

To Operate or not to Operate, That is the Question! Review of Management of Splenic Trauma in our Institution over the Past 15 Years

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Abstract

Objectives: To review the management of Splenic trauma (operative vs conservative management) and our outcomes. *Type of Study:* Retrospective observational study. *Period of Study:* 2000-2015. *Methodology:* There have been 36 cases who were admitted with splenic trauma in our institution over the last 15 yrs. ICD-10 Code S36.0 was used to identify these patients. A thorough review of their files was undertaken. *Results:* AAST Grading for splenic injury was done for these cases and there were 3 cases of grade 1, 6 cases of grade 2, 13 cases of grade 3, 12 cases of grade 4 and 2 cases of grade 5.

Of these, both cases of Grade 5 injury were operated immediately, while 4 out of 12 cases of grade 4 injury were operated immediately. Of the 8 cases of grade 4 injury which were managed conservatively, One case needed to be operated at a later date, which is our only case of failure of conservative management.

Usion criteria. One case of grade 3 injury was operated, while all cases of grade 1 and 2 were managed conservatively.

We had 7 cases of Operative management (OM), 28 cases of Successful conservative management (CM) and 1 case of Failure of conservative management (FOC). *Conclusion:* The goal of this study was to evaluate the success of the various strategies (conservative vs surgical) and their outcome. Our study shows that conservative management has a major role to play in hemodynamically stable patients even if their AAST grading of Splenic injury was 4.

But these patients who are managed conservatively, need to be monitored closely and the surgeon should be ready to take the patient up for emergency surgery if any signs of worsening are evident.

The failure of non-operative management can be life-threatening and even fatal if the deterioration is not picked up immediately.

Keywords: Splenic Trauma; Splenic Injury; Conservative Management; Non-Operative Management; Splenectomy; AAST Grading.

Introduction

Historically, patients presenting with splenic trauma were taken up for emergency splenectomy. But due to advances in Imaging and ICU care, a conservative approach is presently in vogue. Patients who are managed conservatively tend to have shorter hospital stay, have lesser blood transfusions and avoid risk of long term infectious complications.

But patients who are managed conservatively require very close monitoring as failure of conservative management can be a life threatening event if the deterioration is not picked up early and the patient is not operated immediately.

Failure of conservative management can be due to missed injury, delayed splenic rupture, splenic artery pseudoaneurysm or spontaneous haemorrhage.

AAST Grading for splenic injury is a useful tool to assess necessity for surgery in these cases. Historically, Grade 4 and Grade 5 were taken up for immediate surgery. However, we are now attempting to manage Grade 4 splenic injury patients, who are hemodynamically stable, with conservative management.

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Aast Grading for Splenic Injury

Grade*	Injury type	Description of injury
I	Hematoma	Subcapsular, <10% surface area
	Laceration	Capsular tear, <1cm parenchymal depth
II	Hematoma	Subcapsular, 10%-50% surface area intraparenchymal, <5 cm in diameter
	Laceration	Capsular tear, 1-3cm parenchymal depth that does not involve a trabecular vessel
III	Hematoma	Subcapsular, >50% surface area or expanding; ruptured subcapsular or parenchymal hematoma; intraparenchymal hematoma \geq 5 cm or expanding
	Laceration	>3 cm parenchymal depth or involving trabecular vessels
IV	Laceration	Laceration involving segmental or hilar vessels producing major devascularization (>25% of spleen)
V	Laceration	Completely shattered spleen
	Vascular	Hilar vascular injury with devascularizes spleen

*Advance one grade for multiple injuries up to grade III

Our institution, PSGIMSR, Coimbatore, is a multi-speciality tertiary care centre with advanced trauma care facilities.

We look at the incidence of Splenic trauma cases that were admitted and managed in our institution over the past 15 yrs.

Objectives

To review the management of Splenic trauma (operative vs conservative management) and our outcomes

Type of Study

Retrospective observational study

Period of Study

2000-2015

Inclusion Criteria

1. Patients who were admitted in PSG Hospital with Splenic trauma
2. They should have a CECT Abdomen done here.
3. They could have been treated elsewhere initially but definitive treatment should have been in PSG Hospital.

Exclusion Criteria

1. If the patient was operated elsewhere.
2. If the patient has undergone a laparotomy primarily for other abdominal injuries and not for splenic injury.

Methodology

There have been 36 cases who were admitted with splenic trauma in our institution over the last 15yrs who fit into our inclusion and exclusion criteria.

ICD-10 Code S36.0 was used to identify these patients

A thorough review of their files was undertaken.

Definitions

1. Operative Management (OM): Patient taken up for emergency surgery within 24 hrs of admission.
2. Conservative Management (CM): non operative management till discharge.
3. Failure of Conservative Management (FOC): initial Conservative Management but eventually required Surgery after 24hrs

Results

- We collected 36 cases over the last 15 years (2000 -2015) which met our inclusion criteria.
- Patients ranged in age from 12 to 70 years with an average of 34.5 (median -35).
- A male preponderance was noted with 31 of the 36 patients falling in this category.
- Of the 36 cases, 26 were road traffic accidents.
- As expected in RTA's, the majority of patients were male (22 patients out of 26).
- Time taken for the patient to reach the emergency department, PSG Hospital after the RTA ranged

from 1hr 15 mins to 8 days. Some cases were initially evaluated and investigated elsewhere and then referred here to a tertiary trauma care centre for further management.

- Average length of stay was 8.7 days ranging from 1 to 21 days with a median of 8 days. The patient who was our failure of conservative management was the one who was admitted for 21 days.
- Type of injury was blunt injury in 34 cases while it was penetrating injury in 2 cases.

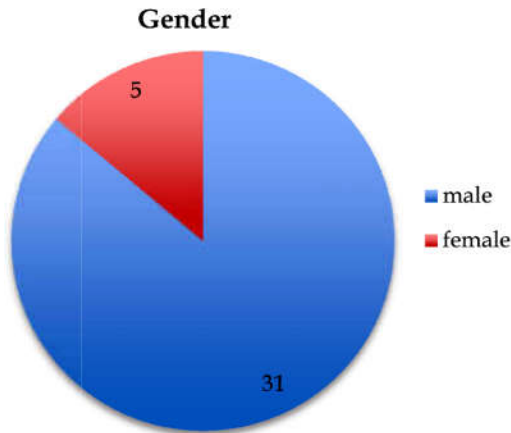


Fig. 1:

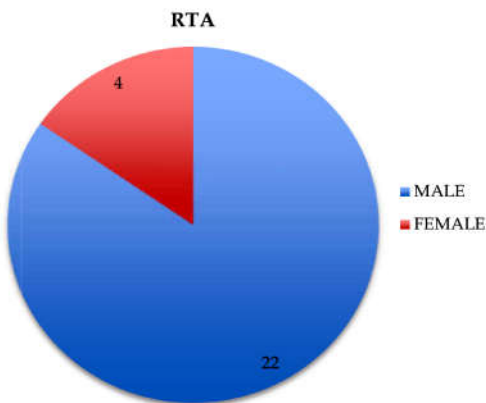


Fig. 2:

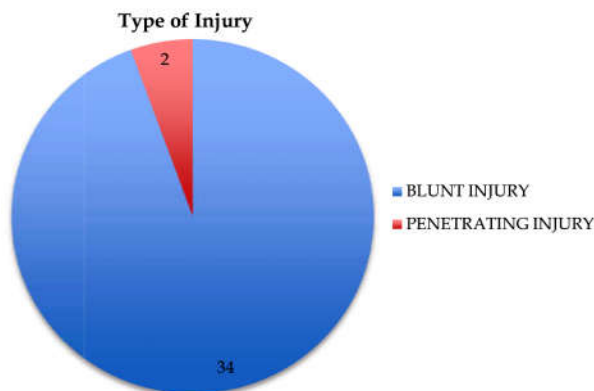
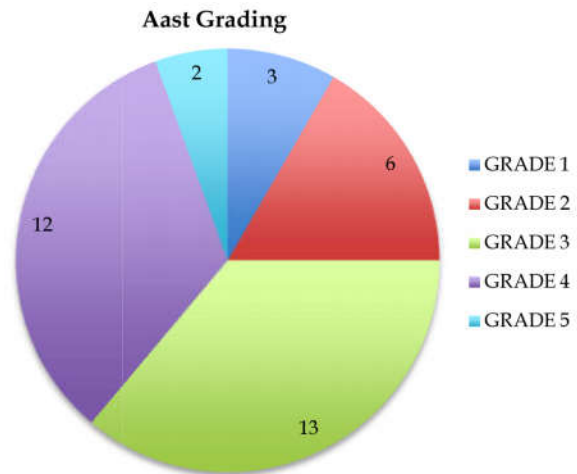


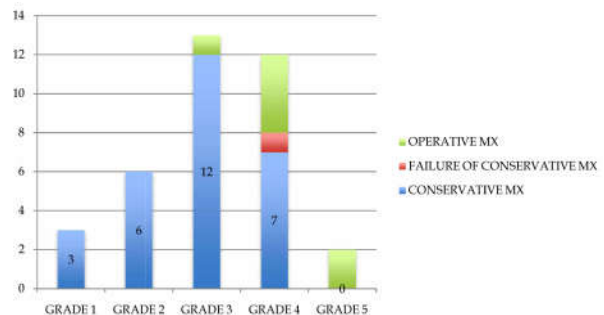
Fig. 3:

- AAST Grading for splenic injury was done for these cases and the results are as follows:

- Gr 1 – 3 cases
- Gr 2 – 6 cases
- Gr 3 – 13 cases
- Gr 4 – 12 cases
- Gr 5 – 2 cases



Of these, both cases of Grade 5 injury were operated immediately, while 4 out of 12 cases of grade 4 injury were operated immediately. Of the 8 cases of grade 4 injury which were managed conservatively, One case needed to be operated at a later date, which is our only case of failure of conservative management.



- usion criteria. One case of grade 3 injury was operated, while all cases of grade 1 and 2 were managed conservatively.
- Haemoglobin at admission, which is a criteria to asses the necessity for emergency surgery, ranged from 15.2 g/dl to 3.2 g/dl with the average being 10.4g/dl.
- Maximum drop in Haemoglobin was noted to be 4.9 g/dl.
- Maximum units of blood transfusion required preoperatively to stabilize the patient were 5

packed RBCs.

- The cases with low haemoglobin at admission and with significant or persistent drop in haemoglobin and the one requiring large volume blood transfusion were all taken up for emergency surgery.

We had 7 cases of Operative management (OM), 28 cases of Successful conservative management (CM) and 1 case of failure of conservative management (FOC).

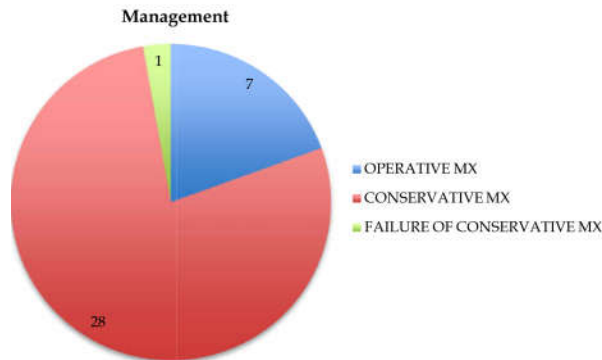
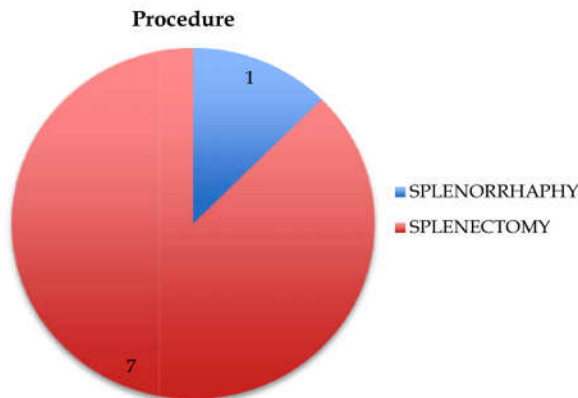


Fig. 6:

Splenorrhaphy was the procedure of choice for one patient, a 13 yr old girl, while the rest of the cases underwent splenectomy.



- As expected, those who were selected for emergency operative management were more severely injured and hence were more likely to have lower Blood pressure on admission, be hemodynamically unstable, have lower haemoglobin on admission and thus require more blood transfusions.

The only case of Failure of conservative management was a middle aged gentleman, who presented with H/O RTA. He was found to have a Grade 4 splenic laceration, but as he was hemodynamically stable and his baseline haemoglobin was within normal limits, the decision was made to manage him conservatively. His

haemoglobin was checked twice daily and he was kept on strict bed rest and intensively monitored in Surgical ICU. On the seventh day post trauma, as he was showing some signs of deterioration, an urgent CECT abdomen was done which showed perisplenic contrast leak. His blood pressure dropped immediately after the CECT scan was done and the decision was taken to Operate immediately. Intra-operatively, he was found to have active oozing from the spleen and he underwent a splenectomy. He recovered well post operatively and was stable on discharge.

Conclusion

The goal of this study was to evaluate the success of the various strategies (conservative vs surgical) and their outcome. Our study shows that conservative management has a major role to play in hemodynamically stable patients even if their AAST grading of Splenic injury was 4. But these patients who are managed conservatively, need to be monitored closely and the surgeon should be ready to take the patient up for emergency surgery if any signs of worsening are evident.

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