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Non Operative Management of Splenic Trauma

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Abstract

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 organ with various immunological functions such as proliferation of T and B lymphocytes and macrophages5 and major role in preventing infections from capsulated gram positive organisms such as Streptococcus pneumoniae, Nisseria meningitides, Hemophilus influenza and Streptococcus pyogenes6. Previously, splenic trauma was managed with splenectomy leading to OPSI(Overwhelming Post Splenectomy Infections) which is a fulminanat 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 details 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 [1-3].

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 [4-6].

Patients are classified into two groups such as:

- Group 1 - Isolated splenic injury
- Group 2 - Polytrauma with splenic injury

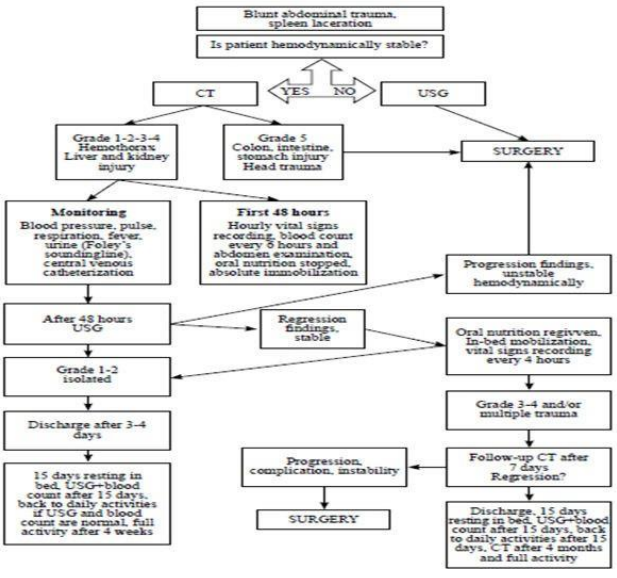
Inclusion Criteria

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

Exclusion Criteria

- Hemodynamically unstable.
- Hollow viscus perforation.
- Peritonitis.
- Severe head injury patients requiring surgical intervention

Non operative management protocol



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 20-30 i.e., 27 (50.94%) [7,8].

Isolated splenic injury

AGE	NUMBER OF PATIENTS
20-30	12
30-40	10
40-50	3
50-60	2

Polytrauma with splenic injury

AGE	NUMBER OF PATIENTS
20-30	15
30-40	9
40-50	1
50-60	1

The common mode of injury in blunt trauma abdomen is RTA (75.47%) followed by fall from height (24.52%). 3 patients were asymptomatic at presentation and diagnosed by FAST, abdominal tenderness, rigidty 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, heptic injury and renal injury.

Associated injuries

INJURIES	NUMBER OF PATIENTS
RIB FRACTURE WITH HEMOTHORAX	10
CERVICAL FRACTURE	8
HEPATIC INJURY	6
RENAL INJURY	1
PANCREATIC TAIL INJURY	1

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

Isolated splenic injury

GRADE OF SPLENIC INJURY	NUMBER OF PATIENTS
GRADE I	6
GRADE II	8
GRADE III	8
GRADE IV	5

Polytrauma with splenic injury

GRADE OF SPLENIC INJURY	NUMBER OF PATIENTS
GRADE I	6
GRADE II	10
GRADE III	6
GRADE IV	4

All 53 patients managed with NOM, had no major compications and 6 patients had minimal pleural effusion and 2 patients developed splenic abscess after 2 weeks [9,10].

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 [11].

Conclusion

Blunt trauma abdomen is mainly due to Road Traffic Accidents and most common age group is 20-30 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.

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