Case Reports in Women's Health 26 (2020) e00166

Contents lists available at ScienceDirect

Case Reports in Women's Health

journal homepage: www.elsevier.com/locate/crwh

The eventual successful management of ovarian torsion in a hyperstimulated ovary following in vitro fertilization: A case report

Gordon Narayansingh *, Jennifer Hoh

Women Directorate, Royal Victoria Infirmary, Newcastle Upon Tyne NE1 4LP, United Kingdom

ARTICLE INFO

Article history:
Received 17 October 2019
Received in revised form 22 November 2019
Accepted 26 November 2019

Keywords:
Ovarian torsion
In Vitro fertilization
Ovarian hyperstimulation yndrome
Laparoscopy

ABSTRACT

Abdominal pain following in vitro fertilization (IVF) in the presence of enlarged ovaries commonly leads to the diagnosis of ovarian hyperstimulation syndrome (OHSS). Progressively worsening pain with a rise in inflammatory markers with normal hematological indices implies a diagnosis of ovarian torsion of the hyperstimulated ovary. Early recourse to laparoscopic assessment and derotation of the affected ovary even after 72 h following the onset of symptoms can allow a return to viability. This case highlights the clinical scenario and sequences in a successful outcome.

1. Introduction

The development of acute abdominal pelvic pain shortly after assisted fertility treatment is generally ascribed to hyperstimulation of the ovaries. This is understandable as the incidence of moderate to severe ovarian hyperstimulation syndrome (OHSS) is 3–8% [1]. In contrast, the incidence of ovarian torsion in the general population is reported to be 0.01% to 0.05% [2]. Unsurprisingly there is an inclination to consider OHSS as the most probable diagnosis in a patient with acute abdominal pain and sonographic evidence of ovarian enlargement following in vitro fertilization (IVF). Therefore there is a tendency to investigate and treat these patients as OHSS on initial presentation. However, clinicians should be aware that ovarian torsion could develop [3]. We present a case of this nature that was initially considered to be OHSS but was eventually diagnosed as an ovarian torsion, with salvaging of the affected ovary.

2. Case History

A 41-year-old woman presented at 7 weeks of gestation with a 24-h history of abdominal pain, bloating and vomiting. She had had successful IVF treatment, with 2 embryos transferred. She had had an open appendicectomy previously and current medication included folic acid and progesterone supplementation. On examination, there was tenderness on the right lower abdomen and mild distension with no peritonism.

Her ultrasound scan showed a viable twin pregnancy with bilateral enlarged ovaries; the right ovary measured 15 × 11 × 8 cm and the left ovary 6 × 7 × 7 cm with a small amount of free fluid (Fig. 1). The initial differential diagnoses were pain secondary to hyperstimulated ovaries and late-onset mild ovarian hyperstimulation syndrome.

The patient was managed expectantly as per local OHSS protocol, including daily blood tests, thromboprophylaxis, analgesia and fluid balance. However, her pain worsened and the white blood cell count and C-reactive protein (CRP) became elevated after 48 h (Table 1). A working diagnosis of ovarian torsion was discussed with the patient. She was counselled on the need for laparoscopy with the options of a right salpingo-oophorectomy, ovarian cystectomy or derotation of the ovary. The risk of miscarriage was discussed. She was already on progestogen support and consented to having surgery.

Laparoscopy was performed with Palmer's entry and pressure was reduced to 15 mmHg following trochar insertion; 3 ports were used. The right ovary was torted and appeared enlarged and devascularized (Fig. 2). Ovarian derotation in a clockwise fashion was performed. The infundibulo-pelvic ligament, including the ovarian artery and vein, were clearly visualized and appeared initially constricted (Fig. 3). It eventually regained (after 15 min of observation) its patency with re-vascularization of the right fallopian tube (Fig. 4). Aspiration of ovarian follicles to decompress the ovary was performed to reduce the risk of torsion recurrence and to relieve pain. A drain was left in situ overnight and removed the following day.

* Corresponding author.
E-mail addresses: gordon.narayansingh@nuth.nhs.uk (G. Narayansingh), Jennifer.hoh@doctors.net.uk (J. Hoh).

https://doi.org/10.1016/j.crwh.2019.e00166

Fig. 1. Enlarged right ovary and uterus with twin gestational sacs.

Table 1
Blood results.

	On admission	48 h later
Hemoglobin	125	118
White cell count	13.2	21.5
Hematocrit	0.352	0.355
Osmolality	270	266
CRP	<5	64

Fig. 2. Torted infundibulo-pelvic ligament.

The patient made an uneventful recovery within 24 h and was discharged 48 h later. On review 3 weeks later, she was asymptomatic and a repeat ultrasound scan showed a viable healthy twin pregnancy with normal appearance of the ovaries.

3. Discussion

Acute abdominal pain in pregnancy can be a diagnostic and therapeutic challenge. However, in patients who have had IVF treatment and report the development of pain with enlarged ovaries, OHSS becomes the obvious conclusion. This diagnosis is supported by hematological and biochemical changes but this was not recognized in our patient after 48 h on the ward. Her hematocrit remained normal but her inflammatory markers rose significantly and her pain worsened, requiring increasing doses of opiates. These 2 factors led to the consideration of ovarian torsion.

Laparoscopy is considered safe in pregnancy with appropriate surgical expertise. Studies have shown that there is no adverse fetal outcome if laparoscopy is performed with pneumoperitoneum of 12–15 mmHg [4]. Palmer's entry or Hasson's technique is the preferred approach [1]. These 2 recommendations were utilized in this case.

With respect to ovarian torsion, the general consensus is that symptoms lasting than 48 hours are associated with significant reduction in ovarian salvage [2]. This has been questioned, as there

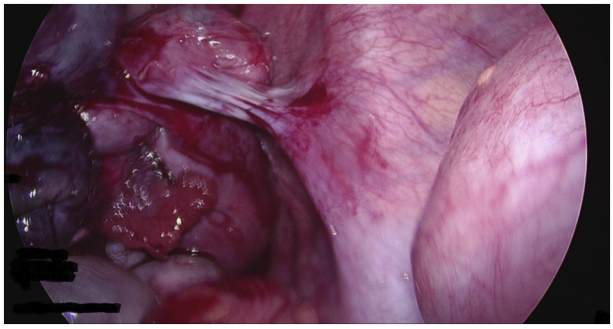

Fig. 3. Ovarian vessels untwisted but in spasm.

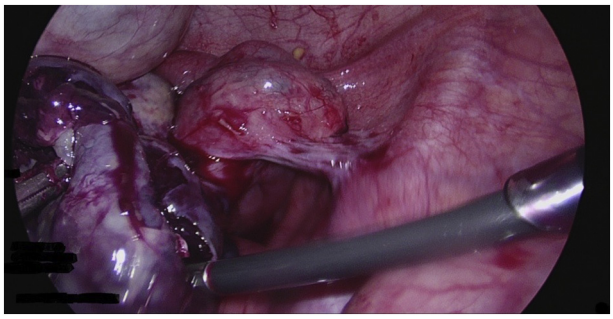

Fig. 4. Ovarian vessels 15 min after untwisting - early revascularization.

have been cases of successful return to viability >72 h after derotation of the affected ovary [5]. Our patient experienced pain for 72 h before laparoscopy was performed. In the majority of cases of ovarian torsion there is an underlying pathological cause for enlargement, such as dermoid cyst or adenoma. This ovary was a physiologically enlarged due to ovarian stimulation but was normal for all intents and purposes. Therefore there was reluctance to remove this normal ovary, with a stronger inclination to derotate and observe for return to viability. The patient was aware that if her symptoms did not settle after 48 h, she might need a repeat laparoscopy with removal of the affected ovary. The intraoperative recognition that the ovarian vessels had regained their vascular tone and visible pulsatility was encouraging evidence of the potential for return to viability of the ovary. The additional 15 min in theatre observing for tissue reperfusion was rewarded with salvaging of this affected ovary. This decision was justified as the patient settled soon thereafter, with imaging 3 weeks later showing no evidence of ischemia.

This case emphasizes the importance of early inclusion of ovarian torsion in the differential diagnosis of women in this clinical scenario. Progressive severity of the pain as well as the rise in inflammatory markers with no change in the hematocrit strongly indicates ovarian torsion and early recourse to laparoscopic intervention. Derotation with intraoperative observation for at least 15 min to confirm reperfusion even in an ovary that has been torted for >72 hours is recommended as first-line surgical management and can result in return to viability.

Contributor

The authors contributed equally to the preparation of this manuscript.

Conflict of Interest

The authors declare that they have no conflict of interest regarding the publication of this case report.

Funding

No funding from an external source supported the publication of this case report.

Patient Consent

Informed consent was obtained from the patient for publication of this report and accompanying images.

Provenance and Peer Review

Peer review was coordinated by Professor Margaret Rees independently of Dr. Paul Ayuk, an editor of *Case Reports in Women's Health* who is affiliated to the same institution as the authors. Dr. Ayuk was blinded to the process.

References

[1] A.O. Alalade, H. Maraj, Management of adnexal masses in pregnancy, Obstet. Gynaecol. 19 (4) (2017) 317–325.
[2] E. Damigos, J. Johns, J. Ross, An update on the diagnosis and management of ovarian torsion, Obstet. Gynaecol. 14 (4) (2012) 229–236.
[3] D. Spitzer, B. Wirleitner, H. Steiner, Adnexal torsion in pregnancy after assisted reproduction – case study and review of literature, Geburtshilfe Frauenheilkd. 72 (8) (2012) 716–720.
[4] L. Chen, J. Ding, K. Hua, Comparative analysis of laparoscopy versus laparotomy in the management of ovarian cyst during pregnancy, J. Obstet. Gynaecol. Res. 40 (3) (2014) 763–769.
[5] N. Hubner, J.C. Lang, S. Kives, L.M. Allen, Evolution in the management of pediatric and adolescent ovarian torsion as a result of quality improvement measure, J Pediatr Adolesc Gynecol 30 (1) (2017) 132–137Feb.