tubes. Her sepsis work up and hormonal profile were also normal. They were counseled for intrauterine insemination, which they accepted.

Stimulation protocol

The woman had a transvaginal ultrasound scan on day 2 of the menses and stimulation commenced with clomiphene citrate 50mg twice daily for 5 days. Ultrasound scan was repeated on day six of menstruation which showed an endometrial thickness of 6.4mm with about 10 follicles on each ovary measuring between 8.4mm and 8.8mm in diameter. She was then commenced on Human menopausal Gonadotrophin 75IU daily and ultrasound scan repeated on day 8 that showed a trilaminar endometrial lining measuring 8.4mm and a dominant follicle in the left ovary measuring about 12.2mm and 13.8mm in diameter. The stimulation was continued with the same dosage of HMG. Repeat ultrasound scan on day eleven showed a trilaminar endometrial lining of about 9.6mm and a follicle size of 18.3mm and 19.2mm in diameter. Human Chorionic Gonadotrophin (HCG) trigger was given and the procedure of intrauterine insemination performed 36 hours after.

Procedure of Intra uterine insemination

Sperm preparation

About 4mls of urine sample was collected by the andrologist and centrifuge at 3000rpm for 15 minutes. The pellet produced was used for sperm preparation. Sperm guard media 90/45 was prepared in a conical tube placed on a test tube rag on a heating plate at 37°C, followed by layering of 0.5 ml semen. The first centrifugation was carried out at 3000rpm for 15 min. The supernatant was removed, keeping the pellet, undisturbed. The pellet was re-suspended in 1ml of G-IVF PLUS sperm

preparation media and centrifuge for another 10 minutes.. The supernatant was removed and pellet fractions were assessed for sperm concentration, motility, viability, normal morphology using Neubauer ruled chamber under x40 objective.

The following results were obtained

Sperm concentration was 10.6 x 10^6/ml, motility was 22% (both progressive and none progressive), morphology was 40% normal and vitality was 52%.

Procedure

The woman was adviced to take plenty of water and placed in lithotomy position, followed scrubbing and draping. The uterus was identified per abdomen using abdominal ultrasound scan and endometrial lining visualized. A speculum moistened with sterile water was inserted into the vagina and cervix exposed and gently wiped with cotton soaked in normal saline. The insemination catheter was attached to 1ml syringe and 1ml of prepared sperm sample drawn. The catheter was inserted through the cervix and sample released about 2cm below the fundus of the uterus under trans abdominal ultrasound scan guidance.
The speculum and catheter were removed and the patient lies supine for 5-10minutes before discharge. Luteal support was given using duphastone 10mg twice weekly for 2 weeks. Pregnancy test was done at 2 weeks which turns out to be negative. The couples were counseled and plan for a repeat procedure. They presented for a repeat procedure after 2 months. The same procedure was repeated and pregnancy test was positive after 2 weeks . She had an ultrasound scan after 4 weeks which showed a viable pregnancy at 6 weeks. She was reassuared, and placed on haematinics. She was advised to register for ANC at 16 weeks and also to repeat ultrasound scan at 18 weeks.

Case 2: Mr M B is a 38 year old business man who was married to a 27 year old woman at the time of presentation. He had a pelvic surgery few months after his marriage on account of road traffic accident. The extent of the surgery was not known by the patient. He presented to our centre with history of failure to conceive for 8 years and also noticed that he was having a dry ejaculation. He sought care in various places and was placed on medications without effect. He was counseled on testicular biopsy which he had. The results confirmed the presence of sperm cells. He was advice to go for assisted reproductive procedure which they accepted. He was evaluated generally.

Hormonal profile showed normal results; FSH.90mIU/ml], LH - [7.12mIU/ml], Prolactin [221.3uIU/ml] and Total serum testosterone [2.71ng/ml]. Urinalysis also revealed the presence of sperm cells, with a sample collected after sexual relationship. Hysterosalphingography done for the wife confirms bilateral patent tubes.

Her sepsis work up and hormonal profile were also normal. They were counseled for intrauterine insemination which they accepted.

Stimulation protocol

The woman had a transvaginal ultrasound scan on day 2 of the menses which showed multiple tiny follicles and stimulation commenced with clomiphene citrate 50mg twice daily for 5 days. Ultrasound scan was repeated on day six of menstruation which showed an endometrial thickness of 6.4mm with about 12 follicles on each ovary measuring between 8.2mm and 7.8mm in diameter. She was then commenced on Human menopausal Gonadotrophin 75IU daily and ultrasound scan repeated that showed a trilaminar endometrial lining measuring 7.2mm thick and a dominant follicle in the left ovary measuring about 13.4mm and 13.8mm in diameter. The stimulation was continued with the same dosage of HMG. Repeat ultrasound scan on day eleven showed a trilaminar endometrial lining of about 9.2mm thick and a follicle size of 18.0mm and 19.2mm in diameter. Human Chorionic Gonadotrophin (HCG) trigger was given and the procedure of intrauterine insemination performed 36 hours after.

Sperm preparation and procedure of intrauterine insemination were carried out as described in the first case. The results of the prepared semen are showed here: Sperm concentration was 8.6 x 10^6/ml, motility was 12% (both progressive and none progressive), morphology was 30% normal, while

vitality was 40% viable.

Luteal support was given using duphastone 10mg twice weekly for 2 weeks. Pregnancy test was done at 2 weeks which turns out to be negative. The couples were counseled and planned for a repeat procedure. They presented for a repeat procedure after 2 months. The same procedure was repeated and pregnancy test turns out to be negative again. They were reassured and counseled for in-vitro fertilization and embryo transfer. They presented for the procedure after 3 months.

Invitro fertilization and embryo transfer.

The couples were re counseled for the procedure. Sepsis work up and hormonal profile were repeated. Mock transfer was done on Day 2 of menses. Long – GnRH Agonist protocol was used where down regulation was commenced with 3.75mg of zoladex on day 19 of menses. Human Menopausal Gonadotrophin (Highly Purified Menotrophin) was use for the stimulation. Trans vaginal scan was done on day 2 of menses to ensure good down regulation. A dose of 225iu was used for the stimulation. Serial trans vaginal scans were done on days 6,8 and 11. About 6 follicles were seen in each ovary on day 11, each measuring about 18.4mm by 19.2mm in diameter. HCG trigger was given 36 hours before oocyte retrieval. A number of 3 embryos were transferred on day 3 post retrieval. Luteal support was given with cyclogest suppositories. Pregnancy test was positive after 2 weeks. An ultrasound scan was done four week after and confirm a set of twin gestation. She was continued on progesterone vaginal suppositories and haematinics. Prophylactic cervical circlage was inserted at 14 weeks. She was discharged 2 days after and advice to register for antenatal care.

Discussion

Retrograde ejaculation is a rare cause of infertility. Both Mr M M and M B Presented to our clinic with history of inability to conceive for 6 and 8 years respectively. They noticed a dry ejaculation. Both Mr M M and Mr M B developed the problem following surgical interventions on the bladder and the pelvis, the extent of the surgery not known by any of them.

Both Mr M M and Mr M B presented to the clinic because of fertility problem and had initial seminal fluid analysis that confirmed absence of sperm cells. Sperm cells were however detected in their testicles following testicular biopsy. Retrograde ejaculation that resulted in infertility is manage by assisted reproduction in the couples. They both had intrauterine insemination following which Mr and Mrs M M conceived in the second cycle. Intrauterine insemination is not an assisted reproductive procedure, but is better than timed intercourse in couples with fertility problem. It has a success rate of 10%. Mr and Mrs M B however, failed to conceive with 2 cycles of intrauterine insemination. Invitrofertilization and embryo transfer therefore became mandatory.

Conclusion

Retrograde ejaculation is a cause of infertility and such cases are managed with assisted conception using intrauterine insemination (IUI) or in-vitro fertilization and embryo transfer (IVF+ET). Testicular biopsy should however be avoided in such patients. It should rather be performed for sperm harvesting and be used for intracytoplasmic sperm injection (ICSI).

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