

## Case Report

### Injury to Spleen after fall from Height in an Unusual Posture

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#### Abstract

Normally any history of abdominal injury points toward an emergency because of intrusion of concealed trauma. There could be an envisaging of spectrum of injuries camouflaged under the guise of pain. Spleen is one organ which is easily injured under force of blunt trauma. Therefore, a farsighted surgeon would obviously focus his attention to this aspect. A 22 years old, unmarried female, presented herself at the Emergency section of J. N. Medical College Hospital, AMU, Aligarh, with complaint of severe pain in abdomen and difficulty in maintaining an erect posture about 2 hours back. She gave history of fall from lower 3<sup>rd</sup> of the staircase from a height of about 3-4 feet. Physical examination didn't reveal any clue. However USG report showed sub-capsular hematoma in the spleen. This case report merited detailed study because she gave details of unusual posture while falling down. Ordinarily such a fall would not have precipitated such findings as available in the ultra-sonogram; details of these are discussed in the paper.

**Key Words:** Splenic injury, Sub-capsular hematoma, Non-rupture spleen, Height of fall

#### Introduction:

Innumerable references have been cited about injury to spleen for diverse reasons, including blunt injury, stab injury, road traffic accidents, steering wheel injuries, and fall from height. [1-5] Generally the height of fall causing injury to spleen is not less than 10 feet. [5] This case study merits attention because the fall from height is merely 4 feet. However, bodily posture has contributed significantly in causing injury in this particular case.

#### Case History:

A female aged 22 years, unmarried, came to emergency section of JN Medical College, Aligarh, in the month of May 2013 with major complaint of severe pain in abdomen.

Additionally she felt difficulty in breathing accentuated by erect posture. She felt comfortable while pressing left flank of abdomen by her hand. No other significant symptom was present. She complained that she had fallen down from the lower 3 steps of the staircase. While falling down her left hand was folded at the elbow joint and was unusually abducted.

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She particularly noticed that after slipping from the stairs she fell down doubling-up and the elbow fiercely intruded the left side of abdomen. Momentarily she felt as if an electric current has passed over the left arm and radiated to the abdomen. She could not get up on her own and one of the family members assisted her in getting up. She could not maintain an erect posture. She was quickly brought to the casualty section. There is no history of chronic malaria and filariasis, vomiting, giddiness, vertigo, diplopia, loss of consciousness, or seizures.

#### Physical Examination:

She was afebrile with pulse was 86/minute, regular; BP 110/70 mm Hg; Respiration: 18/minute. On Systemic examination tenderness on left upper quadrant with a slight bluish discoloration 1.5x1.5 cm on left flank was seen. Abdomen is soft on palpation and bowel sound was absent. All other systemic examination is within normal limit.

USG of the patient shows minimal free fluid in the sub-capsular region of spleen (sub-capsular hematoma). However, parenchymal echo texture appears normal. (Fig. 1)

#### Discussion:

Normally the spleen is secured in the left side of abdomen. Its anatomical position shows that its lower border touches distal transverse colon and splenic flexure of colon. It is covered by peritoneum except at the hilum. Its posterior and lateral surface is related to left hemi diaphragm and postero-lateral lower ribs.

Posteriorly, it is related to left iliopsoas muscle and left adrenal glands. Postero-medial surface is related to body and tail of pancreas.

Antero-medially it is related to great curvature of stomach. (Fig. 2 & 3) The spleen is injured by a blunt pressure directed vertically/horizontally towards its body. It is firmly encapsulated; therefore any pressure not impinging directly would cast away its affect.

In this case the history elaborated the bent elbow joint firmly striking the left side of abdomen. Therefore the pressure transmitted due to fall coupled with partial folding of the body in the region of abdomen transmitted pressure in a constricted space and angularity.

Hence sub-capsular hemorrhage of spleen took place though the pressure was not high enough to cause rupture of the spleen. The surgeon examining the patient was at a loss to diagnose the disease on the basis of history alone. The real picture was apparent when the ultrasound was done.

**Conclusion:**

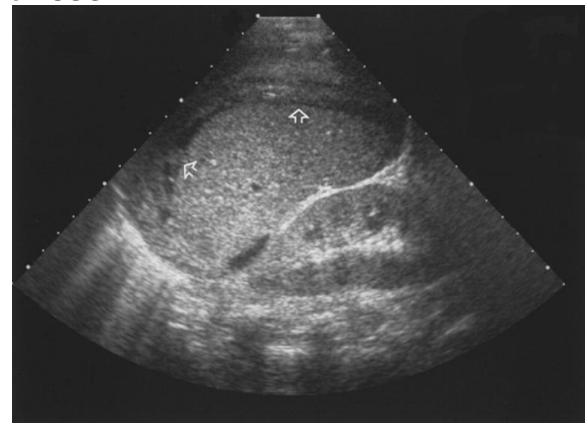
This case study brought into focus that trivial trauma can damage the spleen provided it is focused in a limited space. It is not necessary that spleen may only be damaged by a large blunt force. Therefore, it may be surmised that the ratio of trauma: damage to abdomen may not be on reciprocal basis analogous to head injury. Any history of trauma directed towards the abdomen must be viewed in the light of

signs, symptoms and collated with USG, CT scan or medical resonance imaging.

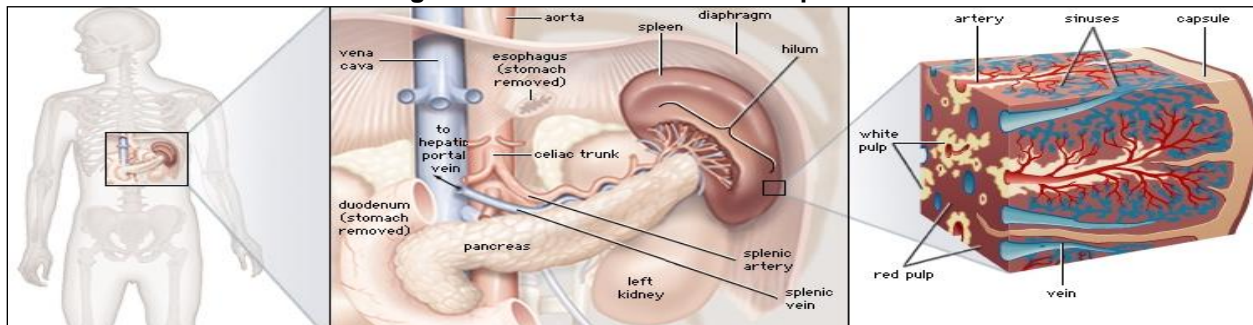
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**Fig. 1: Sub-capsular hematoma in the Spleen on USG**



**Fig. 2: Anatomical Relations of Spleen**



**Fig. 3: Anatomical Relations of Spleen with Surrounding Organs**

