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Splenic Injuries in Abdominal Trauma Modern Management Based on Anatomical Knowledge

Dr. Ashfaq ul Hassan[1]

[1] SKIMS

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Abstract

The spleen is one of the most commonly injured organs in the body to get traumatized.It can be associated with significant mortality. It is commonly injured following penetrating trauma and one of the most most commonly injured organ following blunt trauma to the left side if abdomen. Due to the soft consistency the injuries are often minor and can be easily managed. The article pinpoints the various anatomico surgical facts in relation to spleenic injuries. We report two cases of abdominal trauma where both the patients had spleenic injuries. Due to the immunological role of spleen and the recognition of the fact that spleenectomy renders patient suscept to life long risks of sepsis, the shift and focus has been towards spleenic conservation in most cases.

Index terms— trauma, gastrospleenic, spleenectomy, spleenorapgy, transplant, OPSI.

Introduction rauma to abdomen is common and spleen is commonly injured. The large size of organ, soft consistency , the location in upper left quadrant of abdomen and high vascularity makes it vulnerable and injuries of liver can well managed by having a good understanding of Anatomico surgical knowledge.

1 II.

2 Text

The spleen is an intra abdominal organ located in the left hypochondrium and the most commonly injured intra-abdominal organ. 1 Splenic injury must be suspected in any patient with blunt abdominal trauma, particularly if associated with left lower rib fractures. The shift in focus from to splenic repair or non operative management as viable options in selected patients is a recent trend.

The spleen lies obliquely along the long axis of 10 th rib. It lies mainly in left hypochondrium but the posterior end extends into epigastrium. It is directed downwards, forwards and laterally. Visceral surface is concave and has Gastric impression for fundus of stomach, Renal impression for left kidney, Colic impression for splenic flexure of colon, Pancreatic impression for tail of pancreas. In addition the hilum transmits splenic vessels and nerves. It provides attachment to gastrosplenic and lienorenal ligaments.

The knowledge of segmental anatomy and blood supply of the spleen make splenic salvage a possibility. 2 The main source of blood supply to the epleen is the splenic artery which is a branch from the celiac trunk and divides into several segmental branches in the hilum, entering the spleen surrounded by the white pulp where they are known as central arteries. Leaving the white pulp, the blood passes through an ill-defined vascular space called the marginal zone before entering the venous sinuses of the red pulp. Most spleen injuries result in various degrees of transverse rupture of the spleen following the trabeculae and segmental blood supply . 3,4 Spleenic injuries which are minor in the form of a simple rent in or around the the capsule may be treated by a mattress suture. The same can be applied to a minor degree of puncture or stab wound. In case of a laceration that does not involve the hilum of the spleen and that has adequate blood supply to all segments, a series of transverse mattress sutures over cut pledgets to reappose the cut surface of the spleen. In case of severe and significant

injuries may require partial resection or complete wrapping of the spleen. Successful splenorrhaphy is a safer alternative and should be preffered in comparison to speenectomy wherever a possibility of saving spleen arises. It requires complete mobilization of the spleen. The splenic pedicle is approached through the gastrosplenic ligament, and the vessels in the hilus of the spleen supplying the injured portion of the spleen are ligated. Demarcation of the devascularized segment then becomes apparent, allowing accurate segmental resection of the injured tissue. The technique of wrapping the spleen in an absorbable mesh compression envelope has value for extensive capsular avulsions. Other adjuncts useful in obtaining splenic hemostasis include microfibrillar collagen, thrombin, fibrin biologic glues, and the argon beam cauterycoagulator. The benefits of spleenic repair outweigh the risks of removing spleen. The risk of overwhelming post spleenectomy sepsis is reduced significantly . 5 Total Splenectomy: Despite the segmental arrangement of the splenic arterial supply, the friability of the spleen often renders repair or partial resection impossible. The primary indications for splenectomy following trauma are continued bleeding after attempted splenic repair, extensive fragmentation, hilar vascular injury, massive subcapsular hematoma, severe associated injuries requiring prompt attention and total avulsion of the spleen.

Most reserve splenic repair for patients in whom it is an isolated organ injury, who are normotensive, and do not have other bodily injuries of greater priority. In addition, splenic salvage is probably not warranted if only 50% or less of the splenic substance is to be preserved. The technique of implanting thin splenic fragments in an omental pouch (auto transplantation) is looked into and can provide significant long-term splenic function. The general conscience is that the safety and effectiveness of nonoperative management in isolated splenic injuries is confirmed **??** 6,7 The risk of delayed splenic rupture in these patients is small but must be considered, and the patient must be cautioned accordingly. Delayed rupture may be due to an enlarging subcapsular hematoma, rupture of a traumatic arterial pseudoaneurysm, or simply recurrent or ongoing hemorrhage that is finally clinically inescapable. The long-term risk of splenectomy for isolated spleen injury (including the operative mortality and the long-term risk of OPSI) is probably a maximum of 1.5%. It seems rational that any alternative to splenectomy for isolated splenic injury must not exceed this long-term risk.

3 III.

4 Conclusion

The Knowledge of anatomy of the spleen, its relations and the distribution of injuries permit separation of the role of each of these approaches. Splenic trauma management remains a significant challenge for emergency surgeons especially with the occurrence of Post spleenectomy injuries.

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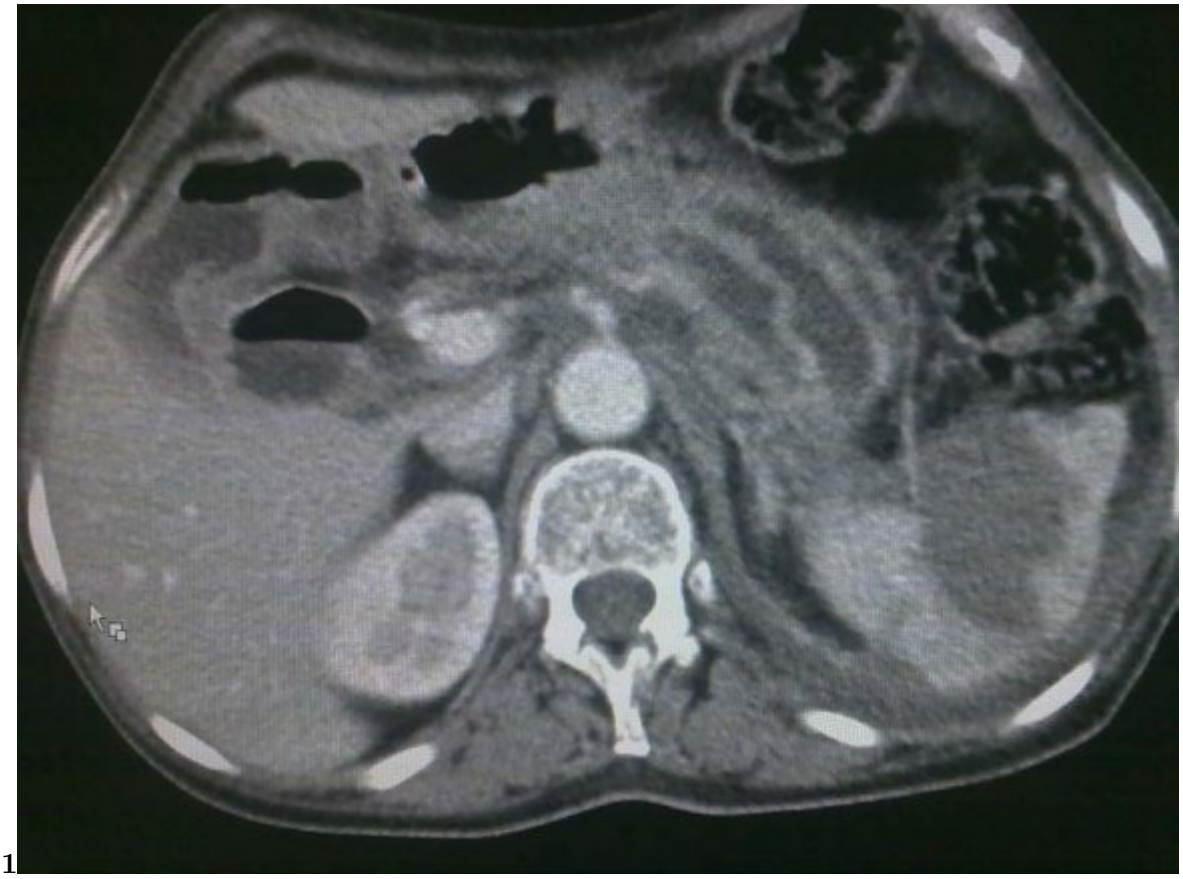
Figure 1: T



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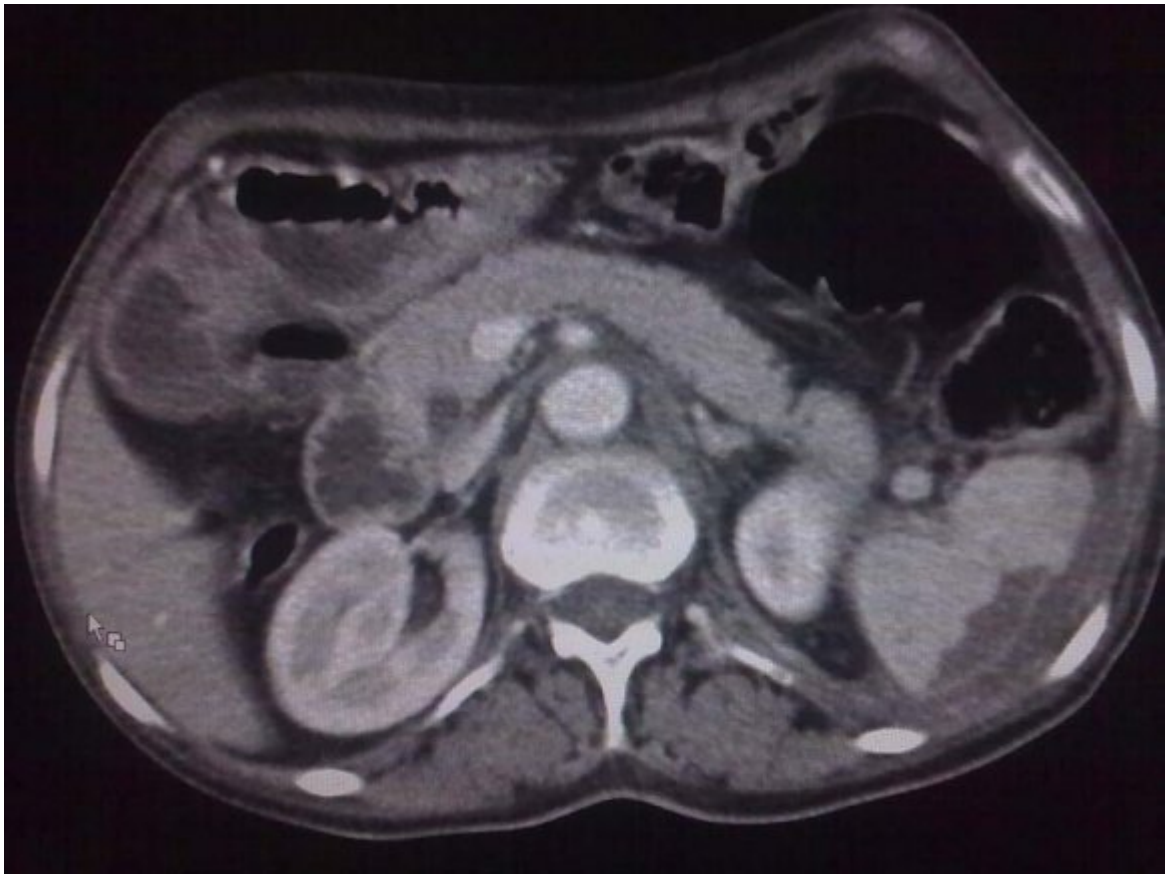

Figure 3:

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