Pelvic abscess complicating an in vitro fertilization pregnancy and review of the literature

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Abstract

Introduction In vitro fertilisation has become a very common procedure in the infertility practice due to both accessibility and good success rates.

Discussion Complications, however, are constant reminders that no procedure is totally safe. In this paper, we present a case of IVF pregnancy that presented with pelvic abscess, and despite two laparotomies the triplet pregnancy was lost at 22 weeks gestation.

Conclusion This case highlights the fact that the progression of pelvic infection in pregnancy can be slow.

Keywords Pelvic abscess · In vitro fertilization · Pregnancy complications

Introduction

Pelvic infection and pelvic abscess are known complications of in vitro fertilization (IVF) treatment. It has devastating effect on women who has already gone through the distressing procedure. Cases described in the literature are mostly associated with failed procedures. But even if the procedure is successful, the rate of pregnancy loss is high.

Case report

Mrs. A.S is a 23-year-old lady who had primary infertility for two and a half years, due to male factor, her pre-treatment

assessments were normal including diagnostic laparoscopy and hormonal profile. The patient got pregnant from the first IVF cycle, during which five embryos were transferred but only three implanted. Egg retrieval and embryo transfers were performed in the conventional way, with vaginal cleaning with saline. Her pregnancy was progressing well until nine weeks gestation, when she started to complain of fever, abdominal pain and urinary symptoms, in addition to vomiting and loss of appetite. She then was admitted to a nearby hospital where she was empirically treated for pyelonephritis; her treatment included intravenous (IV) antibiotics, IV fluids and antipyretics. Three days later, there was minimal improvement. She left the hospital against medical advice and presented to our outpatient department 3 days later feeling unwell. She was tachycardic and feverish. Transvaginal ultrasound scan showed two cystic shadows in the left adnexa, these were measuring around 5 and 2 cm in diameter (Figs. 1 and 2), the content was homogenous, but not clear, with some debris and wall oedema, this led to the suspicion of pelvic abscess.

As for the pregnancy, the scan confirmed a triplet pregnancy, with three alive foetuses, and three placentae. The crown rump lengths for all of them corresponded to 10 weeks gestation. She was admitted, and a full septic workup was performed, this included cultures, inflammation markers, base line kidney and liver function tests, in addition to the routine complete blood count, and booking bloods. She was also started on IV antibiotics, including Cefipime and Metronidazole, in addition to Paracetamol, according to the advice by an infectious diseases specialist. The initial results showed an elevated C-reactive protein of 192 mg/l, white cell count of $15,000/\text{mm}^3$, in addition to anaemia. The cultures came back 2 days later with no growth, probably because of the previous administration of IV antibiotics.

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Fig. 1 Two adnexal cysts, 5 and 2 cm in diameter, transvaginal view, note the cyst wall oedema

Her condition did not improve over the following 2 days, and laparotomy was performed. This showed a left adnexal collection of two pockets of pus, mounting to 400 ml, these were cleared, and abdomen was washed. These were pseudo-cysts with the walls comprised of the rectum, uterine wall, left tube, and, interestingly the appendix. Initially we thought that this could be appendicular abscess, but when the appendix was removed, it was healthy. This was confirmed histologically later on. A drain was left in place and the abdomen was closed, the patients general condition soon showed major improvement. The pain became minimal. She was continued on the same antibiotics, in addition to Nifedipine and Progesterone. The patient was discharged home 6 days later. For the next 6 weeks the patient was well. On the seventh post-operative week, the patient started to complain of the same symptoms, at this time a new 4 cm cyst started showing (Fig. 2). The patient was re-admitted and started on I.V. antibiotics again, there was quick improvement of the symptoms, but this did not last, as she became unwell after one week, at which time she was about 19 weeks gestation. The CRP was around 400, temperature was not settling with medications. An attempt at Ultrasound guided aspiration managed to withdraw 40 cc of pus, but could not clear the collection, so another attempt was done few days later but was unsuccessful. The culture this time showed *E. coli*. Symptoms did not improve, and a decision for another laparotomy was taken, but the patient went into spontaneous abortion at 21 weeks gestation, all foetuses died immediately. Laparotomy was performed 24 h later, which showed extensive adhesions in the abdominal cavity. There

was pus collection in the left adnexa, involving the left tube, uterus and the rectum, the left ovary could not be found. Post operatively the recovery was excellent. The post abortion period was smooth with good recovery and return of the period 6 weeks later. Two months later, the patient was well, and the hysterosalpingogram showed both tubes to be patent, but the left was slightly dilated, her periods were regular and no pelvic collection was seen.

Discussion

Pelvic abscess formation is a rare but recognised complication of oocyte retrieval during IVF program. Infection rates are low; <1% [1] but the results can be devastating. Various reports showed coliforms as a main pathogen, suggesting direct inoculation during the procedure [1]. This has led to the use of antiseptics to prepare the vagina, but further studies have failed to show significant benefit over saline in terms of reduced infection risk [2]. The risk of infection has been shown to be higher in cases of endometriomas [3] or PID [1, 4, 5].

Of special interest is the delayed presentation of the infection in pregnancy [3], with some reported cases being diagnosed in the second half of pregnancy [6].

In this case, the patient presented more than 2 months after the procedure, and this delay is probably due to the degree of immune suppression that accompanies pregnancy, our initial medical therapy was not controlling the infection, therefore surgical intervention was necessary, we thought that open surgical drainage would be safer than ultrasound guided aspiration and drainage; our main reason was to avoid injury to uterine vasculature, as the abscess was behind the left side of the uterus and deep in the pelvis, unfortunately abscess recurred few weeks later.

Fig. 2 Transabdominal view of the adnexa showing one of the cysts

In retrospect we believe that percutaneous or transvaginal or even transrectal drainage could have produced less damage and probably prolonged the pregnancy further, had it been done at presentation. When we did the ultrasound guided aspiration; after the abscess has recurred, the gestation was more advanced, and the discomfort was a major cause of the procedure failure.

In their review of literature, Sharpe et al. [7] found only six cases of pelvic abscesses with pregnancy, theirs would be the seventh, and of all the cases only the ones that presented late had led to alive babies. It seems that pelvic inflammation would reduce the chances for successful implantation.

Pelvic abscess might not be preventable in some cases, as it can occur with or without the use of antiseptics or antibiotics [3]. The main message is vigilance upon patients' presentation with unsettling fever or pelvic pain. New ultrasound machines will help differentiate simple cysts from abscess collections, and these should be utilized well when abscess is suspected.

Conclusion

We would probably suggest ultrasound guided intervention to start with before attempting more aggressive approaches,

but obviously that need to be performed by a well trained person.

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