CASE REPORT

Unusual cause of pleural effusion: ovarian hyperstimulation syndrome

N. Srivali¹, C. Thongprayoon², W. Cheungpasitporn³, P. Ungprasert⁴ and S.M. Caples⁴

From the ¹Department of Pulmonary and Critical Care, Mayo Clinic, Rochester, MN, USA, ²Department of Internal Medicine, Bassett Medical Center, Cooperstown, NY, USA, ³Department of Nephrology and Hypertension, Mayo Clinic, Rochester, MN, USA and ⁴Department of Rheumatology, Mayo Clinic, Rochester, MN, USA

Address correspondence to Dr N. Srivali, Division of Pulmonary and Critical Care Medicine, Gonda 18 South, Mayo Clinic, 200 First St. SW, Rochester, MN 55905, USA. email: srivali.narat@mayo.edu

Learning points for clinicians

Ovarian hyperstimulation syndrome (OHSS) is a complication of in vitro fertilization (IVF). Pleural effusion is rare presentation of OHSS. Lately increase in the usage of IVF will certainly rise in the number of cases seen in clinical practice and physicians should aware because it is potentially life-threatening condition.

Case history

A 29-year-old woman presented to emergency department with dyspnea and non-productive cough. Other than infertility, she had no medical history. She received human chorionic gonadotropin (HCG) 10 days before presentation, with oocyte retrieval 3 days after. Chest examination revealed dullness to percussion and absent breath sounds over the lower one-third of right hemithorax. Complete blood count, comprehensive metabolic panel and D-Dimer were unremarkable. Chest X ray and computed tomography of the pulmonary arteries (Figure 1A) demonstrated moderate right and small left pleural effusions but no evidence of pulmonary embolism (PE). Due to history of recent in vitro fertilization (IVF) procedure, transvaginal ultrasound (Figure 1B) was requested and revealed bilaterally enlarged ovaries. Estradiol was elevated to 5545 pg/ml (normal < 350) Thoracentesis was performed and 1050 ml was removed, with a marked resolution of her symptoms. She required five more sequential therapeutic thoracenteses. A total of 4 l of pleural fluid was removed. She was discharged after spending 4 days in the hospital, with a 4-week follow-up chest radiograph showed complete resolution of pleural effusion.

Discussion

Ovarian hyperstimulation syndrome (OHSS) is sequelae from exogenous administration of gonadotropins such as in IVF and characterized by ovarian enlargement and increased vascular penetrability, leading to movement of a protein-rich fluid from the vascular compartment into the body cavity.¹ Underlying pathophysiology of OHSS is partly understood, through vascular endothelial growth factor is thought to be the main mediator in the pathogenesis² regulated the permeability and angiogenesis of blood vessels, which makes formation of fluid accumulation in body cavities. Predisposing factors of OHSS includes polycystic ovary syndrome, younger age, lean body habitus, higher doses of exogenous gonadotropin and previous episodes of OHSS.³ Most common manifestations of OHSS include abdominal distention and discomfort, enlarged ovaries and ascites. Plural effusion without ascites is extremely rare presentation of this disease.⁴ However in critical case, patients may develop acute renal failure, cardiac arrhythmia, respiratory insufficiency, and disseminated intravascular coagulation (venous and arterial thrombosis), pleural effusion becomes a massive hydrothorax, accompanied by pericardial effusion may result in death.

Dyspnea developing after administration of HCG, ruling out PE is needed.⁵ Absence of clinical or radiographic signs of PE but pleural effusion is presented, OHSS should be suspected. OHSS is a spontaneously resolve disorder but can persist up to 3 weeks.⁶
Intermittent thoracentesis may be indicated if symptoms are warranted.

OHSS is an iatrogenic and potentially life-threatening condition that affects young, healthy patients and this case serves as a reminder to consider pleural effusion secondary to OHSS in the differential diagnosis of patients who recently receive IVF and develop shortness of breath.

Conflict of interest: None declared.

References


