

Unexpected Complication in HELLP Syndrome: Haemopneumothorax: Case Report

HELLP Sendromunda Beklenmeyen Komplikasyon: Hemopnömotoraks

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ABSTRACT The patient described above has the HELLP syndrome. This condition typically develops in the third trimester of pregnancy and occurs in patients with preeclampsia and eclampsia with the ratio of 3 to 12%. Liver haematoma, which is revealed by with right upper quadrant pain, is one of the rare important complications of this syndrome. But haemopneumothorax secondary to the HELLP syndrome has not been reported in the literature before. A multipara (G6-P6) 37-years-old woman was admitted to our clinic with the complaint of dyspnea after sectio. She had a history of preeclampsia in her preceding pregnancy. Laboratory tests showed elevation of liver enzymes, anemia and thrombocytopenia. Chest X-ray showed hydropneumothorax on the right hemithorax and tube thoracostomy was performed. She was discharged from the hospital 4 days after the tube thoracostomy. HELLP syndrome can be the reason of haemopneumothorax and it can menace life. Especially the dyspnea in HELLP syndrome must remind us haemopneumothorax.

Key Words: HELLP Syndrome; hemothorax; pneumothorax

ÖZET Olguda tartışılacak olan hasta HELLP sendromludur. Tipik olarak gebeliğin 3. trimesterinde gelişir ve sıklığı %3-12 arasındadır. Hastalarda sağ üst kadranda ağrısı ile kendini belli eden karaciğer hematomu, nadir de olsa gelişebilen ciddi komplikasyonlar arasındadır. Ancak literatürde HELLP sendromuna bağlı gelişen hemopnömotoraks olgusu bulunmamaktadır. Multipar (G6-P6) 37 yaşında kadın hasta, sezaryen doğum sonrası gelişen nefes darlığı sebebiyle kliniğimize kabul edildi. Önceki gebeliğinde preeklampsi hikâyesi olan hastanın laboratuvar tetkiklerinde karaciğer enzim yükseliği, anemi ve trombositopeni saptandı. Akciğer grafide sağ hemitoraksta hemopnömotoraks geliştiği saptanan hastaya tüp torakostomi yapıldı ve torakostomi sonrası 4. günde sorunsuz şekilde taburcu edildi. HELLP sendromlu hastalarda hemopnömotoraks gelişebilir ve hayatı tehdit edici boyutlara ulaşabilir. Özellikle nefes darlığı tarif eden HELLP sendromlu hastalarda bu durum akıldan tutulmalıdır.

Anahtar Kelimeler: HELLP sendromu; hemotoraks; pnömotoraks

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The elevation of liver enzymes can develop in all pregnancy with the ratio of 3%.¹ This condition especially develops in preeclampsia, eclampsia and HELLP (H: hemolysis, EL: elevated liver enzymes, LP: low platelets) syndrome.² Another reason is hepatocellular necrosis, with associated bleeding and hematoma formation both within the parenchyma of the liver and beneath the liver capsule.^{3,4} The most important complication is subcapsular hematoma. This was described with Abercrombie first time in 1844.⁵ This complication has a maternal mortality of 60%. This ra-

tio can increase to 90% with the conservative procedures.⁶

Hepatic complication of HELLP syndrome (subcapsular hematoma) is many times described in the literature.^{7,8} But intrathoracic hemorrhage and pneumothorax has not been reported before. We described our case as a haemopneumothorax secondary to the HELLP syndrome, in this report.

CASE REPORT

A multipara (G6-P6) 37-years-old woman was admitted to our clinic with the complaint of dyspnea. She had a sudden blindness history for about one month in her fifth pregnancy and it was diagnosed as HELLP syndrome. She also had a preeclampsia history in the fifth pregnancy period. Her sixth delivery was with sectio because of breech presentation and preceding preeclampsia history. She had a healthy baby with a 7/9 apgar score from her sixth delivery.

Her wake up time after anesthesia was too long and postoperative hemoglobine was 3.5 g/dL. The other laboratory tests were resulted as; ALT:1000 IU / L (0-42 IU / L), "high value", AST: 1144 IU/L (0-35 IU / L) "high value", LDH 1563 U/L (0-248 U/L) "high value" Platelet count 78 K/uL (142-424 K/uL) "low value", WBC count 17.3 K/UI (5-10,2 K/uL) "high value". She had 5 unit erythrocyte suspension, 4 unit Fresh Frozen Plasma and 2 unit Thrombocytes suspension transfusion in the intensive care room. The laboratory tests results one day after transfusion were as; hemoglobin concentration 8.85 g/dL, ALT:1090 IU / L (0-42 IU / L), AST: 791 IU/L (0-35 IU / L), LDH 1052 U/L (0-248 U/L), Platelet count was 84.6 K/uL (142-424 K/uL), WBC count was 15.5K/UI (5-10.2 K/uL). The abdominal ultrasonography was normally except a minimal abdominal fluid.

She had a dyspne in the second postoperative day. The postero-anterior chest X-ray showed hydropneumothorax on the right hemithorax (Figure 1). So tube thoracostomy was performed and about 600 cc hemorrhagical fluid was drained. Postero-anterior chest X-ray after tube thoracostomy showed that the lung expansion was whole (Figure 2).

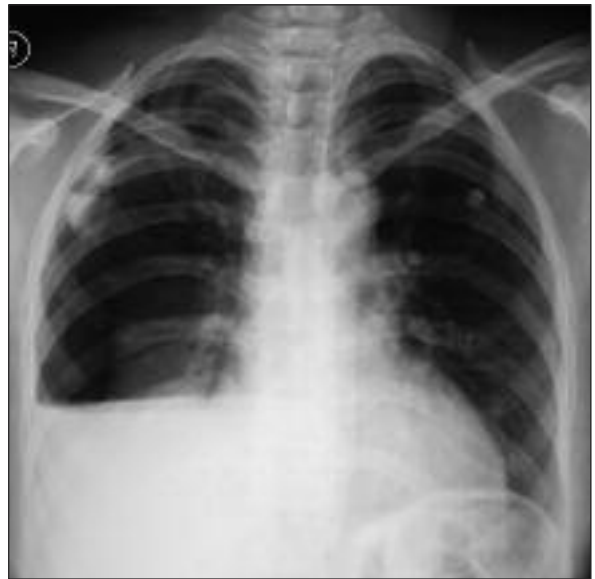


FIGURE 1: Chest X-ray, hemopneumothorax image on right hemithoracic image.



FIGURE 2: Chest X-ray, tube thoracostomy.

Fluid drainage was stopped in the fourth day after tube thoracostomy and the tube was taken out.

During her discharging from the thoracic surgery clinic, her vital signs were all normal. A urine test showed minimal proteinuria. Hemostatic profile was normal. Hemoglobin concentration was 10.9 g/dL, ALT:152 IU/L (10-45 IU/L), AST: 27 IU/L (10-42 IU/L), LDH 346 IU/L (98-192 IU/L). Platelet count was $339 \times 10^3/\mu\text{L}$ ($156-373 \times 10^3/\mu\text{L}$), WBC count was $11.9 \times 10^3/\mu\text{L}$ ($4,3-10,3 \times 10^3/\mu\text{L}$).

TABLE 1: Criteriae and complications of HELLP syndrome.

Criteria of HELLP syndrome	Complications of HELLP syndrome
Hemolysis (H)	Abruptio placentae
Total bilirubin level \geq 1.2 mg/dL	Acute renal failure
Lactate dehydrogenase level \geq 600 U/L	Disseminated intravascular coagulation
Anemia < 10 g/dL	Eclampsia
Elevated liver function test results (EL)	Fetal death, asphyxia
Serum aspartate aminotransferase levels \geq 70 U/L	Intrauterine growth retardation
Lactate dehydrogenase level \geq 600 U/L	Maternal death
Low platelet count (LP)	Ruptured liver hematoma
Platelet count < 100.000/mm ³	Pulmonary, peripheral edema
	Hemopneumothorax

H: hemolysis, EL: elevated liver enzymes, LP: low platelets.

DISCUSSION

The patient described above has the HELLP syndrome (Table 1). Patients with HELLP syndrome often complain of progressive malaise, nondependent edema, and, sometimes, right upper quadrant pain.⁹ Early on, significant hypertension may not be seen. It is generally together with preeclampsia and eclampsia. 30% of cases of the HELLP syndrome can develop in the first 24 to 48 hours of postpartum.

Women with HELLP syndrome may present with a variety of signs and symptoms that are not diagnostic of the syndrome. Epigastric or right upper quadrant pain, emesis, vomiting and nonspecific infection signs can be seen.¹⁰ Abdominal pain may be first clinical sign.¹¹ Main reason of right upper-quadrant or epigastric pain is obstruction of blood flow in the hepatic sinusoids, which are blocked by intravascular fibrin deposits. Our case had complaints of dyspnea and right side chest pain which are secondary to the hemopneumothorax.

In the literature, it has been discussed whether there is an association between spontaneous liver rupture and pregnancy was identified, typically in cases complicated by preeclampsia/eclampsia or HELLP syndrome.¹² Araujo et al. have discussed hepatic rupture and subcapsular hematoma on 10 patients with HELLP syndrome.¹¹ They reported that, the most important signs and symptoms of hepatic rupture were the sudden onset of abdominal

pain, acute anemia, and hypotension. Laboratory tests resulted as low platelet count and increased hepatic enzymes. The 9 cases underwent surgery. One case was treated nonsurgically. The maternal mortality rate was 10%, and the perinatal mortality rate was 80%.

Pathogenesis of this syndrome is explained with some hypotheses. Rademaker describes a chain of events as infarction and hypervascularisation, rupture of vessels, intrahepatic haemorrhage, subcapsular haematoma, rupture of the liver capsule, haemoperitoneum.¹³

Our case had a haemopneumothorax. We thought that the reason of this haemopneumothorax is the rupture of visseral pleura and lung paranchyma. The rupture mechanism of the lung paranchyma can be similar to the liver rupture mechanism such as hypervascularisation of the visseral pleura, causing localised infarction and rupture of vessels resulting with haemorrhages to the pleural cavity. The rupture of paranchyma can explain the pneumothorax.

The surgery is the best way to treat the HELLP syndrome's haemorrhage associated complications.¹⁴ Surgery must be chosen when liver subcapsular hematoma is diagnosed. Surgery may consist of liver lobe resection if necessary. We also say that, surgery such as tube thorcostomy is the best way to treat intrathoracic complications such as haemopneumothorax. We applied tube thorcostomy to our case and treat the haemopneumot-

horax without necessity of other therapeutic procedures.

CONCLUSION

The only reason of right upper quadrant pain, shock clinic and decreasing haemoglobine values

in preeclampsia, eclampsia and HELLP syndrome cannot be associated the liver subcapsular hematoma. We must always remember haemothorax and pneumothorax if the patients have dyspnea and right side chest pain.

REFERENCES

- Ch'ng CL, Morgan M, Hainsworth I, Kingham JGC. Prospective study of liver dysfunction in pregnancy in Southwest Wales. *Gut* 2002; 51(6):876-80.
- Guntupalli SR, Steingrub J. Hepatic disease and pregnancy: an overview of diagnosis and management. *Crit Care Med* 2005;33(10 Suppl):332-9.
- Dyke VRW. The liver in pregnancy. In: Zakim D, Boyer TD, eds. *Hepatology. A Textbook of Liver Disease*. 4th ed. Philadelphia: Saunders; 2003. p.1606-8.
- Scheuer PJ, Lefkowitz JH. Liver Biopsy Interpretation. The Editors. 6th ed. London: WB Saunders; 2000. p.312-3.
- Abercrombie J. Haemorrhage of the liver. *London Medical Gazette*. Vol. 34. 1844. p.792-4.
- Cheung H, Hamzah H. Liver rupture in pregnancy: a typical case? *Singapore Med J* 1992;33(1):89-91.
- Calderon EG, Khawar S, Cunningham JA, Russell LD, Alpert MA. Pulmonary artery thrombus and subcapsular liver hematoma in a patient with hellp syndrome: a therapeutic conundrum. *Am J Med Sci* 2002;323(3):151-4.
- Sutton BC, Dunn ST, Landrum J, Mielke G. Fatal postpartum spontaneous liver rupture: case report and literature. Review. *J Forensic Sci* 2008;53(2):472-5.
- Sibai BM. Diagnosis, controversies, and management of the syndrome of hemolysis, elevated liver enzymes, and low platelet count. *Obstet Gynecol* 2004;103(5):981-91.
- Sibai BM. The HELLP syndrome (hemolysis, elevated liver enzymes, and low platelets): much ado about nothing? *Am J Obstet Gynecol* 1990;162(2):311-6.
- Araujo ACPF, Leao MD, Nobrega MH, Bezerra PFM, Pereira FVM, Dantas EMM, et al. Characteristics and treatment of hepatic rupture caused by HELLP syndrome. *Am J Obstet Gynecol* 2006;195(1):129-33.
- Sibai BM. Diagnosis and management of gestational hypertension and preeclampsia. *Obstet Gynecol* 2003;102(1):181-92.
- Rademaker L. Spontaneous rupture of liver complicating pregnancy. *Ann Surg* 1943; 118(3):396-401.
- Güvenal T, Cetin A. [The effect of thrombocytopenia on bleeding time in women with preeclampsia and hellp (hemolysis, elevated liver enzymes and low platelet) syndrome]. *Turkiye Klinikleri J Gynecol Obst* 2000;10(4):227-30.