

# Blunt trauma abdomen with isolated infarcted left lateral segment of the Liver

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April 28, 2023

## **Title: Blunt trauma abdomen with isolated infarcted left lateral segment of the Liver**

A 13-years-old female presented to the emergency surgical department with pain epigastrium, and shortness of breath for 3 days. She sustained blunt abdominal trauma following motor vehicle accident three days back. Following the injury, she was initially managed at the periphery hospital; on deterioration was referred to our academic tertiary care center. On general physical examination, she was conscious, oriented, febrile, tachypneic (28 breaths/min), tachycardic (130 beats/min) with normal blood pressure. There was no pallor. Abdominal examination revealed tender epigastrium with guarding. Her blood investigation showed normal hemoglobin, leukocytosis (22,000/mm<sup>3</sup>), normal renal function tests and amylase/lipase levels, normal bilirubin but raised liver enzymes (>3 times). On contrast computed tomography (CT), there was a well-demarcated, absence of perfusion on the left lateral segment to the liver suggesting infarction (Fig. 1). The hepatic arteries, portal vein and its branches and other abdominal organs were normal. There was no intrabdominal collection. Diagnosis of traumatic left lateral liver segment infarct with sepsis, probably from the bile leak from the divided liver segment was assumed, and planned for surgery.

At surgery, there was a near complete (70%) detachment of the left lateral segment of the liver from the falciform ligament. The injured segment was dusky brown, pale and stained with bile leak (Fig. 2 and 3). It was resected (left lateral segmentectomy), hemostasis secured and area drained. Postoperatively, she improved dramatically. Her symptoms, tachycardia, tachypnea and raised leukocytes counts improved and were discharged on day 12. The pathological examination confirmed necrosis of the excised segments. At 2-years follow-up, she is doing well.

The liver is the most commonly injured organ following motor vehicle accident due to the sudden deceleration. The most frequent occurrence is a tear between liver segments III and IV caused by the acute impact of the liver on the hepatic ligament.<sup>1</sup> This tear often leads to intraperitoneal hemorrhage; but in contrast, rarely can lead to the devascularization of the segment as observed in the present case. This is because of the interruption of flow from the left hepatic artery.<sup>2</sup> A liver injury, despite the grade, if hemodynamically stable is preferably managed non-operatively. However, if the segment (II and III) is devascularized, with concomitant bile leak and persistent systemic inflammatory response syndrome (SIRS), it is best managed with resection of the segment with excellent outcome as seen in our case.<sup>3</sup> This scenario with typical CT and intraoperative image is rare to see with anecdotal case reported in the literature.<sup>1</sup>

## **Ethical approval**

The study has been reviewed by the Institute ethics committee and has therefore been performed in accordance with the ethical standards laid down in an appropriate version of

the Declaration of Helsinki.

## Consent

Informed written consent was obtained from the parents prior to submission of this manuscript.

**Conflict of interest:** None

## Author Contributions

Narendra Pandit: Conceptualization; data curation; formal analysis; writing-original draft. Dinesh Nalbo: Data curation; writing original draft. Durga Neupane: Conceptualization; data curation; formal analysis; writing-original draft. All authors approved the final version of article.

**Acknowledgements:** None

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## Figure Legends

Fig. 1 Image showing completely devascularised left lateral segment of liver

Fig. 2 Intraoperative view showing necrosed segment of liver with bile staining

Fig. 3 Cut-section of the resected liver showing whitish, pale areas with thrombosed vessels





