

## An Observational Study of Grade 3 Splenic Injury

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### Abstract:

**Background:** Significant abdominal solid organ injuries are present in most of blunt injury abdomen, of which 80-90% injuries are due to Road Traffic Accidents, fall from height, assaults which leads to mortality and morbidity Solid abdominal organs like liver, spleen, kidney are most commonly injured in blunt injury abdomen and its management will be challenging in deciding operative and non operative or conservative management. In that operative management is required only in 30 to 35% of blunt injuries abdomen. Recently there has been major shift to non operative management of solid organ injuries from operative management in hemodynamically stable and selected patients by continuous monitoring the vitals and by highly accurate imaging modalities This study is mainly to evaluate the effectiveness of non operative management in grade 3 splenic injury in blunt injury abdomen and factors influencing the non operative management and aetiologies for failed non-operative management.

**Materials and Methods:** An observational study of 20 patients with grade 3 splenic injury in Coimbatore medical college hospital observed for a period of 3months.

**Result:** Grade 3 splenic injury with hemodynamically stable patient mostly treated with conservative management, few needs surgery. Grade 3 splenic injury with hemodynamically unstable patient definitively need surgical management.

**Conclusion :** Most of the younger people with grade 3 splenic injury managed conservatively.

**Key Word:** Grade 3 splenic injury, conservative management, operative management.

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### I. Introduction:

An injured spleen is a well-known entity to those involved in trauma care<sup>1</sup>. The majority of individual with a splenic injury now receive non operative intervention and therapy<sup>2</sup>. This shift from operative to non operative treatment over the past several decades is a tremendous success story in which clinical judgment and reason triumphed over standard surgical dogma<sup>3</sup>. Furthermore, this success has prompted surgeons to adopt similar management strategies for other solid organ injuries<sup>4</sup>. Recent work with clinical outcomes data in splenic trauma has given rise to model clinical practice guidelines<sup>5</sup>. These guidelines serve to standardize and justify management decisions based on the best possible data and accepted clinical parameters<sup>6</sup>. If operative management (either splenectomy or splenorrhaphy) has been deemed appropriate, certain standard principles of trauma care are followed<sup>7</sup>. These include the establishment of reliable large-bore intravenous access, aggressive volume resuscitation, preparation of type and cross-matched packed red blood cells for anticipated intraoperative transfusion, nasogastric decompression, and preoperative intravenous antibiotic administration<sup>8</sup>.

### II. Materials And Methods:

This prospective observational study was carried out on patients of Department of general Surgery at Coimbatore medical college Hospital, Coimbatore, Tamilnadu, India, from May 2021 to July 2021. A total 20 adult subjects (both male and females) of aged  $\geq 18$ , years were for in this study.

**Study Design:** Prospective observational study.

**Study Location:** Department of General Surgery at Coimbatore medical college Hospital, Coimbatore, Tamilnadu, India,

**Study Duration:** May 2021 to July 2021.

**Sample size:** 20 patients.

**Inclusion criteria:**

All patients more than 18 years admitted with grade 3 splenic injury in Coimbatore medical college hospital were included

**Exclusion criteria:**

- Patients with hollow viscus perforation
- Age less than 18 years
- Patients with major head injury and major polytrauma
- Associated other solid organ injury (liver, kidney)

**Procedure methodology**

Once the patient is admitted the name, age, sex and mode of injury are noted. The time interval between splenic injury and admission and time interval between admission to hospital and surgery are recorded. After resuscitating the patient, all patients were subjected to careful clinical examination. Depending on the clinical findings, decision was taken for further investigations such as four-quadrant aspiration, X-ray abdomen, ultrasound and CT abdomen. The decision for operative & non-operative management depended upon the outcome of clinical examination & diagnostic tests. Patients selected for conservative management were placed on strict bed rest, serial clinical examination which included hourly pulse rate, blood pressure, respiratory rate and repeated abdominal examination. In those who are operated, the operative findings and methods of management are recorded. Cases are followed up till their discharge from the hospital.

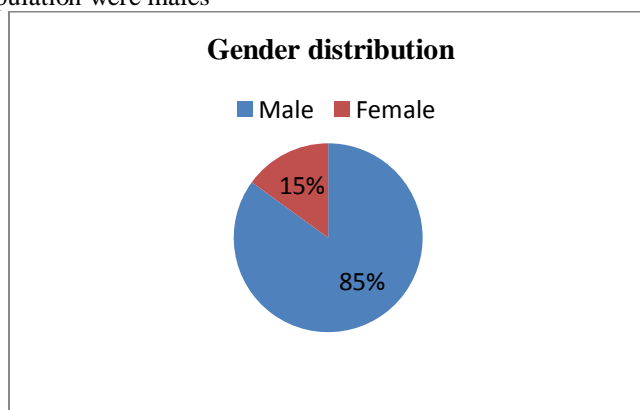
**III. Result:**

- Road traffic accident is the commonest cause for splenic injury abdomen
- Predominance of male over female in splenic injury abdomen with the ratio of 5:1.
- People in the age group of 2nd & 3rd decade were commonly involved with splenic injury constituting about 75%
- 17 patients were managed conservatively, 3 underwent splenectomy.
- There is no mortality in grade 3 splenic injury with appropriate management.

**Table No. 1:** Distribution of study population according to gender group:

Gender	Frequency	Percentage
Male	17	85%
Female	3	15%
Total	20	100%

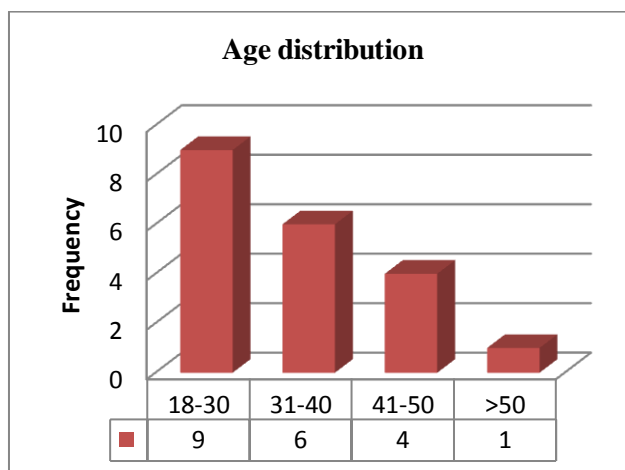
Around 85% of study population were males



**Table No. 2:** Distribution of study population according to age group:

Age	Frequency	Percentage
18-30 years	9	45%
31-40 years	6	30%
41-50 years	4	20%
>50 years	1	5%
Total	20	100%

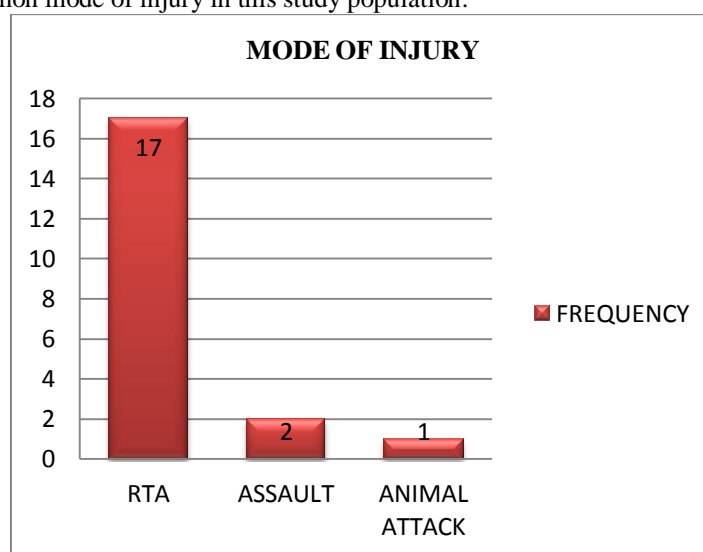
Around 75% of study population were between 18-40years



**Table No.3:** Distribution of study population according to mode of injury:

Mode of injury	Frequency	Percentage
RTA(Road traffic accident)	17	85%
Assault	2	10%
Animal attack	1	5%
Total	20	100%

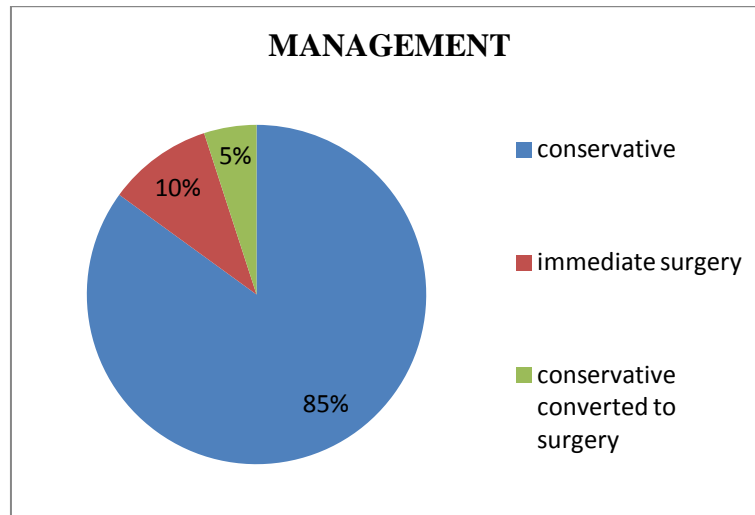
RTA is the most common mode of injury in this study population.



**Table No. 4:** Distribution of study population according to management:

Management	Frequency	Percentage
Conservative	17	85%
Immediate surgery	2	10%
Conservative converted to surgery	1	5%
Total	20	100%

85% of the study population recovered with conservative management



#### IV. Discussion:

This is a prospective observational study which includes 20 patients who presented with blunt injury abdomen admitted in Coimbatore medical college hospital on evaluation diagnosed as grade 3 splenic injury. Most of the patients presented with history of Road traffic accident. 85% of the study population present with history of RTA. Most common age group affected between 18-40 years. Predominantly males are affected more than females. Study revealed grade 3 splenic injury mostly treated with conservative management. Study revealed 85% of grade 3 splenic injury managed conservatively. Only 15% of patient underwent emergency splenectomy. Study revealed grade 3 splenic injury has no mortality with prompt management.

#### V. Conclusion:

The present study is the prospective observational study of 20 cases of grade 3 splenic injury admitted in Coimbatore medical college. Though a large number of patients are required to come to better conclusion based on the data and results obtained in the present study the following conclusion can be drawn.

- Road traffic accident is the commonest cause for splenic injury abdomen
- Males are more commonly affected than females.
- People in the age group of 2nd & 3rd decade were commonly involved with splenic injury.
- 85% patients were managed conservatively.
- There is no mortality in grade 3 splenic injury with appropriate management .

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