peer reviewed **CASE REPORT**

Case report: HELLP syndrome and the role of MDCT

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Abstract

This case report describes the aetiology, clinical signs and symptoms as well as the radiological appearances of pulmonary emboli diagnosed in a young female patient due to the after effects of childbirth.

Keywords

Multi-detector CT, chest angiogram, pulmonary embolus, preeclampsia.

Case report

A young female patient presented with severe right sided chest pain and dyspnoea to a private sector trauma unit. Her medical history being that she was six weeks postpartum following delivery at 22 weeks of an infant that did not survive due to insufficient lung inflation. At the time of delivery she had been diagnosed with HELLP syndrome but did not go for a follow up examination after delivery. HELLP is an acronym: the first letter stands for hemolysis, the second and third letters stand for elevated liver enzymes and the fourth and fifth letters stand for low platelet count.

Clinical examination revealed she had decreased air entry in the right lung and in view of her medical history she underwent an ultrasound scan of the abdomen which was unremarkable. A chest radiography proved to be inconclusive . She was then referred for a computed tomogram (CT) of her chest for suspected pulmonary emboli. A multi-dector CT (MDCT) angiogram was performed and an extensive pulmonary embolism was demonstrated. The presence of an extensive thrombus was noted in the left lower lobe artery (Figure 1) which extended into the level of the bifurcation at the interlobar artery (Figure 2). There was also an extensive right lower lobe artery embolus (Figure 3). The presence of basal atelectasis in both lungs was noted (Figure 4).

In view of swelling of her hands and feet she underwent a second ultrasound scan following the MDCT scan. Although ultrasound has no role in the detection of pulmonary emboli in the lungs, a venous Doppler of both legs was performed for suspected deep vein thrombosis. The study showed normal blood flow through the femoral and popliteal veins with no intraluminal thrombi seen. It was also noted that there was good augmentation of the spectral signal on proximal and distal compression.

Discussion

HELLP syndrome is a serious pregnancy complication usually occurring in the later stages of pregnancy between the 24th and the 34th weeks of gestation as well as within 48 hours postpartum[1]. It is considered to be a severe variant of preeclampsia; which is the development of high blood pressure and protein in the urine after the 2nd or 3rd trimester during pregnancy[2] HELLP syndrome is also known as a rare hypertensive disorder only affecting 5% to 10% of all pregnancies[3]. Heller et al[4] state that 70% of cases HELLP syndrome are diagnosed antepartum; usually after 27 weeks gestation and 30% are diagnosed post partum.

In some patients who are in the process of developing the HELLP syndrome the primary indicators are hypertension and protein in the urine. These symptoms can

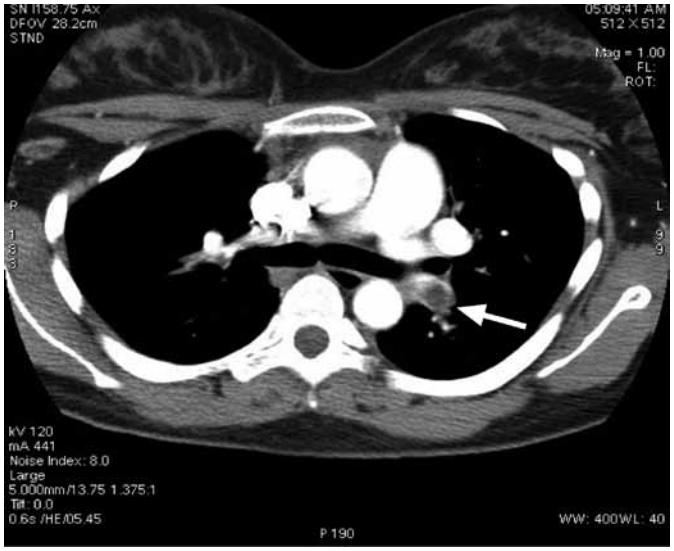

Figure 1: Axial image demonstrating the pulmonary embolus in the left lower lobe artery (arrow).

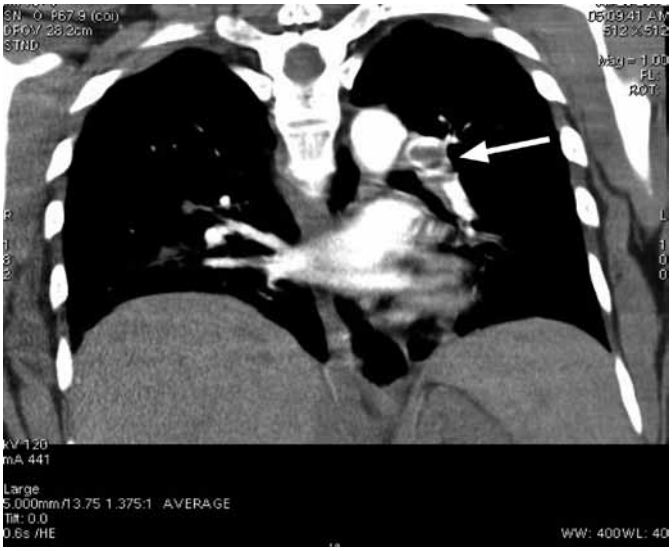

Figure 2: Coronal image demonstrating the pulmonary embolus in the left interlobar artery (arrow).

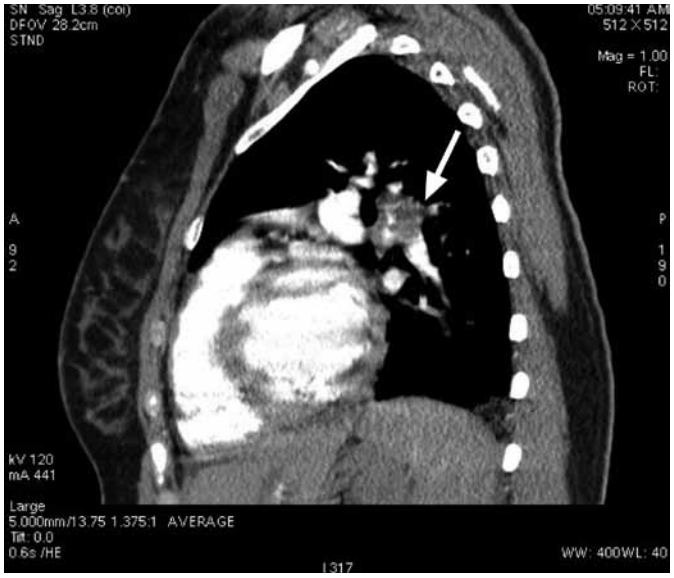

Figure 3: Sagittal image depicting the pulmonary embolus in the right lower lobe artery at the level of the bifurcation (arrow).

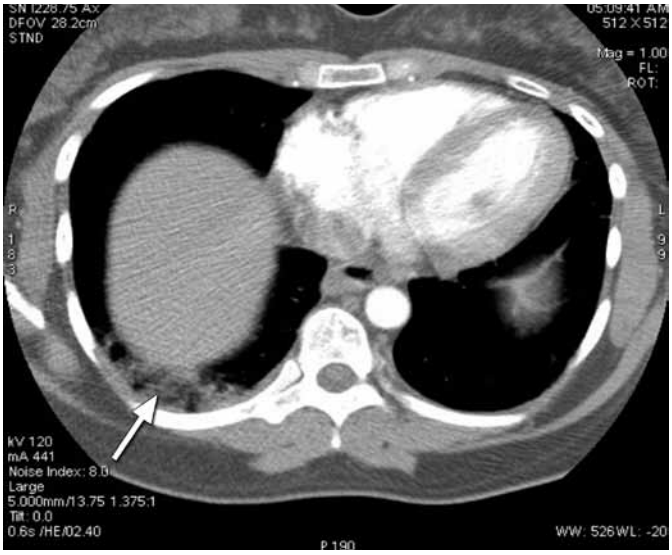

Figure 4: Axial image showing the basal atelectasis in the right lower lung (arrow).

be mistaken for gastritis, influenza, acute hepatitis or gall bladder disease since all factors of HELLP are not apparent hence could be interpreted as normal symptoms of pregnancy[2]. It is important that an early diagnosis should be made to minimize the risks of reported morbidity and mortality rates of up to 25%. Patients and physicians should be are aware of the HELLP syndrome and how it relates to preeclampsia[1]. The most common symptoms of this syndrome are said to be similar to those of preeclampsia. These symptoms include headaches that do not resolve, nausea, vomiting, indigestion with pain after eating, epigastric and substernal tenderness, right upper quadrant pain, shoulder pain, bleeding, visual disturbances and swelling[2]. The most common indicators of the syndrome are high blood pressure and proteinuria. When a patient becomes critically ill the most common symptoms are: right upper quadrant pain and substernal and epigastric pain due to complications such as hepatic hemorrhage, subcapsular rupture and infarction[4]. This sudden onset of pain and hypotension can be suggestive of a liver hematoma or rupture[5]. Evidence of any liver dysfunction can be detected by blood serum concentrations and an ultrasound scan[1].

HELLP syndrome is classified into three categories: Class I refers to severe thrombocytopenia; Class II refers moderate thrombocytopenia; and Class III refers to mild thrombocytopenia. This classification is used to measure the severity of the syndrome according to the blood platelet count of the patient[1]. Thrombocytopenia is the principal and earliest coagulation abnormality present in all patients with HELLP syndrome. A blood platelet count the physician allows for detection of the presence of coagulopathy[6]. When thrombocytopenia is seen in the pulmonary vessels this is known as pulmonary emboli. In this case the patient the MDCT results revealed the presence of multiple pulmonary emboli. Pulmonary embolism in a pregnant patient is one of the leading causes of approximately 20% maternal deaths therefore a timely accurate diagnostic approach is required[7]. Some authors state that CT chest angiography for detection of pulmonary emboli in pregnant patients is less reliable because of the hemodynamic effects of pregnancy, which include an increase in cardiac output, the total vascular resistance heart rate and plasma volume[8]. This causes the volume of contrast administered to become diluted and increases pressure in the inferior vena cava (IVC) causing a transient interruption of the contrast bolus due to the unopacified blood in the IVC. In order to obtain a successful diagnostic scan the CT chest angiography protocol should be adapted to minimize these hemodynamic effects by using the bolus tracking technique, a short scan delay, increasing the contrast flow rate and increasing the concentration of the contrast medium[8].

Most often the definitive treatment for a patient suffering from HELLP syndrome is delivery of the baby as well as blood transfusions due to significant maternal bleeding. Depending on the gestational age of the fetus corticosteroids may be administered intramuscularly to improve fetal lung maturation; which will help in the delivery of the infant if need be; as well as to decrease the rate of the maternal disease process in order to allow for cervical ripening which will then allow for the induction of labor in some patients[1].

Conclusion

Although ultrasound scanning is the gold standard for imaging of pregnancy related complications it has the lowest sensitivity rate in the detection of thrombus in the pulmonary arteries[9]. The use of CT has proven to be highly valuable in the diagnosis of many complications of pregnancy, such as HELLP syndrome because it directly visualizes pulmonary oedema or pulmonary emboli and has a high sensitivity and specificity greater than 90%[10]. It is however said that CT angiography of the chest to detect pulmonary emboli in pregnant patients is less reliable because of the hemodynamic effects of pregnancy discussed above[8].

Female patients, in late pregnancy or postpartum, who experience upper quadrant pain, neck and shoulder back, chest pain and right epigastric pain should be considered as displaying the telling signs of HELLP syndrome[3]. In this case the presence of pulmonary emboli found in the postpartum period of the patient was discussed, where the physician had a clinical suspicion of HELLP. Since this syndrome is a rare but life threatening disease during and after pregnancy it is important that proper evaluation, prompt diagnosis and treatment, education and awareness about this disease, are underscored for improved maternal and perinatal outcomes[5].

References

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