

Case Report

Role of CT scan in diagnosis of HELLP syndrome: Radiologist's perspective

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Abstract

Background: HELLP syndrome is life threatening condition. Diagnosis of HELLP syndrome plays an important role in assessment of complication. It can be done by USG and CT scan.

Objectives: The aim of this study was to define role of CT scan in assessment of HELLP syndrome.

Materials and methods: A case report aimed at evaluation of patient who came with sign and symptoms of HELLP syndrome to Radiology Department of Dhiraj Hospital by using CT scan.

Results: A 30 year old patient presented in post-partum state with fever, rigor, nausea and tenderness in the right hypochondrium. Case history showed patient had suffered from pre-eclampsia during childbirth. The Patient had undergone ultrasonography which gave a diagnosis of hepatomegaly with liver abscess. Her Blood investigation showed total count of 22700 with predominant polymorph of 70%, Hb- 4.7 gm, SGPT was 234, Patient has thrombocytopenia with platelet of 1.5 lac. She was subjected to pre and post contrast CT scan in Dhiraj general hospital which showed hepatosplenomegaly, multiple ill-defined hypodense lesions in both lobes of liver (HU value = 52-70) with perilesional oedema, suggestive of multiple liver hematomas with rupture of hematoma into the peritoneal space.

Conclusion: CT scan plays the key-role in assessment of complications in pre-eclamptic postnatal patient with HELLP syndrome which may be missed by USG. There by helping in patient management and prognosis.

Key words

Liver hematoma, Pre-eclampsia, CT scan.

Introduction

Life threatening condition – a variant of pre-eclampsia and occur late in pregnancy or in post natal state named by Dr. Louis Weinstein in 1982.

H: Hemolysis

EL: Elevated Liver enzyme

LP: Low Platelet

It is difficult to diagnose if patient has normal blood pressure and no protein in urine and misdiagnosed as gastritis, hepatitis or gall bladder pathology [1, 2].

Sign and symptoms

Patients have symptoms like headache, nausea, vomiting, chest and abdominal discomfort, shoulder pain, swelling and disturbance in vision with high blood pressure and proteinuria [3].

It has three types of grade –

- **Grade I:** platelet count below 50000 with high risk of bleeding
- **Grade II:** platelet count between 50000 to 100000 with medium risk of bleeding
- **Grade III:** platelet count between 1 lac to 1.5 lacs without risk of bleeding

Pathophysiology

Fibrin forms cross link network in small blood vessels and leads to hemolysis with anemic and destruction of red blood cells and consume platelet which causes liver ischemia and elevated lactate dehydrogenase with proteinuria [4, 5].

LDH > 600 IU/l and aspartate amino transferase > 40 IU/l

Alanine amino transferase >40 IU/l

HELLP syndrome is rare and is more common after 25 year of age and common in multi para with poor pregnancy outcome.

Prognosis

Mortality of patient's about 1.1% and affected baby if delivered with IUGR with weight below 1 kg. Has mortality 8 to 60% and baby may delivered still birth and die due to premature separation of placenta or birth asphyxia ,majority of patient gets complete recovery in 6 to 11 days without developing eclampsia.

Role of imaging modalities in early diagnosis of HELLP syndrome

Sonography

It showed enlarged liver (hepatomegaly) with fatty changes and altered echo-pattern. There will be probe tenderness without cholelithiasis or changes of cholecystitis.

In ultrasonography liver shows heterogeneous hematoma without internal vascularity in the lesion and appears mainly in subscapular in location with oedematous gall bladder wall, ascites and periportal halo.

Fetus will be suffering from severe symmetrical IUGR(Intrauterine growth retardation) and doppler study shows uteroplacental and fetoplacental insufficiency with increased all indices due to IUGR and changes of pre-eclampsia with head sparing and low resistance of middle cerebral arterial flow [6, 7].

CT scan

It has main role in HELLP syndrome if patient develop it in post natal state as 70% develop during pregnancy and 30% in post natal state. It can be used for diagnosis of liver and gall bladder involvement but has high radiation to fetus so sonography is the most useful tools for the early diagnosis of HELLP syndrome for better management of mother and baby than late diagnosis by blood profile during pregnancy and in post natal state CT scan is the best modality.

Ct scan demonstrate liver hematoma as a hypodense single or multiple lesion without any

enhancement in contrast enhance Ct scan – mainly in right lobe of liver and 10% in left lobe of liver and 14 % in both the lobes of liver and located near portal triad and if active hematoma contrast gets extravasated and we can locate air for embolization [8].

Case report

A 30 years old female patient of lower socio-economic class came from rural area (She had 2 male and 1 female child with history of one abortion). She came with complains of fever with rigor and nausea since last 15 days. She also had tenderness in right hypochondrium in her immediate post-partum period. During her last childbirth, she suffered from pre-eclampsia.

Pulse: 80 per/minute

Blood pressure: 150/70mm of hg.

Sonography report showed liver abscess with hepatomegaly

CT scan

It was done in emergency condition with normal blood creatinine (1.1) – in pre and post contrast state, which showed hepatosplenomegaly (liver measuring 20 cm in size and spleen measuring 13 cm size) with evidence of ill-defined non enhancing multiple heterogeneously hypodense lesion involving left of liver and segment VIII of right lobe of liver with largest one measuring 7x7x9.6 cm size and surrounding perilesional oedema suggestive of multiple liver hematomas, with oedematous gall bladder wall with few small gall bladder calculi with rupture of hematoma and peritoneal collection.

Blood investigation

Total WBC count - 22700 with predominant polymorph of 70%, Hb- 4.7 gm.

Urea: 44 and Creatinine: 1.1

Total bilirubin: 1 and absent bile salt and bile pigment in urine.

SGPT was 234.

Patient has thrombocytopenia with platelet count of 1.5 lac per cumm.

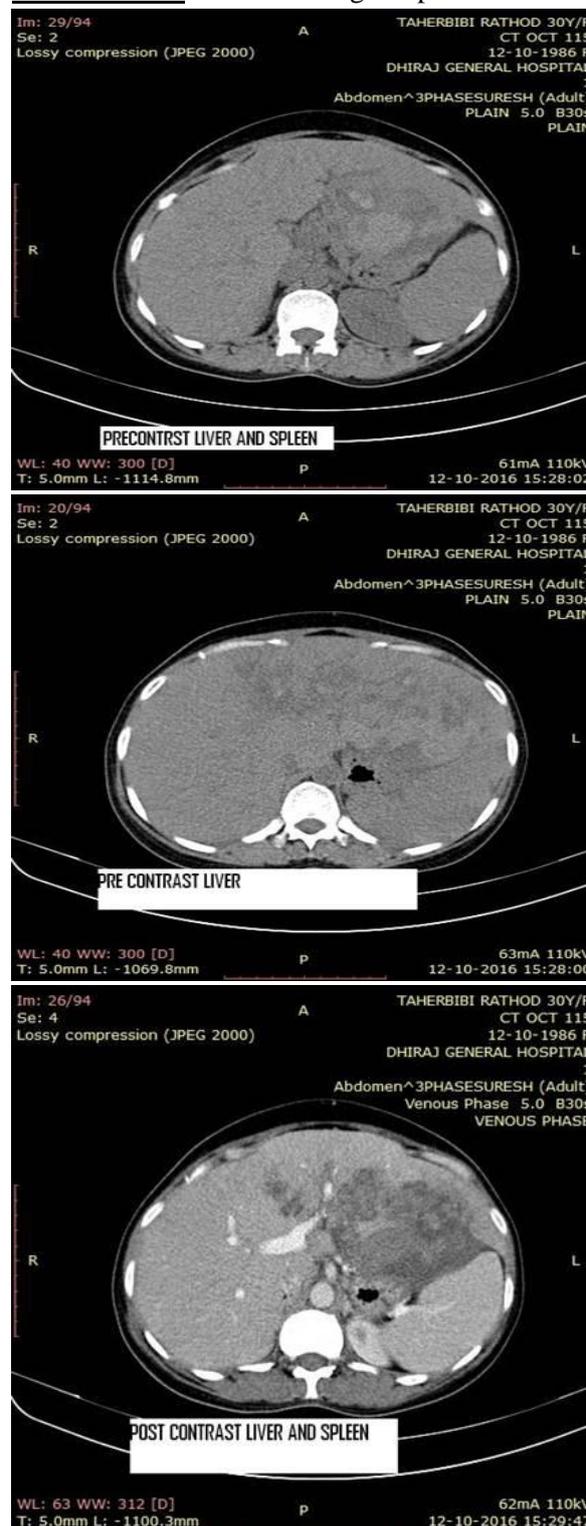
HIV = negative

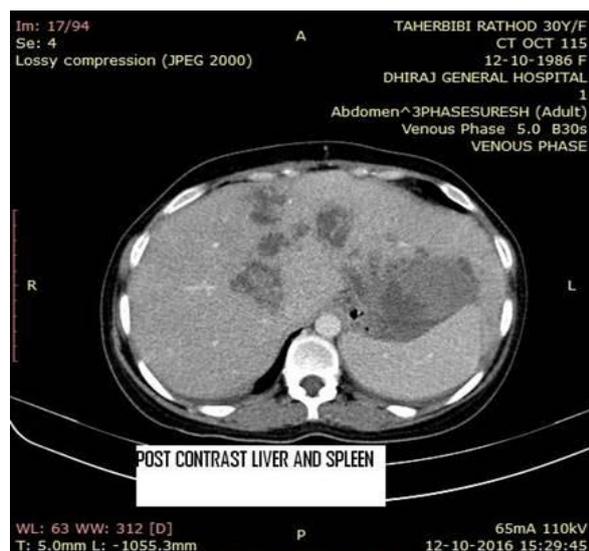
Patient recovered very well after 15 days.

Findings were consisting with feature of HELLP syndrome

CT scan image of the same patient was as per **Photo – 1 to 4.**

Photo – 1 to 4: CT scan image of patient.





References

1. Nunes JO, Turner MA, Fulcher AS. Abdominal imaging features of HELLP syndrome: a 10-year retrospective review. *AJR Am J Roentgenol.*, 2005; 185 (5): 1205-10.
2. Pritchard JA, Weisman R, Ratnoff OD, Vosburgh GJ. Intravascular hemolysis, thrombocytopenia and other hematologic abnormalities associated with severe toxemia of pregnancy. *N Engl J Med.*, 1954; 250: 89-98.
3. Weinstein L. Syndrome of hemolysis, elevated liver enzymes, and low platelet count: a severe consequence of hypertension in pregnancy. *Am. J. Obstet. Gynecol.*, 1982; 142 (2): 159-67.
4. Lubner M, Menias C, Rucker C, et al. Blood in the belly: CT findings of hemoperitoneum. *Radiographics*, 27 (1): 109-25.
5. Gamanagatti S, Kumar S. Acute abdomen after the termination of pregnancy. *Br J Radiol.*, 2008; 81(969): 758-9.
6. 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.
7. Rath W, Faridi A, Dudenhausen JW. HELLP syndrome. *J Perinat Med.*, 2000; 28(4): 249-60.
8. Haddad B, Barton JR, Livingston JC, et al. HELLP (hemolysis, elevated liver enzymes, and low platelet count) syndrome versus severe preeclampsia: onset at < or =28.0 weeks' gestation. *Am. J. Obstet. Gynecol.*, 2000; 183(6): 1475-9.