



# Conservative Management in Blunt Abdominal Trauma with Solid Organ Injury - Observational Study

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## I. BACKGROUND

Blunt abdominal trauma is a commonly encountered scenario in the Emergency Room, the commonest cause being road traffic accidents. With the advent of more sophisticated investigative modalities and intensive care units, there has been a shift from operative to selective non-operative management in blunt trauma of abdominal solid organ injuries. The most common indication for operative management is hemodynamic instability. In this study we present our experience with blunt trauma of abdominal solid organ injuries over a period of 12 months.

## II. OBJECTIVES

- To study the outcome of conservative management in blunt trauma abdomen with solid organ injury.
- To study the factors leading to failure of conservative management.

## III. MATERIALS AND METHODS

This is a prospective observational study of 168 blunt trauma patients with abdominal solid organ injuries in the Department of surgery, government medical College Thrissur. Those patients who had hollow viscous perforation and penetrating abdominal injuries were excluded. Mechanism of injury, other associated injuries and hemodynamic stability was assessed. USG FAST (focused assessment with sonography in trauma) was taken in all patients and CECT abdomen in patients with hemoperitoneum. Organ injured graded based on American Association for Surgery of Trauma (AAST). All hemodynamically unstable patients was treated operatively.

## IV. RESULTS

The mean age in our study was  $43.39 \pm 14.66$ . Out of 168 participants, 120 (71.4%) participants were male and 48 (28.6%) were female. In our study, 149 (88.7%) participants had abdominal pain, 54 (32.1%) had vomiting and 37 (22.0%) had abdominal distension. In our study, Majority of the participants were normal blood pressure 111 (66.1%), followed by hypertensive in

47 (28.0%) and hypo in (6.0%). Out of 168 participants, 12 (7.1%) participants had pallor. Considering the abdominal examination, 66 (39.3%) participants had tenderness, 11 (6.5%) had guarding and 6 (3.6%) had rigidity. In our study, majority of the participants duration of injury was within 4 hours, followed by 4-28 hours 56 (33.3%) and only one participant duration of injury was 24-48 hours. In our study, 23 (13.7%) participants had DM, 31 (18.5%) had HTN and 14 (8.3%) had CAD. Out of 168 participants, 44 (26.2%) participants were drug intake and 58 (34.5%) were alcoholic and smoker. In our study, majority of the participants mechanism of injury was road traffic accidents 111 (66.1%), followed by assault 53 (31.5%) and fall from height 4 (2.4%). Out of 168 participants, 68 (40.5%) participants had liver failure, 61 (36.3%) had spleen injury and 39 (23.2%) had kidney failure. Out of 168 participants, 33 (19.6%) participants had done blood transfusion.

Out of 168 participants, 157 (93.5%) participants conservative management were success and 11 (6.5%) were failure.

Statistically significant association were found with vomiting, abdominal distension, pallor, tenderness, guarding, rigidity, organ injured, tachycardia, hypotension, low Hb. Participants with spleen injury had statistically higher failure rate 14.8% (9/61) compared to liver 2.9% (2/68) and kidney injury 0.0% (0/39). Participants with pallor had statistically significant higher conservative management failure 83.3% (10/12%) compared to participants without pallor 0.6% (1/156).

However, no statistically significant association was found with age, sex, abdominal pain, duration of injury, co-morbidities, habits, mechanisms of injury

## V. DISCUSSION

The above mentioned findings were collected from the patients admitted in govt. medical college Thrissur with blunt trauma abdomen with solid organ injury. Out of 168 participants, distribution of gender showing that the males (71.4%) outnumbered females (28.6%). Most common group of age affected are between



31 -40 yrs and the less common is more than 70 yrs. The most common mode of injury was the Road traffic accidents, least with fall. Majority of the patients presented with pain (88.7%), 54 (32.1%) had vomiting and 37 (22.0%) had abdominal distension.

Considering the abdominal examination, 66 (39.3%) participants had tenderness, 11 (6.5%) had guarding and 6 (3.6%) had rigidity. Considering comorbidities among participants, 23 (13.7%) participants had DM, 31 (18.5%) had HTN, 14 (8.3%) had CAD and 44 (26.2%) participants were drug intake and 58 (34.5%) were alcoholic and smoker.

Most common organ injured was liver 40.5 % , followed by spleen 36.3% , and followed by kidney .

Usg fast was done in all patients and all patients received tranexamic acid . Participants with abdominal pain had 92.6% (138/149%) success compared to participants without abdominal pain 100% (19/19). The p value showed that abdominal pain is statistically not associated with conservative management. Participants with vomiting had significantly higher conservative management failure 18.5% (10/54%) compared to patients without vomiting 0.9% (1/114). The p value showed that vomiting was statistically associated with conservative management. Participants with abdominal distension had significantly higher conservative management failure 18.9% (7/37%) compared to patients without abdominal distension 3.1% (4/131). The p value showed that abdominal distension was statistically associated with conservative management.

Participants with pallor had statistically significant higher conservative management failure 83.3% (10/12%) compared to participants without pallor 0.6% (1/156). Participants with tenderness had statistically significant higher conservative management failure 16.7% (11/66) compared to participants without tenderness 0.0% (0/102). The p value showed that tenderness is statistically associated with conservative management. Participants with guarding had statistically significant higher conservative management failure 63.6% (7/11) compared to participants without guarding 2.5% (4/157). The p value showed that guarding is statistically associated with conservative management. Participants with rigidity had statistically significant higher conservative management failure 83.3% (5/6) compared to participants without rigidity 3.7% (6/162). The p value showed that guarding is statistically associated with conservative

management.

Participants with spleen injury had statistically higher failure rate 14.8% (9/61) compared to liver 2.9% (2/68) and kidney injury 0.0% (0/39). It was statistically associated.

Out of 168 patients 11 patients were hemodynamically unstable, were taken to operation theatre and underwent operative management. 157 patients were kept under conservative management. Hemodynamically stable patients were observed and managed according to NOM guidelines.

## VI. CONCLUSION

Blunt trauma abdomen can be managed non-operatively with serial clinical examination, vital assessment, hematocrit measurement, USG and contrast enhanced computed tomography (CECT). The most common blunt trauma solid organ injury in this study group was liver injury. Most common organ injury needed operative treatment is spleen. With the advent of newer investigative modalities like contrast enhanced computed tomography (CECT) abdomen, more cases of blunt trauma abdominal solid organ injury can be managed non-operatively with effective ICU care in a tertiary care centre.