

## Case Report

# Massive Hematuria and Urinary Retention after Trans-Vaginal Oocyte Retrieval

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## Abstract

**Background:** Trans-vaginal oocyte retrieval has been accepted as a standard method in assisted reproduction techniques. However, this technique is not risk free.

**Case Presentation:** We present a case of massive haematuria and urinary retention following ovum pick-up. A 31-year-old nulligravida had her oocyte retrieved at our IVF unit. She returned the following day with a total haematuria complaint. The condition worsened to acute urinary retention. Urinary bladder was drained using plastic catheters followed by bladder wash till urine became clear. Saline bladder irrigation was performed for 24 hours using a fixed 3-way Silicon Foley's catheter. The patient was discharged from hospital on second day in a stable condition. Her embryos were frozen using vitrification method. Transfer of two frozen thawed embryos was performed two months later.

**Conclusion:** Couples should be properly counselled about these rare urological complications on the day of triggering if the ovaries are close to bladder.

**Keywords:** Ovum pick-up; Oocyte retrieval; Assisted reproduction techniques; Haematuria; Bladder hematoma

## Abbreviations

AMH: Anti-Mullerian Hormone; Fr: French; FSH: Follicle Stimulating Hormone; g/dl: Grams per Deciliter; HMG: Human Menopausal Gonadotropin; LH: Luteinizing Hormone; mIU/ml: Milli-International units per Milliliter; Ng/ml: Nanogram per Milliliter

## Introduction

The International Committee Monitoring Assisted Reproductive Technologies has reported that 6.5 million children were delivered from assisted reproductive techniques worldwide [1]. This process includes transvaginal ultrasound guided oocyte aspiration which has been accepted as standard method for ovum pick up [2]. However, there was rising concern about its possible intraoperative complications.

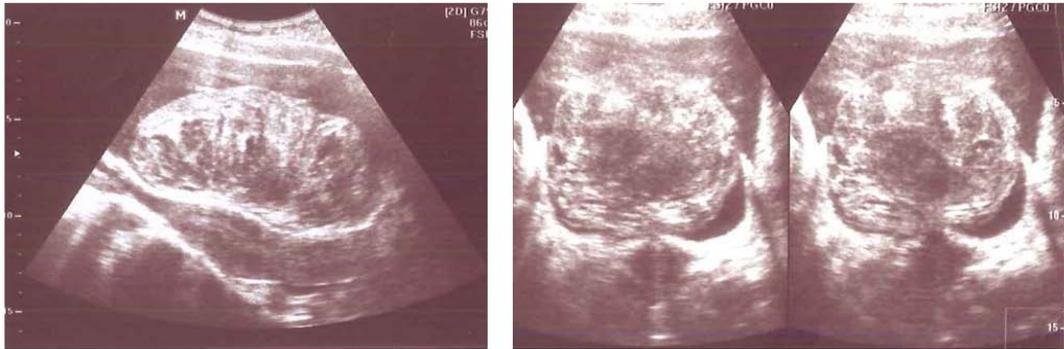
Many studies have investigated various intraoperative injuries to genital tract, intestine, ureters, and great pelvic vessels [3-5]. Bennett and co-authors investigated 2670 cases with ovum pick-up procedures. They showed that genital bleeding was the most common complication followed by hemoperitoneum, pelvic infection, and unintentional vascular injuries [6]. There is another study examined 1058 patients and reported similar complications (vaginal bleeding and hemoperitoneum) [2]. Little is known about bladder injuries. Therefore, we reported a case; that developed massive haematuria and urinary retention following trans-vaginal oocyte aspiration.

## Case Presentation

A 31-year-old nulligravida presented to our fertility unit with

primary anovulatory infertility. She had a normal hysterosalpingogram. Her hormonal profile showed: FSH=5mIU/ml, LH=8mIU/ml, Prolactin=21ng/ml and AMH=6.85ng/ml. Her husband's semen analysis showed oligo-asthenozoospermia with a concentration of 14 m/ml, total motility of 30% and progressive motility of 5%. After detailed counseling the couple opted for intracytoplasmic sperm injection. Antagonist protocol was utilized for controlled ovarian stimulation. Recombinant-FSH (Gonal f 187.5 MIU, Merck Serono, London, UK) was prescribed for five days followed by highly purified HMG (300mIU) (Merional, IBSA, Lugano, Suisse) and an antagonist (Cetrorelix-Cetrotide, Merck Serono, London, UK) for subsequent 5 days. Final triggering was achieved by recombinant human chorionic gonadotropin (Ovitrelle, Merck, London, UK). Oocyte retrieval was performed by a very experienced specialist. The patient was informed to empty her bladder. The right ovary was punctured using a double lumen aspiration needle (17GA, Cook, William A. COOK Australia). Sequential puncture technique of follicles (without reinserting the needle through the vaginal wall) was conducted whenever possible. Left ovary was aspirated using the same technique. The procedure yielded 11 oocytes (7 metaphase II, 2 metaphase I, 2 germinal vesicle). The whole procedure was uneventful. The patient was discharged home four hours later.

She presented the following day to the emergency department with frank hematuria and severe lower abdominal pain. Vital signs were stable, abdominal examination revealed suprapubic tenderness, and speculum examination showed no bleeding per vagina. Ultrasound examination discovered a distended bladder with a 10x9 cm organized intravesical haematoma (Figure 1). She was offered an indwelling urinary catheter and inpatient management. However, she



**Figure 1:** Bladder hematoma by ultrasound. A) Sagittal view; B) Transverse view.

opted for outpatient management.

Four days later, she complained of acute retention of urine. She was admitted to the hospital and urological consultation was sought. Her vital signs were stable and abdominal examination showed suprapubic tenderness with no clinical evidence of peritonitis. Bedside abdominopelvic ultrasound examination showed a full urinary bladder with intravesical hematoma. Urinary bladder was drained by a plastic catheter and evacuation of the organized hematoma was performed by manual wash using normal saline 0.9% till the efflux of intravesical injected saline returned clear. A 20 fr. 3-ways-silicone Foley's catheter was inserted for continuous bladder irrigation for 24 hours. Immediately, following evacuation of bladder the patient became asymptomatic.

Laboratory investigations showed low hemoglobin 7.2g/dl and normal renal function tests. Parenteral antibiotics in the form of 1gram Ceftriaxone (third generation cephalosporin's) was administered. The patient was discharged two days later with an indwelling catheter for four days. Follow up ultrasound scan one week later yielded normal urinary bladder.

Her embryos were frozen using verification method. Transfers of two frozen thawed embryos were performed two months after the initial egg collection. She got pregnant and delivered a healthy girl.

## Conclusions

Bladder haematoma is considered a rare urological complication following ovum pick-up. Alvarez and co-workers reported 0.9% (9 patients out 947 oocyte retrieval) of haematuria following oocyte retrieval [5]. All cases were managed conservatively. Six cases were simply managed by bladder wash and a urinary catheter was inserted in three cases [5]. Two further studies reported cases with massive haematuria following oocyte retrieval [4,7]. First study reported two cases with massive haematuria had pelvic exploration and evacuation of bladder hematoma due to deterioration of vital signs [4]. The other study mentioned that one case developed suprapubic pain, retention and haematuria following oocyte retrieval, however the patient was managed conservatively [7].

Transient macroscopic hematuria as a specific complication of transvesical oocyte collection has been described [8]. There has been one report of hematuria and urinary retention after oocyte retrieval which had stabilized conservatively [8]. There is also one report of massive reactionary hemorrhage presenting as exsanguinating

hematuria five days after oocyte retrieval, which required laparotomy and cystotomy [5]. The exact aetiology of such haematuria is unclear. A possible explanation could be an inadvertent bladder injury or bleeding pseudo aneurysm of the bladder [8].

In our case, management was essentially conservative with freezing all embryos. Patient's condition improved dramatically after bladder wash. Cystourethroscopy was not performed. In one previous report, cystoscopy was performed during which clot evacuation and cauterization of the pseudo-aneurysm was performed [8].

Nevertheless, hematuria, clot formation and urinary retention might be life threatening. Therefore, gynecologists, urologists should be aware of possibility of these rare urological complications. Management could be conservative with freezing of all embryos. In addition, couples should be properly counseled about such rare complications prior to triggering, especially if the ovaries are in a proximity to the bladder.

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