PELVIC ABSCESS COMPLICATING TRANSVAGINAL OOCYTE RETRIEVAL: A CASE REPORT FROM A PUBLIC IN VITRO FERTILIZATION CENTRE IN SOUTHERN NIGERIA.

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ABSTRACT

Pelvic abscess complicating transvaginal oocyte retrieval for in vitro fertilization is uncommon. Difficulties and/or delays in diagnosis, attributable to the rarity of the pathology, are associated with complications that lead to severe maternal and perinatality morbidity and mortality. In this report, we present a **37 year old nulliparous woman who underwent in vitro fertilization and embryo transfer for infertility treatment. She presented with** non-specific symptoms of pelvic pain nine weeks after transvaginal oocyte retrieval for in vitro fertilization and embryo transfer. Despite antibiotic therapy, she developed acute abdomen that resulted in pregnancy loss and necessitated two laparotomies to save her life.

There is need for high index of suspicion and early diagnoses of this rare complication of transvaginal oocyte retrieval particularly now that uptake of assisted reproduction technique in the treatment of infertility is likely to increase in sub-Saharan Africa with the advent of public hospital involvement.

Keywords: Pelvic abscess, transvaginal oocyte retrieval, in vitro fertilization.

INTRODUCTION

The uptake of in vitro fertilization and embryo transfer (IVF/ET) in sub-Saharan Africa was previously limited despite its well established place as a standard treatment for infertility.[1,2] However, following the World Health Organization convened meeting on "Medical, Ethical and Social aspects of assisted reproduction" with a focus on implications for developing countries, assess to IVF appears to be on the increase in resource limited countries like Nigeria where publicly funded IVF is now available.[1,3] Pregnancy following IVF may be associated with some complications which are rarely reported even though it may cause severe maternal and perinatal morbidity and mortality. [4,5] Aside from complications such as ovarian hyperstimulation syndrome (OHSS) and multiple pregnancies which are frequently reported[6,7], data is scarce on other complications in IVF service delivery. Pelvic infection resulting in Pelvic abscess is one of such complications which may occur after transvaginal oocyte retrieval for IVF-ET.

It is however a very rare complication occurring in less than 1% of cases.[5] This is because pregnancy itself is said to protect against pelvic infection.[4] However, a medline search revealed nine reports of pelvic abscess described with a concurrent pregnancy after transvaginal oocyte retrieval for IVF. Despite the variety of similar cases previously documented, we here document a case of pelvic abscess complicating transvaginal oocyte retrieval from our IVF centre in Nigeria, a country in sub-Saharan Africa where publicly funded IVF is still in its infancy. This is to alert service providers to design strategies for the early detection, prevention and optimal management of this complication which may develop after transvaginal oocyte retrieval.

CASE PRESENTATION

Mrs I.F is a 37 year old nulliparous woman who presented with a 4 year history of infertility. Her gynaecological history included three uncomplicated premarital induced abortions. In addition, there was no previous history of pelvic inflammatory disease. Clinical assessment including hysterosalpingogram and laparoscopy confirmed bilateral tubal block with associated peritubal adhesions. The spouse's seminal fluid analysis showed oligospermia. They were counseled and elected for IVF/ET with Intra Cytoplasmic Sperm Injection (ICSI) for the treatment of their infertility.

Following controlled ovarian stimulation, two

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oocytes were harvested from the right ovary by trans-vaginal ultrasound guided oocyte retrieval using an ovum aspiration needle (Smiths Medical Int., UK). Vaginal cleansing prior to that procedure was achieved with sterile saline. The procedure was performed under intravenous co-amoxiclav prophylaxis. However, she presented 24 hours later with complaints of lower abdominal pain of sudden onset. There was no history of fever, nausea or vomiting and urinary symptoms. She was afebrile but had tachycardia with an abdominal girth measurement of 111cm (she was obese with a Body Mass Index of 38.6kg/m2). There was associated generalized abdominal tenderness which was more marked in the right iliac fossa. Packed cell volume was 33%, electrolyte and urea was normal and trans-vaginal ultrasound scan revealed normal sized ovaries and the absence of significant fluid in the pelvis. She was admitted and treated with analgesics, antihistamines and steroids for presumed ovarian hyperstimulation syndrome. The antibiotic therapy was also continued. The symptoms resolved after 12hours on admission. She remained on admission and had transcervical transfer of 2 embryos (from IVF/ICSI) second day after oocyte retrieval. She was discharged home same day on a daily dose of Cyclogest 400mg vaginal tablets (Actavis Becrearfull, UK). Pregnancy test was positive on fourteenth day after oocyte transfer.

Her pregnancy progressed well until nine weeks gestation when she presented with complaints of painless abdominal swelling of three weeks duration. The abdominal swelling had progressively increased in size. There was associated history of fever, nausea, vomiting and malaise. She had been on admission in a private hospital where her treatment included antimalaria, intravenous antibiotics antipyretics and blood transfusion for a presumptive diagnosis of OHSS and malaria in pregnancy. She requested to be transferred to our facility when symptoms failed to improve.

On examination, she was febrile (temperature was 38.3C), pale and with a pulse rate of 108 beats per min. The abdomen was distended with an abdominal girth measurement of 120cm and there was a non tender abdominopelvic mass of about 24 weeks uterine size. Laboratory studies revealed a packed cell volume of 21%, leukocytosis(13.3 x 10^9/L),and a normal electrolyte and urea. Abdominopelvic ultrasound demonstrated huge echogenic right adnexa mass with cystic changes and well defined and regular margins extending from the pelvis to the abdomen and compressing the fundus of the uterus measuring in part, 11.6 by 15.2cm. The scan also confirmed the presence of a bulky uterus containing a gestational sac with demonstrable fetal node and cardiac activity at a gestational age of 9 weeks and 3 daysFig. 1.

She was transfused with blood (to correct anaemia) and received antihistamines for a preliminary impression of persisting OHSS to rule out ovarian cystadenoma. However, the temperature failed to settle ranging from 37.7C to 39C with associated increase in abdominal girth. She developed lower abdominal pain and vaginal bleeding after 48 hours on admission. Clinical examination demonstrated abdominal tenderness over the suprapubic region and right lower abdominal quadrant. The cervical os was closed. In view of the persistent pyrexia and worsening leucocytosis (17.7 x 10^9/L), she received intravenous cefuroxime axetil 750mg 8 hourly for 24 hours (to continue with 500mg tablets 12hoursly for five days) and analgesics. Despite this therapy, her symptoms persisted and she had a spontaneous abortion at 9 weeks and 5 days gestation. A repeat abdomino-pelvic ultrasound scan demonstrated an empty but bulky uterus and a huge homogenously echogenic mass in the right adnexa with well defined margins measuring 17.3 by 12.3cm Fig. 2. There were no signs of pelvic fluid collection.

We counseled the patient for exploratory laparotomy because of the persistent pyrexia, increasing abdominal distension (abdominal girth 128cm), and the adnexa mass identified on ultrasound scan. At laparatomy, there were moderate pelvic adhesions and a right adnexal collection of pocket of pus. The pseudo-cyst wall was made up of the uterus, right tube and ovary and omentum. However, the ovaries, tubes and appendix felt grossly normal. The pseudo-cyst was drained of 1litre of purulent material. The abdomen was lavaged with normal saline and a tube drain left in situ. Post operatively, she received antibiotics; ciprofloxin, gentamicin and metronidazole. For seven days, symptoms improved as fever settled and the abdominal pain resolved. On the 8th post operative day she suddenly developed fever, lower abdominal pain and abdominal distension which on ultrasound scan revealed a re-accumulation of pelvic abscess with cavity measuring 16.5 by 9.5cm She therefore underwent a second laparotomy which revealed extensive pelvic adhesions involving the anterior abdominal wall with the omentum walling off a right tubo-ovarian mass measuring 10 by 15cm.

The uterus, left tube, ovary and appendix could not be visualized. As there was no clear plane for safe dissection, the tubo-ovarian mass could not be removed. An incision made on this mass led to the drainage of 1650ml of putrid material. The cyst wall was reduced and marsupialized and abdominal lavage done. The purulent discharge was sent for culture and the cyst wall for histology. A drain was left in situ and the skin wound was planned for delayed closure. Subsequent postoperative period was stormy with five days of admission into the intensive care unit (ICU) for septicaemia and imminent respiratory failure. She was also managed for postoperative wound sepsis. Culture obtained from the specimen yielded growth of *Achaligenes species* while histological examination confirmed a tubo-ovarian abscess with marked inflammation. The patient was discharged to the gynaecological clinic on the 21st day after the laparotomy and she has remained well since until discharge home.

DISCUSSION

In this report, we have presented a case of pelvic abscess that had developed more than 9 weeks after transvaginal oocyte retrieval for IVF-ET. Pelvic infection after transvaginal oocyte retrieval is an uncommon but documented complication.[5] The quoted incidence in large series is 0.3 to 0.6 %.[5,8] This is our first case of pelvic abscess since the inception of IVF in the University of Benin Teaching Hospital, and so far 448 couples have undergone transvaginal oocyte retrieval for IVF. Pelvic infection occurs commonly in the first trimester of pregnancy, since infection becomes clinically evident within hours and up to a few days after oocyte retrieval.[4] However, very late manifestations have been described.[8,9]

Available evidence suggest that the reactivation of latent pelvic infection due to previous pelvic inflammatory disease, pelvic adhesions and severe endometriosis with ovarian endometrioma, seem to be significant risk factors for the development of pelvic abscess after transvaginal oocyte retrieval.[8,9] It has also been suggested that technical difficulties with ovarian puncture especially in the overweight patient increases infection risk.[10] Our patient was obese and laparoscopy suggested previous evidence of pelvic inflammatory disease.

It is speculated that infection occurs through direct inoculation of vaginal microorganisms into the ovary.[8,11] This evidence is re-affirmed by the finding of bacteria and anaerobic opportunists of the vagina flora as aetiological agents in pelvic abscesses after transvaginal oocyte retrieval. The commonly found microorganisms are *Escherichia coli*, *Bacteroides fragilis*, *Enterococcus* and *Peptococcus*.[8,12] Infection with *Alcaligenes species* have not been previously reported. Most infections attributed to these emerging non fermentative gram-negative bacterial species are acquired during hospitalization.[13]

The symptoms of this condition are variable with non specific early signs.[9] However, fever, lower abdominal pain, and peritoneal irritation are common.[14] Mrs I.F complained of lower abdominal pain necessitating admission within 12 hours of transvaginal oocyte retrieval. Subsequently, she presented with fever, lower abdominal pain, and abdominal distension as the pathology persisted. The initial diagnosis at that time was ovarian hyperstimulation syndrome. This is not surprising as pregnancy is said to protect against pelvic infections.[4] and clinicians are unlikely to suspect pelvic abscess as a cause of abdominal pain in a successful IVF/ET pregnancy. Thus, difficulties and/or delays in diagnosis are common. A delayed presentation associated with advanced gestational age can lead to rupture of abscess and multiple laparotomies as in our case.[4,15] Delay in diagnosis may also be associated with complications that lead to severe maternal and perinatality morbidity and mortality.[4] Therefore, a higher index of suspicion is necessary. However, ultrasound scan is helpful in diagnosis as in this case.[14]

The options of management for transvaginal oocyte retrieval induced pelvic abscess, especially when complicated by concurrent pregnancy, are varied.[4,5,16] We performed exploratory laparotomy with open surgical drainage of abscess in this case because of the absence of a viable pregnancy and the presence of worsening symptoms in spite of antibiotic therapy. While antibiotic therapy has been used alone with satisfactory outcome, a severe case requiring hysterectomy and bilateral salpingo-oophorectomy in spite of antibiotic treatment has also been reported.[5,17] Thus, surgical drainage of abscess through laparotomy or laparoscopy or culdotomy is considered the standard of care especially in the presence of peritonitis.[4] However, with a concurrent pregnancy, percutanous, or transvaginal or even transrectal ultrasound guided drainage has been advocated as this may produce less damage and probably prolong the pregnancy.[16]

Assess to IVF is increasing in sub-Saharan Africa especially with the advent of publicly funded IVF.[3] This increased assess is likely to be associated with

increased prevalence of these rare complications. The scenario is worsened by the fact that pelvic abscess can occur even with prophylactic antibiotic therapy after transvaginal oocyte retrieval.[8] Additionally, the optimal mode of prevention remains a subject of debate.[8,9] Therefore service providers should be vigilant and consider a diagnosis of pelvic abscess after transvaginal oocyte retrieval in the patient with persistent pyrexia and lower abdominal pain.

Fig 1 : Gestational sac co-existing with pelvic abscess.

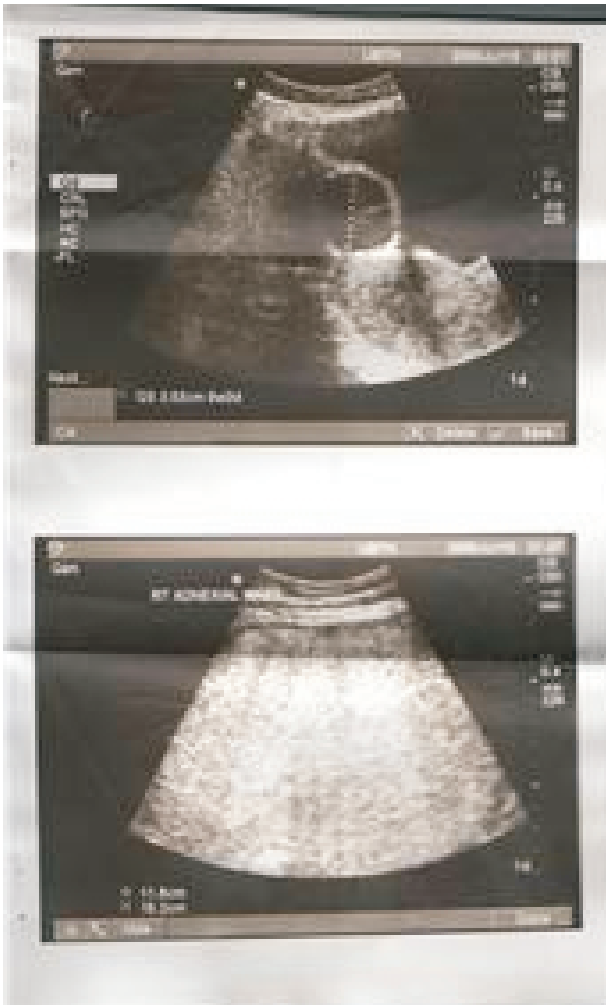

Fig 2: Recurred Pelvic abscess that warranted the second Laparotomy.

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