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A Clinical Review of Splenic Trauma

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Abstract
Objectives
- *To study the various causes of splenic trauma*
- *To study the various clinical features of splenic trauma*
- *To study the methods of management of splenic trauma*

Methods: *A total of 52 cases admitted to various surgical wards in a tertiary care centre were studied from July 2015 to October 2017. Patients, both male and female, between the ages of 12-70 years with abdominal trauma were included in the study. These patients were analysed based on clinical history, signs and symptoms and treatment given in the way of a prospective observational study.*

Results: *Out of the 52 cases studied, the most common cause of splenic injury was road traffic accident (34%) followed by fall from height (25%). Out of 52 patients studied, 7 died and 45 recovered. The majority of patient who recovered were stable at presentation (64%) while in the subset who died majority were unstable (85%). On examination, 84% of the patients who recovered had abdominal signs on presentation with 16% having non abdominal signs. Out of those who died, 42.9% had non abdominal signs at presentation on examination. The most common grade of injury was grade 3 (44%) followed by grade 2 (24%) and grade 4 (22%). 25 of these patients had no co-existing injury. In those with other injuries, the most common was fractured ribs (11.5%). The most common mode of management was splenectomy (69%).*

Conclusion: *Our case series shows that the most common cause of splenic injury is road traffic accident followed by fall from height. Most cases are clinically stable at presentation and complain of pain in abdomen and vomiting. The most common associated injury is fractured ribs. On examination, most patients present with guarding and rigidity, with more severe cases also having signs of shock. Grade III was the most common grade of injury. The most common modality of treatment was splenectomy.*

Keywords: *Splenic trauma, causes, clinical features, management.*

Introduction

Trauma is the most common surgical condition and most polytrauma cases are associated with abdominal trauma. Trauma may be blunt or penetrating. Spleen is one of the most commonly injured intra-abdominal organ.

Splenic trauma presents with abdominal pain, abdominal distension or guarding over abdomen, and if undiagnosed in earlier stages, the patient may even present with shock.

Management depends upon the grade of injury.

Grades 1 and 2 are generally managed conservatively. Grades 3,4 and 5 are managed operatively- laparoscopically or by open technique

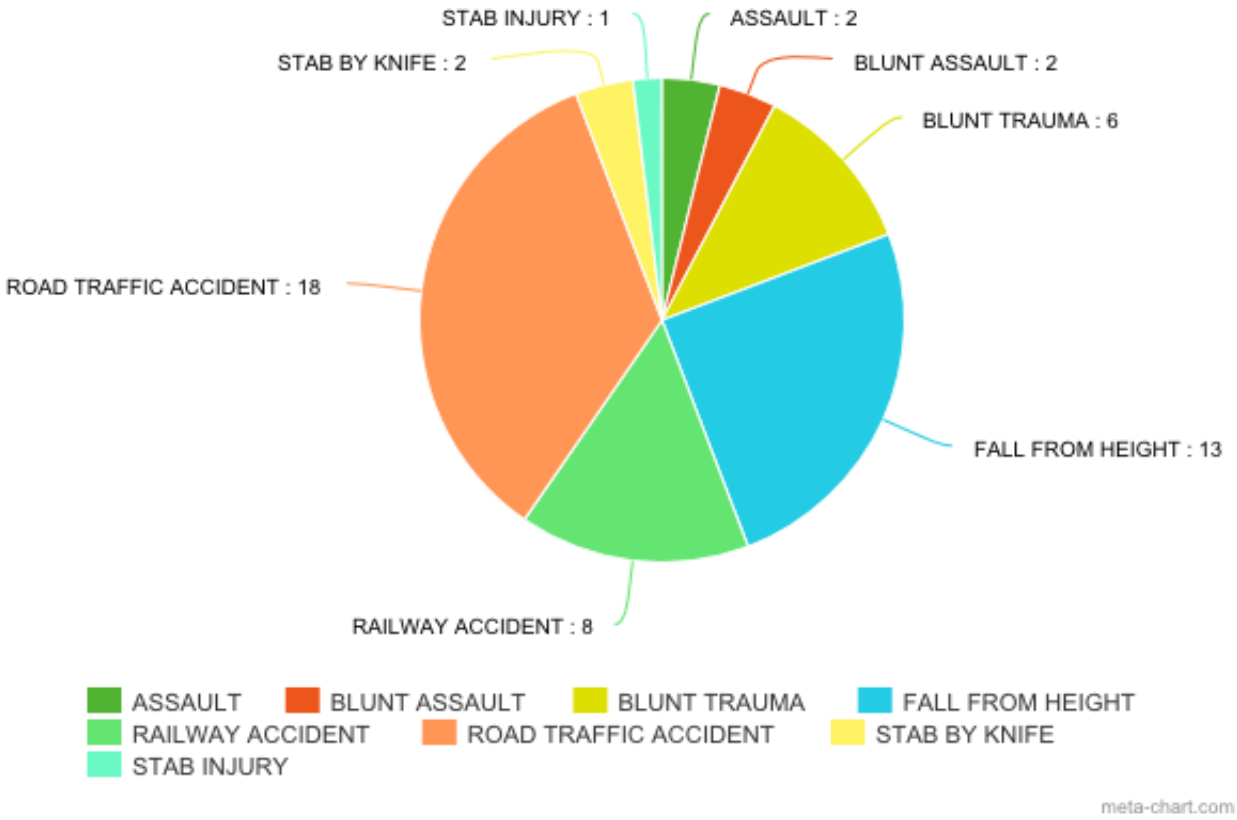
(splenorraphy/ splenectomy).
Newer management also includes angioembolisation.

Methods

In this study, 52 cases of splenic trauma admitted in various surgical wards were included in a prospective observational study. Patients between 12-70 years were included in the study irrespective of gender. Patients presenting with polytrauma were excluded from the study. Patients were assessed based on history given by the patient and relatives, the signs on examination and the management decided based on all the findings.

Results

Among the 52 patients studied, the most common mode of injury was road traffic accident (34%) followed by fall from height (25%).

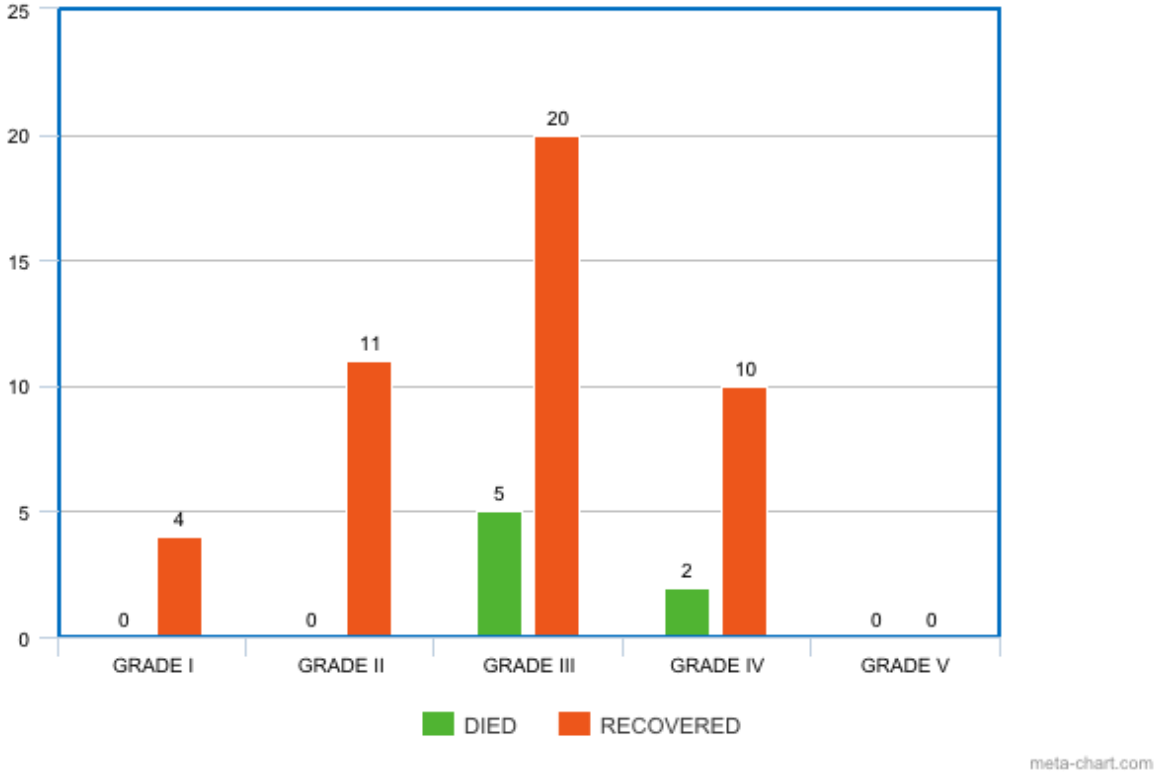


Put of 52 patients, 7 died and 45 recovered. Majority of those who recovered were clinically stable at presentation (65%) while 85% of patients who died were unstable at presentation.

On examination, 16% of patients who survived had non abdominal signs while 43% of those who died had non abdominal signs.

	Died	Recovered
Abdominal	57.10%	84.40%
Non-Abdominal	42.90%	15.60%

The most common grade of injury was grade III, followed by grade II and grade IV. Deaths were seen in higher grades of splenic injury- Grades III and IV.



Most patients (48%) did not have a co-existing injury. In those presenting with a co-existing injury, the most common was fracture of ribs (11.5%) followed by head injury and ileal perforation (9.6%).

The most common modality of treatment was splenectomy (69.2%).

Discussion

This study included the identification of the cause of the trauma and the grade of splenic injury along with clinical presentation and hence further management which was conservative or operative depending upon the type of injury.

Keeping in view the above factors this study, "A clinical review of splenic trauma", was made in a tertiary care hospital in Mumbai from July 2015 to November 2017. The present study was done in a group of patients who were brought with a history of abdominal trauma by various modes like road traffic accidents, fall from train, fall from height. We have assessed the history based on the criteria comprising the history given by patients or relatives, presentation of signs and findings during the operative procedures. All the findings of this study are critically checked and discussed here.

Researchers noted that the most common cause of splenic injury was blunt abdominal trauma. Trauma is a common surgical condition and spleen is one of the most common organs to be injured during abdominal trauma because of its precarious location and unsupported splenic pedicle.

We observed 52 cases of splenic injury. The most common cause of splenic trauma was found out to be road traffic accidents (34%), followed by fall from height (27%), and railway accidents (14%). These results are similar with world literature.[1-3]

For example, in a Nigerian study[4], 23 cases were managed for splenic injuries. The risk factors were blunt injury in 21 cases and penetrating in two cases with motor vehicle accident being the most commonest which was corroborated by our study.

Studies have reported that Grade III splenic injury was the most frequent.[5-6]

In our series, the maximum number of patients were found to be of grade III (44%) injury followed by grade IV (24%) injury and grade II (22%) injury, corroborating the above findings.

Intravenous contrast-enhanced CT has been shown to be accurate in the evaluation of splenic injuries resulting from blunt trauma.[7-9]

In most of the cases splenectomy was done as an

operative procedure (71%) and splenorraphy was done in (7%), while around 11% patients were managed using conservative measures. Other similar studies also concluded that the need for splenectomy was most significantly correlated with higher grades of splenic injury.[10-11]

In a Nigerian study, fifteen patients had undergone surgical intervention while eight cases were managed conservatively. Splenectomy was the most frequently performed procedure as seen in our study.[4]

Patients with active splenic haemorrhage were more likely than patients with contained injuries to undergo splenectomy.[12]

There is now a general trend toward non surgical management of traumatic abdominal injuries due to the confidence surgeons have in our ability to accurately stage splenic injuries, including evidence of active bleeding, and to exclude with confidence other visceral injuries that would necessitate surgery.[13-14]

In a recent extensive review for the Ptolemy monthly reviews in Canada, Iribhogbe summarised that NOM (non operative management) of blunt splenic injuries has become the norm in the developed countries. In the absence of RCTs, NOM has shown itself superior to laparotomy, through practice, in terms of mortality rates, blood transfused and splenic preservation. The management protocols used abdominal CT scanning to diagnose the degree of splenic injury and to rule out associated abdominal injuries requiring surgery. However, the sole indication of need for surgery was clinical, that is, hemodynamic instability.[15]

Further, the reasons for surgical intervention in the non operative group varied based on both clinical and CT criteria.

In this given study the patients who survived were stable in the majority of cases (64%) and in the subset in which patients died the majority were unstable (85%).

The most common coexisting injury was found to be fracture of ribs (13%), followed by head injury (8.5%) and ileal perforation (8.5%) but in almost half of the cases no coexisting injury was found (53%).

In the given study 7 patients died amounting to 9.6 % of total sample size and among them majority had grade III or higher injury with coexisting injuries and were highly unstable on clinical presentation, which was similar to Mario[4]et al study. The overall mortality rate from splenic injury was reported as 13% or higher in many other series and this mortality rate is secondary to associated injuries.[16-19]

The exploratory laparotomy was done and was found to be the best investigation as well as treatment modality for the patients with splenic trauma.

Conclusion

Immediate investigation and operative intervention saves the patient's life, however death may occur in higher grade injury, probably due to unstable condition on presentation.

Hence, splenic trauma diagnosed early and treated immediately is crucial to save the patient's life.

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