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Case Report

Perils of Unmonitored Ovarian Stimulation

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Abstract

Aromatase inhibitors are commonly used in sub-fertility management as ovulation induction agents with better efficacy and safety profile. However, unstructured induction without proper monitoring may end up in loss of fertility due to complications such as ovarian torsion. This is a case report of 28 years old female who underwent emergency laparotomy and ovarian detorsion following an immediate timely diagnosis of ovarian hyper-stimulation and ovarian torsion as a consequence of prolonged unsupervised ovulation induction with letrozole. Ovulation induction leads to increased ovarian size and mobility which increases the risk of ovarian torsion. This case highlights the significance of proper patient selection, ensuring individualized treatment protocol and appropriate monitoring during the induction process. At the same time, physician should keep high index of suspicion of ovarian torsion if a female undergoing ovulation induction presented with acute lower abdominal pain. This allows timely diagnosis to preserve the fertility and avoid severe complications.

Keywords: *Ovarian Torsion; Aromatase Inhibitors; Ovulation Induction; Fertility*

Introduction

Aromatase inhibitors are commonly used in sub-fertility management as ovulation induction agents with better efficacy and safety profile. However, unstructured induction without proper monitoring may end up in loss of fertility due to complications such as ovarian torsion.

Case Presentation

28 years old female attended emergency with complaints of acute lower abdominal pain for 1 hour associated with multiple episodes of vomiting. She is married for 1 year, gave history of medications Letrozole taken for 20 days since her last cycle. No subfertility workup done. No other significant past medical/surgical history. On examination, she was vitally stable, severe tenderness present in the lower abdomen. Urgent ultrasound done revealed changes of ovarian hyperstimulation with suspicion of right ovarian torsion. Bilateral ovaries showed multiple cysts of variable sizes; Right ovary enlarged up to 9 cm with no satisfactory blood flow. Moderate free fluid also noted.

Laboratory investigation showed anemia Hb 8.7%, pregnancy excluded as beta hcg less than 1. In view of the ultrasound findings and acute presentation, underwent urgent laparoscopy. Intraoperative findings confirmed ovarian hyperstimulation with enlarged bilateral ovaries- left ovary with multiple cyst normal color. Right ovary seen twisted one congested enlarged about 8-cm size, with multiple cysts,

among the 2 large cysts 1 found to be hemorrhagic, another 1 simple each about 2 x 3 centimeter. Successfully detorsion of right ovary done with a partial excision of right hemorrhagic ovarian cyst. Hemostasis achieved.

Postoperatively advised the patient regarding the proper fertility evaluation and to be followed in near recognized center. Explained regarding the further possibility of torsion and repeat surgery.

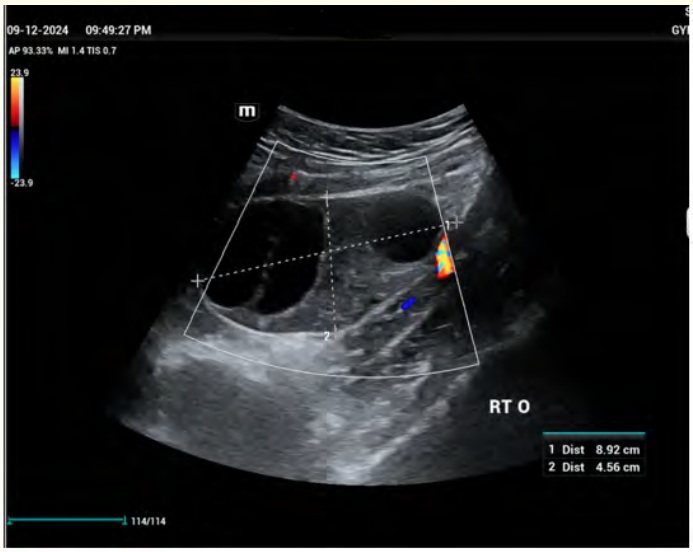

Figure 1: *Ultrasound picture showing right ovary with multiple cysts of variable size.*

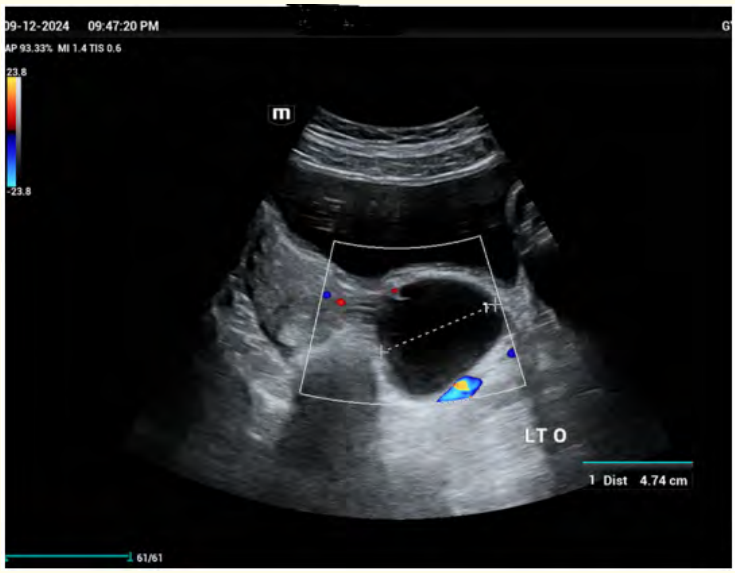

Figure 2: *Ultrasound picture showing left ovary.*

Discussion

Ovulation induction is a medical treatment that can help improve ovulation patterns or increase the number of eggs released each month. Aromatase inhibitors blocks the rate limiting step in estrogen synthesis thereby causes a compensatory increase in pituitary gonadotropin secretion leading to development of ovulatory follicles [1].

A randomized control trial study with 750 women testing efficacy of letrozole and clomiphene citrate showed higher cumulative ovulation rate with letrozole (61.7%) vs 48.3% with clomiphene. Even other studies indicates higher live birth and ovulation rates among infertile women with better safety profile [2].

Ovulation induction has many complications including ovarian hyperstimulation syndrome, (OHSS) and adnexal torsion. Although letrozole has better safety profile and lower risks of OHSS compared to other ovulation induction agents, it can still lead to ovarian enlargement and subsequent torsion [2].

Pathophysiology of ovarian torsion and cyst formation following induction involves ovarian hyperstimulation, increased size of ovaries and excessive mobility which makes susceptible to twist around their suspensory ligaments. The torsion compromises blood flow leading to ischemia and potential necrosis if not promptly addressed [3]. Activities such as exercise or sudden movements may precipitate torsion in an already enlarged mobile ovary [4].

Women presenting as acute abdomen in childbearing age should be addressed immediately with high suspicion of adnexal torsion. Especially who had predisposing factors such as ovulation, PCOS, prior ovulation cysts. In this case prompt identification led to urgent timely interventions.

Considering and understanding possible complications, each patient undergoing ovulation induction should be properly evaluated and monitored. The American Society for Reproductive Medicine recommends individualized gonadotropins dosage based on ovarian reserve testing to decrease the risk of OHSS and torsion. Tailored dose adjustment should be made based on the treatment response [5]. In this reported case, there was no proper documents available the prior evaluation and follow-up, which is opening light towards the ignorance before starting the subfertility management.

Both imaging and biochemical methods can be used to initiate and monitor the ovulation induction. Transvaginal ultrasound is essential to monitor follicular development, assess number and size of follicles. This helps in timing the administration of ovulatory trigger to minimize future risks. Ovarian reserve rests like FSH, estradiol (in early follicular phase) and AMH (at any point during the cycle) and ultrasound helps to identify high responders and low responders. Patients at risk of OHSS should be closely monitored, strategies to reduce OHSS risk include using GnRH antagonists or considering lower doses of infection and potentially using GnRH agonist to trigger oocyte maturation [6].

Diagnosis of ovarian torsion is relied on high suspicion from the clinical presentation and history together with ultrasound findings. Prompt diagnosis and management is necessary to preserve the fertility and reduce morbidity. Treatment is surgical with ovarian preservation preferred in almost all cases. In our case, patient had history of intention and presented us acute abdominal. Immediate action was taken was considering the risk of torsion. Pelvic ultrasound remains the first line imagine modality. In patients of reproducing age studies recommend detorsion with ovarian conservation even in cases where the tissue appears necrotic, given poor intraoperative diagnostic rates of tissue death [7]. Retention of ovarian function is reliable on timely diagnosis and intervention

Conclusion

Ovulation induction with Letrozole is effective and has better safety profile among the other agents used for sub-fertility management. This case demonstrates the importance of following a structured induction process including pre-procedure patient evaluation and close monitoring. Unsupervised prolonged use of Letrozole may lead to increased ovarian size and subsequent torsion.

Women in reproductive age presenting as acute abdominal pain should be promptly evaluated with high suspicion of adnexal torsion. Early imaging and urgent surgical management are necessary to preserve ovarian function and to reduce morbidity. Laparoscopy with ovarian detorsion should be considered whenever feasible [7].

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