



Non Operative Management of Splenic Trauma

Akhila NT*

Department of General Surgery, Bangalore Medical College and Research Institute, India

Background

Trauma is the leading cause of death in individuals between the ages of 1 and 44 years and is also the third most common cause of death in all age groups [1,2]. Blunt trauma abdomen is often a diagnostic challenge. Approximately 13% cases of abdominal trauma are diagnosed with abdominal organ injuries among which 60% of patients are diagnosed with splenic injuries [3]. Patients with splenic trauma has a wide spectrum of clinical presentation which varies from asymptomatic to hypovolemic shock leading to mortality. Undiagnosed splenic trauma is the most common cause of preventable death following trauma to abdomen [4].

Spleen is one of the vital intra abdominal organs with various immunological functions such as proliferation of T and B lymphocytes and macrophages [5] and major role in preventing infections from capsulated gram positive organisms such as *Streptococcus pneumoniae*, *Nisseria meningitides*, *Hemophilus influenza* and *Streptococcus pyogenes* [6]. Previously, splenic trauma was managed with splenectomy leading to OPSI (Overwhelming Post Splenectomy Infections) which is a fulminant disease with high rates of mortality [7].

In order to avoid this, Non-Operative Management (NOM) of splenic injury is now the standard treatment for minor splenic trauma [Grades I-II according to the American Association for the surgery of trauma–AAST] [8] and conservative approach for major splenic injuries [AAST grades III-V] are still under trail [9,10].

This study is designed to evaluate the safety and effectiveness of NOM in treating blunt splenic trauma by following standardized treatment protocol.

Materials and Methods

From September 2016 to March 2018, total of 53 patients were taken for NOM for blunt trauma abdomen with splenic injuries in hospitals attached to Bangalore Medical College and Research Institute. For each patient, basic detail such as name, age, gender, mechanism of injury, Revised Trauma Score (RTS), the Glasgow Coma Scale (GCS) and the Injury Severity Score (ISS) were recorded [11].

After initial clinical evaluation, all patients underwent FAST (focused Assessment with Sonography for Trauma) and chest and pelvic X-ray. Then, hemodynamically stable patients (systolic blood pressure >90 mmHg, heart rate <100 bpm) and hemodynamically stabilized patients underwent total body CT (Computer Tomography) scan examination.

Patients were classified according to AAST grades based on CECT findings.

Patients are classified into two groups such as

Group 1 - Isolated splenic injury

Group 2 - Polytrauma with splenic injury

Inclusion criteria

1. Age more than 18 years.
2. Blunt injury abdomen and polytrauma patients.
3. Hemodynamic stability after initial assessment (SBP>90 mmHg) and initial hemoglobin >8 mg/dl.

Exclusion criteria

1. Hemodynamically unstable.
2. Hollow viscus perforation.

OPEN ACCESS

*Correspondence:

Akhila NT, Department of General Surgery, Bangalore Medical College and Research Institute, Bangalore,

Karnataka, India,

E-mail: akhila.nt4@gmail.com

Received Date: 27 Jul 2021

Accepted Date: 20 Sep 2021

Published Date: 23 Sep 2021

Citation:

Akhila NT. Non Operative Management of Splenic Trauma. *Clin Surg.* 2021; 6: 3309.

Copyright © 2021 Akhila NT. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

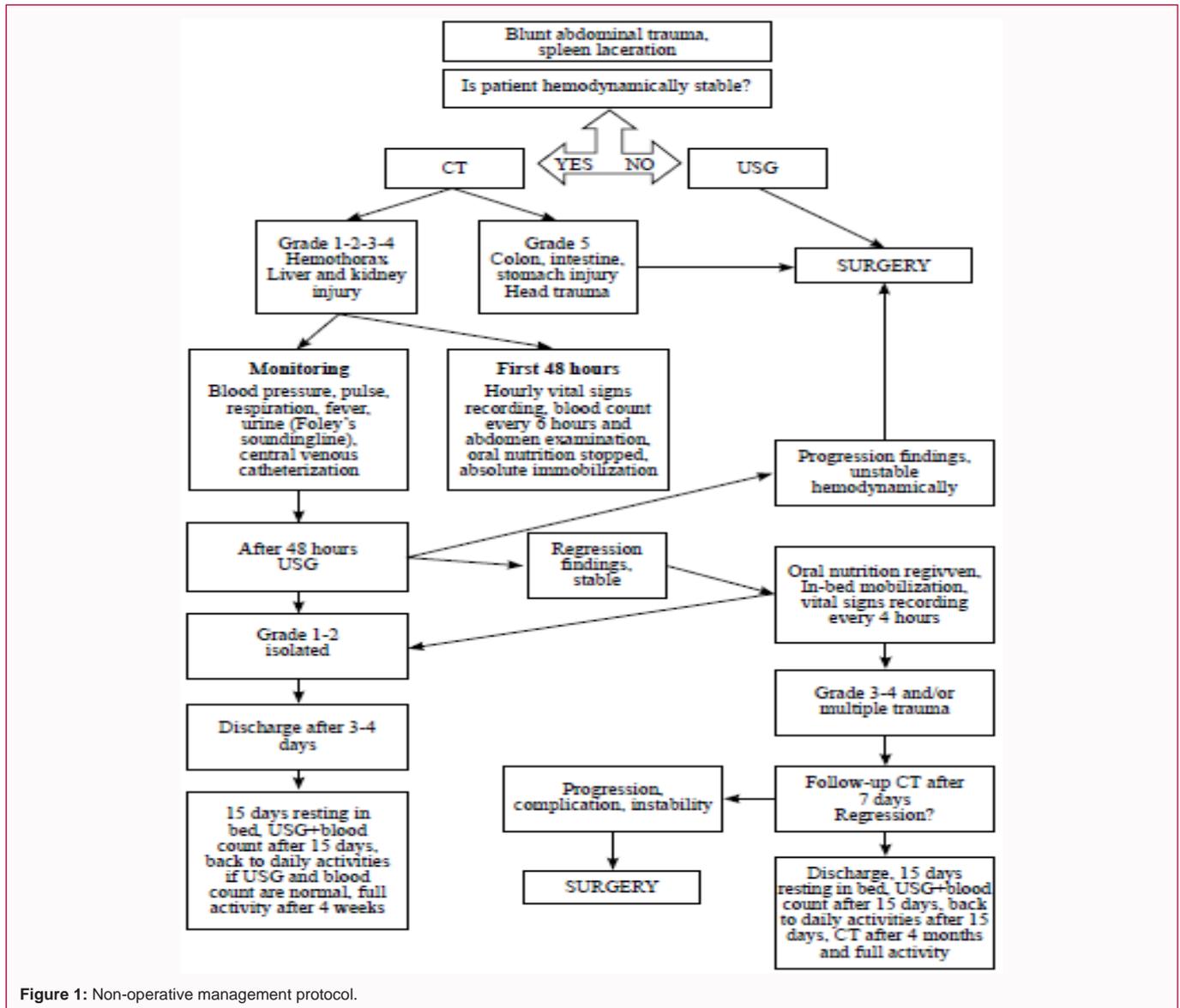


Figure 1: Non-operative management protocol.

3. Peritonitis.
4. Severe head injury patients requiring surgical intervention (Figure 1).

Results

Out of all patients presented to trauma centre during the study period, 53 patients were diagnosed with splenic injuries. 41 (77.35%) patients were males and 12 (22.64%) were female. Maximum number patients were in the age group of 20 to 30 i.e., 27 (50.94%) (Table 1, 2).

The common mode of injury in blunt trauma abdomen is RTA (75.47%) followed by fall from height (24.52%). Three patients were asymptomatic at presentation and diagnosed by FAST, abdominal tenderness, rigidity and distension were the commonest signs.

The commonest associated injury is rib fracture with hemothorax is seen in 10 (37.73%) patients followed by cervical fracture, hepatic injury and renal injury (Table 3).

The commonest grade is grade III injury in isolated injury around 29.62% and in case of polytrauma patients is around 38.46% (Table

Table 1: Isolated splenic injury.

Age	Number of Patients
20-30	12
30-40	10
40-50	3
50-60	2

Table 2: Polytrauma with splenic injury.

Age	Number of patients
20-30	15
30-40	9
40-50	1
50-60	1

4, 5).

All 53 patients managed with NOM, had no major complications and 6 patients had minimal pleural effusion and 2 patients developed splenic abscess after 2 weeks.

Table 3: Associated injuries.

Injuries	Number of patients
Rib fracture with hemothorax	10
Cervical fracture	8
Hepatic injury	6
Renal injury	1
Pancreatic tail injury	1

Table 4: Isolated splenic injury.

Grade of splenic injury	Number of patients
GRADE I	6
GRADE II	8
GRADE III	8
GRADE IV	5

Table 5: Polytrauma with splenic injury.

Grade of splenic injury	Number of patients
GRADE I	6
GRADE II	10
GRADE III	6
GRADE IV	4

Patients with isolated splenic injury of AAST grades I-II were discharged by 5 days and grades III-IV were discharged by 10 days. Patients with polytrauma with AAST grades I-II were discharged by 5 days and grades III-IV were discharged by 14 days.

In isolated splenic trauma, all 27 patients were managed conservatively with 100% success. In polytrauma with splenic injury out of 26 patients, 24 were treated successfully and 2 patients were taken up for surgery.

Conclusion

Blunt trauma abdomen is mainly due to road traffic accidents and most common age group is 20 to 30 years. AAST grades I and II can be effectively managed without any surgical intervention and higher grades can also be managed non-operatively without any major complications. NOM can be considered as a standardized protocol for management for blunt splenic trauma.

Recommendations

1. Close monitoring by trained staff is required for taking up patients for emergency surgery.
2. Establishment for more trauma care centers is required.
3. Facility for splenic artery embolization should be considered.

References

1. Schwartz's principles of surgery, 9th Ed, chapter 9th, Schwartz, Seymour I, Brunnicardi, F Charles. New York: McGraw-Hill Medical Pub. Division, 2010;1928:135-96.
2. Sabiston's textbook of surgery, 18th Ed, section II, chapter 20. 2007;477-520
3. Nishijima DK, Simel DL, Wisner DH, Holmes JF. Does this adult patient have a blunt intra-abdominal injury? JAMA. 2012;307(14):1517-27.
4. Berlatzky Y, Shiloni E, Anner H, Weiss Y. "Delayed rupture of the spleen" or delayed diagnosis of the splenic injury? Isr J Med Sci. 1980;16(9-10):659-64.
5. Garden OJ. The spleen. In: Williams NS, O'Connell PR, McCaskie AW, editors. Bailey and Love's short practice of surgery. 27th Ed. NorthWest: CRC Press; 2017. p. 1176-87.
6. Okabayashi T, Hanazaki K. Overwhelming postsplenectomy infection syndrome in adults-a clinically preventable disease. World J Gastroenterol: WJG. 2008;14(2):176.
7. Hansen K, Singer DB. Asplenic-hyposplenic overwhelming sepsis: Postsplenectomy sepsis revisited. Pediatr Dev Pathol. 2001;4(2):105-21.
8. Moore EE, Cogbill TH, Jurkovich GJ, Shackford SR, Malangoni MA, Champion HR. Organ injury scaling: Spleen and liver (1994 revision). J Trauma. 1995;38(3):323-4.
9. Hancock GE, Farquharson AL. Management of splenic injury. J R Army Med Corps. 2012;158(4):288-98.
10. Cirocchi R, Boselli C, Corsi A, Farinella E, Listorti C, Trastulli S, et al. Is non-operative management safe and effective for all splenic blunt trauma? A systematic review. Critical Care. 2013;17(5):R185.
11. Greenspan L, McLELLAN BA, Greig H. Abbreviated injury scale and injury severity score: A scoring chart. J Trauma. 1985;25(1):60-4.