



Pattern of Solid Organ Injury in Blunt Injury Abdomen- A retrospective study in a tertiary care centre.

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ABSTRACT

Blunt abdominal trauma is a leading cause of morbidity and mortality among all age groups. Identification of serious intra-abdominal pathology is often challenging; many injuries may not manifest during the initial assessment and treatment period. Mechanisms of injury often result in other associated injuries that may divert the physician's attention from potentially life-threatening intra-abdominal pathology. There is an increase in reports about Road Traffic Accidents from every corner of our District.

KEYWORDS : Blunt injury abdomen, free fluid, Splenectomy, Splenorrhaphy, hemoperitoneum, laparotomy.

Objective: To determine the presentation, anatomical distribution, diagnostic method, management and outcome of solid organ injury in blunt abdominal trauma.

Materials and Methods: This is a retrospective cross-sectional study of patients with blunt abdominal trauma leading to solid organ injury admitted at Government Vellore medical College over a period of 2 years (January 2014 to January 2016)

Data were retrieved from patients' medical records. 20 patients with solid organ injury due to blunt abdominal trauma, who underwent laparotomy at the institute, were reviewed.

Data regarding clinical presentation, anatomical distribution, management and outcome were recorded and analyzed. We included all the patients who were referred to our center with blunt abdominal trauma who were diagnosed to have solid organ injury. We included those patients whose medical charts had complete data on

- baseline characteristics,
- clinical findings and
- radiological work-ups.

Data were collected on age, sex, and mechanism of injury, presentation, location of injury, associated injuries, treatment, mortality and morbidity. Solid organ injury diagnosis, operations, and discharge was also recorded. Data was prospectively entered into a computer database.

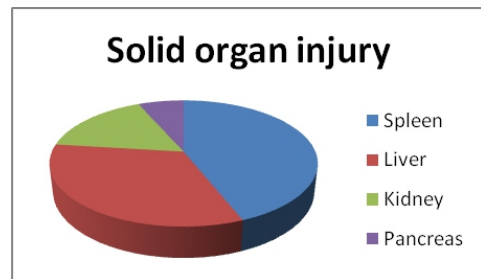
Results:

The most common organ injured was Spleen (8), followed by Liver (6)

There were 3 kidney injuries, 3 pancreatic injuries in which one case had a pancreatic transaction.

Road traffic accident was the most common mechanism of injury (57.2%) followed by fall from height (36.4%) and assault (6.4%).

Free Fluid in abdomen was seen in 85.5% of cases while preoperative USG abdomen and CT Abdomen was done in 70% of cases.



SPLENIC INJURY : Spleen is the most commonly injured solid organ in blunt injury abdomen. The most common cause of injuries include thoraco abdominal injuries causing fracture of left lower ribs resulting in damage to the integrity of Spleen.

CAUSES OF SPLENIC INJURIES:

- Blunt injuries of lower chest and abdomen.
- Spontaneous rupture or minor trauma in enlarged spleen on Malaria
- Iatrogenic injuries in Gastric surgeries.
- Types of Splenic Injuries :
 - Subcapsular Hematoma
 - Laceration
 - Capsular Tears
 - Stellate And Linear Lacerations
 - Intra splenic Hematoma
 - Parenchymal Rupture

NON- OPERATIVE MANAGEMENT :

Requisites for non- operative management include

- Serial Monitoring Of Vitals
- Hourly Abdomen Girth Chart
- Serial Hb Monitoring
- Serial USG monitoring
- Adequate rest

ALARMING SIGNALS:

- Hypotension With BP < 90 mm Hg
- Tachycardia > 120 /Min
- No Improvement In spite of adequate IV Fluids
- More Requirement Of Blood Transfusion

When above alarming signals are seen conservative management

should be abandoned and proceeded for surgery.

LIVER INJURIES:

This is the next most common solid organ injured next to spleen⁹. It is vulnerable to injury due to its location. The liver is located beneath the lower ribs. Any fracture of the ribs or blunt injury to the lower chest and abdomen can lead to

- Laceration
- Contusion
- Transection
- Massive Bleeding
- Bile Duct Injuries

Not all cases of Liver injuries are managed surgically. About more than 80 % cases are managed conservatively¹⁰.

Indications for surgery includes

hemodynamically unstable

grade 3 - 6 liver laceration

portal vein injuries with massive bleeding

Investigations include:

- USG Abdomen to know integrity of liver
- X ray chest to look for rib fractures
- CECT abdomen to look for contrast pooling or extravasations

Conclusion:

Twenty patients were enrolled into the study. Among them there were 12 (60%) male patients and twenty (40%) female patients. The age range between 20 to 49 years were about 66% accounting to maximum population of blunt injury abdomen reported. Five patients (24%) were in the age group below 20 years. Four patients were (10%) were above 50 years of age. Injuries following Blunt Injuries. The most common organ injured was Spleen (8) , followed by Liver (6)

There were 3 kidney injuries , 3 pancreatic injuries in which one case had a pancreatic transaction.

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Free Fluid in abdomen was seen in 85.5% of cases while preoperative USG abdomen and CT Abdomen was done in 70% of cases.

Average hospital stay was 13±6 days.

References:

1. Ahmet K, Tongue Y. Blunt abdominal trauma: Evaluation of diagnostic options and surgical outcomes. *Turkish J Trauma Emerg Surg.*, 2008; 14:205-10.
2. Article Titles-2,576 Ultrasounds for Blunt Abdominal Trauma. Dolich, Matthew O. MD; McKenney, Mark G. MD, FACS; Varela, J. Esteban MD; Compton, Raymond P. MD; McKenney, Kimberly L. MD; Cohn, Stephen M. MD, FACS.
3. Blunt Trauma to Abdomen in Rural Setup: A Multiple Case Study by Shantanu Kulkarni et al *Injury Volume 47, Issue 9, September 2016, Pages 2006–2011*, CT scan and Diagnostic Peritoneal Lavage: towards a better diagnosis in the area of nonoperative management of blunt abdominal trauma Nathalie Chereau et al
4. Isenhour JL, Marx J August 2007. "Advances in abdominal trauma". *Emerg Med Clin North Am.*, 25 (3):713–33, ix. doi:10.1016/j.emc.2007.06.002. PMID 17826214.
5. *Journal of Trauma-Injury Infection & Critical Care: January 2001 - Volume 50 - Issue 1 - pp 108-112* Ministry of Health and Family Welfare. Integrated Disease Surveillance Project- Project Implementation Plan 2004-2009. New Delhi: Government of India; 2004:1-18
6. Mukhopadhyay M. October 2009. "Intestinal Injury from Blunt Abdominal Trauma: A Study of 47 Cases". *Oman Med J.*, 24 (4):256–259. doi:10.5001/omj.2009.52. PMC 3243872. PMID 22216378
7. Raza et al. Non operative management of abdominal trauma –a 10 years review. *World Journal of Emergency Surgery*, 2013;8:14.
8. Retrospective and Prospective Study of Management and Outcome of Blunt Abdomen Trauma In Tertiary Health Center In Last 5-Year 2009-2014 R. S. Raikwar, Abhay
9. Saxena AK, Nance ML. Abdominal trauma. <http://emedicine.medscape.com/article/940726-overview> Udeani J, Steinberg SR. Blunt abdominal trauma.
10. <http://emedicine.medscape.com/article/433404-overview> 43048 *International Journal of Current Research*, Vol. 08, Issue, 12, pp.43046-43049, December, 2016 Brahmane2, Sachin Arora