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Case report on Ovarian Hyperstimulation Syndrome in a Spontaneous Pregnancy

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ABSTRACT

Ovarian hyperstimulation syndrome (OHSS) occurring in a natural ovulatory cycle is extremely rare. We report a case of severe OHSS associated with a spontaneous singleton pregnancy in a 23-year-old woman who presented with abdominal pain and per vaginal bleeding. Ultrasonography revealed a viable 8-week intrauterine pregnancy with bilateral multilocular ovarian cysts. She was managed conservatively throughout pregnancy, resulting in complete resolution of OHSS and an eventual uncomplicated caesarean section at 38+3 weeks of gestation.

INTRODUCTION

Ovarian hyperstimulation syndrome (OHSS) is typically an iatrogenic, serious, and potentially life-threatening complication of supraphysiological ovarian stimulation in assisted conception cycles. In its severe form, OHSS causes massive ovarian enlargement with multiple cysts, hemoconcentration, and third-space fluid accumulation, including ascites, pleural and pericardial effusion, and anasarca. Other complications include renal failure, oliguria, hypovolemic shock, thromboembolic events, adult respiratory distress syndrome, and even death [1].

Spontaneous OHSS (sOHSS) can occur in natural ovulatory cycles, particularly in patients with multiple pregnancies, hypothyroidism, or polycystic ovary syndrome [2]. It involves rapid ovarian enlargement with secretion of vasoactive substances that lead to fluid shifts into third spaces in the absence of exogenous hormonal therapy [3].

CASE REPORT

A 23-year-old nulliparous woman (G2P0) with a history of one previous miscarriage in 2023 presented at 8 weeks' gestation with a 5-hour history of per vaginal bleeding, similar in volume to her menstrual period, without passage of clots or products of conception.

Ultrasound examination demonstrated a single live intrauterine pregnancy with a small adjacent subchorionic hematoma and bilaterally enlarged ovaries measuring 57 × 51 × 38 mm on the right and 50 × 43 × 36 mm on the left.

She was managed conservatively, commenced on progesterone pessaries until 16 weeks' gestation, and provided with appropriate safety-netting advice. A repeat ultrasound one week later confirmed a viable intrauterine pregnancy with resolution of the hematoma; however, both ovaries were noted to be further enlarged with

multiple simple cysts.

Over the following weeks, serial imaging demonstrated progressive bilateral ovarian enlargement with a multicystic, multifollicular appearance resembling ovarian stimulation, with maximal measurements of approximately 18 cm on the right and 15 cm on the left. The patient denied any history of fertility treatment.

Clinically, she developed increasing abdominal distension, bloating, and generalized abdominal pain, which was exacerbated by movement, coughing, and defecation. On examination, she remained hemodynamically stable with normal oxygen saturation but had a distended abdomen with a demonstrable fluid thrill suggestive of ascites, without respiratory compromise.

Laboratory investigations revealed a mildly elevated alanine transaminase level (48 IU/L) and a β-hCG level of 152,854 IU/L at 13 weeks' gestation. Tumour markers showed a mildly elevated CA-125 (48.6), while other markers were within normal limits.

Serial ultrasound imaging confirmed markedly enlarged bilateral ovaries with multiple thin-walled cysts, with calculated ovarian volumes of approximately 810 mL on the right and 560 mL on the left. There was no significant ascites or pleural effusion on formal imaging.

Differential diagnoses included spontaneous OHSS, theca lutein cysts (including those associated with molar pregnancy), and ovarian malignancy; however, imaging and biochemical findings were not suggestive of neoplastic pathology.

The case was discussed in a multidisciplinary team meeting, and a diagnosis of idiopathic spontaneous ovarian hyperstimulation syndrome was made. A conservative management approach was recommended, including close monitoring in a high-risk obstetric clinic, serial fetal growth scans, and consideration of cyst aspiration if symptoms worsened.

At the anomaly scan around 20 weeks' gestation, the ovaries remained enlarged but showed slight interval reduction in size, and fetal growth was appropriate for gestational age. However, at 19+4 weeks, the patient was admitted with worsening abdominal, back, and rib pain requiring opioid analgesia. Due to significant symptoms, she underwent ultrasound-guided aspiration of ovarian cysts, with approximately 500 mL of straw-coloured fluid drained from the left ovary and 300 mL from the right ovary, resulting in significant symptomatic improvement.

The remainder of the pregnancy was monitored closely. Later in gestation, labour was complicated by a non-reassuring cardiotocograph (Category II), and a caesarean section was performed at 38+3 weeks. Intraoperatively enlarged polycystic appearance of ovaries noted.The postoperative course was uneventful.

DISCUSSION

Although extremely rare, spontaneous OHSS is potentially life-threatening if not recognised and managed appropriately. It typically occurs between 8 and 12 weeks of gestation [2]. The pathogenesis is not fully understood but is believed to involve vasoactive substances released by hyperstimulated ovaries, leading to

increased capillary permeability, fluid leakage, intravascular dehydration, and third-space fluid accumulation [3].

Management depends on severity. Severe cases require hospital admission and careful intravascular fluid replacement to prevent complications such as renal failure and thromboembolism [1].

In cases of bilateral ovarian cysts during spontaneous pregnancy, sOHSS should be considered as a differential diagnosis. Multidisciplinary management is essential, along with assessment of thyroid function, β-hCG levels, and other relevant investigations [4,5]. Early recognition of this rare but treatable condition is critical to ensure optimal maternal and fetal outcomes.

CONCLUSION

OHSS is a potentially life-threatening condition that can occur due to the effects of endogenous or exogenous hCG. Early recognition, exclusion of malignancy, and appropriate supportive management are essential to ensure favourable outcomes for both mother and fetus.

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