

## Comparative Study of FAST Scanning in Diagnosis of Haemoperitonium and Comparison With Laprotomy Finding In Abdominal Trauma - A Prospective Study

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**Abstract:** The focused abdominal sonogram in trauma (FAST) is a focused, goal directed, sonographic examination of the abdomen aimed at detecting the presence or absence of haemoperitoneum.

**Aims and objectives:** To determine the importance of use of FAST in cases of blunt abdominal trauma by surgeon in diagnosis of haemoperitoneum and compared with laparotomy findings.

**Material and methods-** The present prospective study was conducted at surgery department in Rajendra institute of medical sciences, Ranchi, Jharkhand between march 2014 to February 2015.

**Results-** 10 scan performed by surgeon in blunt abdominal trauma cases. Mean age of the patients is 25.0 [ 12-45 ] yrs. Male :female ratio is 3:2. Majority of cases are due to road traffic accident (60%). All the 10 cases when compared with per-operative findings haemoperitoneum was present in all cases[table-1]. Sensitivity was found to be 100%. Per-operative findings are , 6 cases with gut injury, 2 cases with mesenteric injury, 2 cases with solid organ injury.

**Keywords-** FAST, Trauma, Haemoperitonium.

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### I. Introduction :

Abdominal trauma is one of the major traumatic injury encountered in the emergency of surgical department . This include both blunt and penetrating type of injury .focussed assessment with sonography for trauma is emerged as very useful modality for initial assessment for patient with blunt abdominal trauma patient . Evaluating patients who have sustained blunt abdominal trauma remains one of the most challenging and resource-intensive aspects of acute trauma care<sup>1,2</sup>. FAST can be done by surgeons who underwent short course of training. After detecting haemoperitoneum according to general condition of the patient one can plan treatment in lesser period of time.

The focused abdominal sonogram in trauma (FAST) is a focused, goal directed, sonographic examination of the abdomen aimed at detecting the presence or absence of haemoperitoneum. It provides a viable alternative to other investigations in the blunt abdominal trauma patient, and can be integrated into the primary survey in patients with signs of haemorrhagic shock or suspicion of intra abdominal injury. It has the additional advantages of being non invasive, reproducible, and is capable of being rapidly performed at the patient's bedside by the Emergency Physician. Indeed, the FAST scan is often regarded as being a simple extension of clinical examination rather than a definitive diagnostic investigation<sup>3</sup>. FAST is rapid bed side USG examination performed by surgeon for blood around heart (pericardial tamponade ) or abdominal organ (haemoperitoneum) after trauma. Bedside sonography has sensitivity (49-99%) specificity (95-100%) and it can be performed in minutes<sup>4</sup>.

Because intra-abdominal injury is one of the major preventable traumatic death these injuries must be recognised documented and address immediately<sup>5</sup>. Thus FAST scan is useful for performing immediate assessment in abdominal trauma .FAST is also less invasive then DPL (Diagnostic peritoneal lavage ) and also having similar accuracy<sup>6</sup>. This study is to determine the accuracy of fast scan done by surgeons which is then compared with the per-operative findings of the patients who underwent laparotomy. But there is a fact that use of USG is still lacking in emergency department of INDIA. Numerous studies have shows that FAST is useful in evaluating trauma patients<sup>7,8,9,10</sup>. It also appears that it makes emergency department care faster and better<sup>11</sup>. FAST is a highly specific "rule in" technique and is useful in the initial assessment of trauma patients. Emergency physicians can perform FAST after a brief training period<sup>12</sup>.

## **II. Aims and objectives:**

To determine the importance of use of FAST in cases of blunt abdominal trauma by surgeons. Which is later on compared with preoperative findings to determine the accuracy of FAST done by surgeon in emergency. This study is to show that FAST scan can be done by surgeon very effectively and this can leads to very quick diagnosis of haemoperitonium . then it can be compared with laparotomy findings.

## **III. Material and Methods:**

This is a prospective study conducted between Feb 2014 to March 2015 comparing the haemoperitonium detected by FAST scan performed by surgeons in emergency with the per-operative findings in the cases of blunt abdominal trauma which were underwent laparotomy. This is a case series of 10 cases of blunt abdominal trauma came in emergency department of RIMS. Those cases were not haemodynamically stable FAST scan was performed by surgeon. FAST positive case were diagnosed haemoperitonium and prepared for operation. Those cases which were FAST positive and heamodynamically stable and managed conservatively later on were excluded from the study . In other investigation X-Ray abdomen erect was performed to support diagnosis. Which shows gas under diaphragm in cases of perforation which was confirmed during laparotomy. During FAST scan curvilinear probe was used and it was placed longitudinally at mid axillary line in right upper and left upper abdomen. FAST positive cases shows haemoperitonium ( anechoic shadows in perisplenic area in left side and in subhepatic area or morrison's pouch in right side)(fig 1). Those cases were planned for operation and peri-operative findings confirms blood in peritoneal cavity.



**Fig- 1**

## **IV. Results:**

10 scan performed by surgeon in blunt abdominal trauma cases. Mean age of the patients is 25.0 [ 12- 45 ] yrs. Male :female ratio is 3:2. Majority of cases are due to road traffic accident (60%). All the 10 cases when compared with per-operative findings haemoperitonium was present in all cases[table-1]. Sensitivity was found to be 100%. Per-operative findings are , 6 cases with gut injury, 2 cases with mesenteric injury, 2 cases with solid organ injury.

**Table-1**

Procedure performed	No of cases	Finding
1. FAST scan at emergency by surgeon	10	FAST +ve
2. Laparotomy done	10	Haemoperitonium

Majority of cases are suffered with gut injury i.e 60%.

## **V. Discussion:**

As the results shown is proves that FAST is reliable modality for immediate assessment of abdominal trauma patients. When these findings compared with the findings of laparotomy is showing the accuracy FAST scan. The results of which shows FAST done by surgeon in emergency is reliable. It can be done by surgeons in emergency quite effectively. In India use of USG in emergency is still lacking.

This trial was designed to evaluate the accuracy of the FAST technique performed by surgeons in emergency . The results did not alter management (unless free fluid was seen in a patient who would otherwise

have had no further investigations). A larger study would be needed to evaluate the effect on patient management and outcome.

## **VI. Conclusion:**

This study proves that FAST done by surgeons who underwent short course training for FAST scan is reliable and valuable when it is compared with per-operative findings.

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