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**Clinical
Communications: OB/GYN**

**EMERGENCY ULTRASOUND DIAGNOSIS OF OVARIAN HYPERSTIMULATION
SYNDROME: CASE REPORT**

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□ **Abstract—Background:** Ovarian hyperstimulation syndrome (OHSS) is an exaggerated response to ovulation induction therapy. It is a known complication of ovarian stimulation in patients undergoing treatment for infertility. As assisted reproductive technology and the use of ovulation induction agents expands, it is likely that there will be more cases of OHSS presenting to the Emergency Department (ED). **Objectives:** OHSS has a broad spectrum of clinical manifestations, from mild abdominal pain to severe cases where there is increased vascular permeability leading to significant fluid accumulation in body cavities and interstitial space. Severe cases may present to the ED with ascites, pericardial effusions, pleural effusions, and lower extremity edema. Through a case report, we review OHSS with an emphasis on early diagnosis by Emergency Physician (EP)-performed bedside ultrasonography. **Case Report:** We present a case of a patient undergoing treatment for infertility who presented to the ED with shortness of breath and abdominal pain. The diagnosis of severe OHSS was made, largely based on EP-performed bedside ultrasonography showing peritoneal free fluid and bilateral pleural effusions, as well as multiple ovarian follicles. **Conclusions:** This report reviews the pathophysiology of OHSS, its clinical features, and pertinent diagnostic and management issues. This report emphasizes the importance of early EP-performed bedside ultrasonography. © 2012 Elsevier Inc.

□ **Keywords—**emergency ultrasound; bedside ultrasound; point-of-care ultrasound; ovarian hyperstimulation syndrome; pulmonary effusion

INTRODUCTION

Ovarian hyperstimulation syndrome (OHSS) is a well-described complication of ovarian stimulation in patients who are undergoing treatment for infertility. Symptoms range from mild to severe abdominal pain, nausea, vomiting, diarrhea, dyspnea, weight gain, and decreased urine output (1). In severe cases of OHSS, increased vascular permeability can lead to significant fluid accumulation in body cavities and interstitial space. Such patients will present to the emergency department (ED) with ascites, pericardial effusions, pleural effusions, and lower-extremity edema (2,3).

In this report, we present the case of a woman undergoing ovarian stimulation with gonadotropin agents (recombinant human follicle-stimulating hormone as well as human chorionic gonadotropin) treatment for infertility who presented to the ED with shortness of breath and abdominal pain. Emergency bedside ultrasonography revealed significant bilateral pleural effusions, ascites, and massively enlarged ovaries, consistent with the diagnosis of OHSS.

CASE REPORT

A 34-year-old woman with a history of primary infertility presented to the ED complaining of worsening dyspnea, diaphoresis, lightheadedness, and abdominal pain over

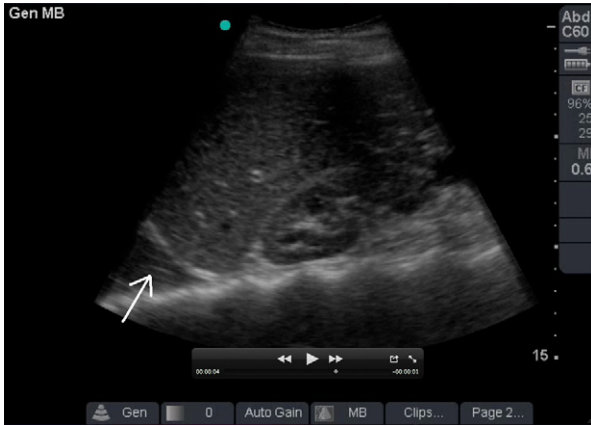


Figure 1. Bedside ultrasound of the right upper quadrant shows intra-abdominal fluid near the inferior pole of the right kidney along with a right pleural effusion above the diaphragm (arrow showing black area on left-lower portion of image).

the previous 4 days. One week earlier she had had an oocyte retrieval procedure, which was complicated by mild vaginal bleeding and two syncopal events for which she had been hospitalized for 24 h. She now returned to the ED with shortness of breath, abdominal pain, and increased abdominal girth. She denied chest pain or palpitations. She had no urinary symptoms or irregularities in bowel movements. She also denied fevers, rash, hematemesis, hematochezia, and upper respiratory complaints such as cough or congestion. Her past medical history was otherwise notable for a pituitary microadenoma and asthma. Her medications at the time of presentation consisted of leuprolide and an albuterol inhaler. She was allergic to gadolinium.

Her vital signs were significant for a heart rate ranging from 110–130 beats/min and blood pressure of 120/60 mm Hg. Her oxygen saturation was 100% on room air and she was afebrile. Her weight was 58.2 kg, which

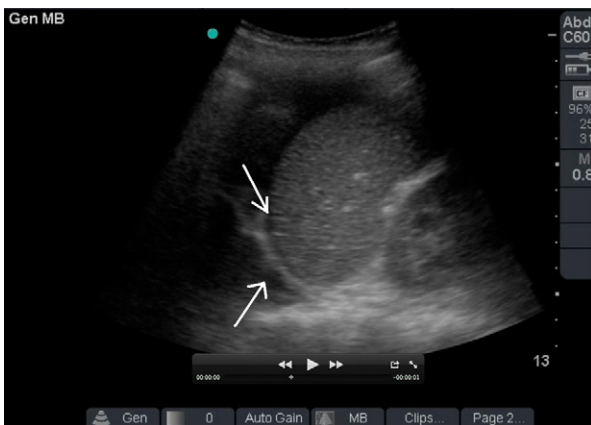


Figure 2. The left upper quadrant similarly showed perisplenic fluid (shown with arrow pointing at black area top left of image) and a left pleural effusion (black arrow at left lower area of image).

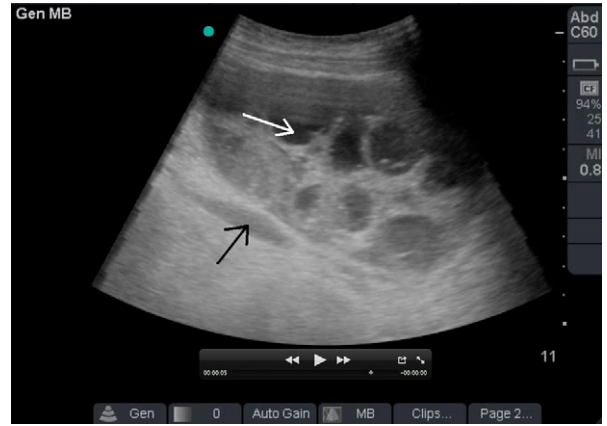


Figure 3. Scans of the pelvis revealed multiple round cystic lesions (white arrow at top of image) with free intra-abdominal fluid (black arrow at bottom of image).

was elevated by 0.9 kg from her prior admission for syncope earlier that week.

The physical examination revealed an uncomfortable-appearing woman with clear breath sounds, a tachycardic though regular heart rate, and a diffusely tender and distended abdomen. Voluntary guarding was appreciated in the suprapubic region, without evidence of rebound or fluid wave. There was no lower-extremity edema bilaterally.

A chest X-ray study did not show evidence of pneumonia, pneumothorax, or pleural effusion. The laboratory data were significant for both hyponatremia (130) and relative hemoconcentration (40 – from a baseline hematocrit of 30), as well as an elevated D-dimer to 3069 ng/mL.

Emergency bedside ultrasonography was performed to evaluate the abdomen, pelvis, and thorax (Figures 1–4). In addition to bilateral pleural effusions (right greater than left), she was noted to have markedly enlarged ovaries with numerous large follicles and diffuse intraperitoneal free fluid. The pericardial views were without pericardial effusion. These findings were concerning for OHSS.

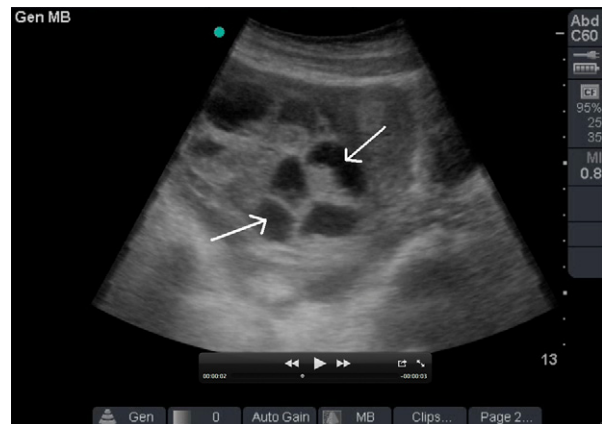


Figure 4. A sagittal view also shows the multiple ovarian follicles just adjacent to the uterus shown by arrows.

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