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Research Article

**A CROSS-SECTIONAL STUDY TO ASSESS & EXAMINE THE
ONSET OF BLUNT ABDOMINAL TRAUMA AMONG
PATIENTS WITH RESPECT TO LIVER & SPLEEN INJURIES****¹Dr. Maimona Rafiq, ²Dr. Muhammad Rizwan Saeed, ³Dr. Hafiz Rana Kamran
Ijaz**¹Fatima Memorial Hospital, Lahore²Shalamar Hospital, Lahore³WAPDA Hospital Complex, Lahore**Abstract:****Objective:** The objective of the research was to examine the patients of blunt abdominal trauma.**Method and Materials:** The design of our research was cross-sectional carried out at the department of surgery Sir Ganga Ram Hospital, Lahore (November 2016 to September 2017). The number of abdominal trauma patients enrolled for our research was one hundred and fifty. Researcher registered outcome of every individual patient over analyze laparotomy on Performa prepared for the said purpose.**Results:** The age of all the patients selected for the study was in between twenty-four to forty-one years. Among one hundred and fifty patients, the number of males was one hundred and eight (72%) along with forty-two (twenty-eight percent) female patients. Researcher diagnosed injury of the spleen in one hundred and two cases (68%) along with eighty-three (53.33%) liver injured patients and also found a strong connection in between liver wound and age of the patients. whereas researcher did not find any connection of spleen damages and age as well as gender and wound of spleen and liver.**Conclusion:** The finding of the research proves that most victimized patients of blunt abdominal injuries were mostly men with reference to women. However, researcher diagnosed insignificance disparity in the repetition of spleen and liver injuries in men and women. The finding of the research also declares that the most affected peoples with intense abdominal injuries were young age category with reference to aged peoples. The researcher analyzed that liver injury is strongly connected with the patient's age.**Keywords:** Trauma, Hypochondria, Blunt Abdominal Trauma and Laparotomy.**Corresponding author:****Dr. Maimona Rafiq,**
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INTRODUCTION:

The injury to a body by exchange with the potency of the atmosphere which is superior to body vitality is called trauma. Internationally trauma is a major cause of despondency as well as blamed for ten percent casualties having less than fifty years of age [1]. Fourteen percent of entire life disabilities are mainly caused by wounds particularly because of a huge number of injuries consist of young peoples in absence of any already present bitterness, developing the trauma like the beneficial cause of cast concerning to health [2]. Because of its huge surface size abdomen is the most general damage area of the body [3]. The spleen, as well as liver, was the very common factor associated with almost every case of blunt trauma along with haemoperitoneum particularly in twenty to thirty years of life [4, 5]. The liver is the biggest sound abdominal part of the body with a mass of almost 1.5 kg. The location of the liver inside the body is on the upper right abdominal cavity under the diaphragm, protected with rib coop [6, 7]. The most of harm to liver take place as an outcome of abrupt injuries moreover liver is in sound shape so squeezing forces can conveniently rapture its material when pressed between heavy forces and rib coop [8]. The position of spleen inside the body is on the left side of the hypochondria of the abdomen in between diaphragm as well as stomach below the lower side of the ribs [9]. The spleen hurt is instantly caused by abrupt injuries, spleen also damaged due to blunt energy provided to 9th to 11th ribs [8]. Liver hurt is the general most sound organ injury compared with rib cleft (forty percent) succeeded by spleen trauma (twenty-three percent) [8]. The volume of intra-abdominal sound organ injuries required immediate operating procedure is remarkably greater in patients with injuries of higher than six ribs, reaching up to sixty-one percent [11].

In our department of surgeries, trauma is established as one of the extremely dominant cause for emergency hospitalization. This automation advancing to greater in figures of road mishaps resulted through two-wheelers on road. The figure of abrupt abdominal injuries cases accelerated in our conditions. So, researcher designed the research to find out the commonness and level of liver and spleen trauma ensuing abrupt abdominal injuries commencing to territory care hospitals.

MATERIAL AND METHODS:

The design of our research was cross-sectional carried out at the department of surgery Sir Ganga Ram Hospital, Lahore (November 2016 to September 2017). The researcher takes a recommendation from an organization review panel along with patients and

their guardians. The number of abdominal trauma patients enrolled for our research was one hundred and fifty with an age range of sixteen to fifty years. All the men and women displaying the previous record of abrupt abdominal trauma along with hemodynamic inconsistency or (pulse is greater than one hundred beats per min, SBP is less than ninety mmHg) intra-abdominal haemorrhage (identified on abdominal sonography) and passing through exploratory laparotomy were registered for research.

Patients treated non-operatively, all those patients underwent through any type of intrusive abdominal trauma, damage due to natural collapse and emblem injuries and deprived patients who are ASA-4 and higher were expelled from the research. Researcher performed exploratory laparotomy on entire patients and judgment in reference of spleen as well as liver trauma and recorded their level on Performa made for said object. Whenever laparotomy haemorrhage, trauma is identified on the area of spleen as well as liver than liver and spleen trauma was marked. Categorization of the liver as well as spleen wound was performed in reference to categorization design by organ injury grading panel of the American Association for the surgery of trauma. The researcher recorded demographic facts of entire patients of research and analyzed all the composed data by using SPSS software, measured average, and SD for numerical facts and displayed authentic information as regularity and probability.

RESULTS:

The age of all the patients selected for the study was in between twenty-four to forty-one years. Among one hundred and fifty patients. Researcher diagnosed injury of the spleen in one hundred and two cases (sixty-eight percent) along with eighty-three (53.33%) liver injured patients. In eighty-three liver trauma patients, category one injury was diagnosed in thirty (36.14%) patients succeeded by category two with twenty-three (27.71%) patients, category III nineteen (22.89%) patients, category IV eight (9.64%) and in category V three (3.62%) patients, diagnosed with trauma. Among one hundred and two spleen trauma cases category I, II, III, IV and V injury recorded by the researcher are thirty-four (33.33%), twenty (19.61%), twenty-five (24.51%), twenty (19.61%) and three (3.5%) patients. the number of males was one hundred and eight (seventy-two percent) along with forty-two (twenty-eight percent) female patients. Researcher diagnosed liver and spleen trauma in sixty-five (60.19%) & seventy-five (69.44%) male patients and eighteen (42.86%) and twenty-seven (64.29%) female patients respectively. The researcher also did not find any

statically important connection ($P = 0.068, 0.563$) of gender with liver and spleen trauma divide entire enrolled patients into two age categories, age category of seventeen to thirty-four years of patients. A total number of patients in category "A" having age seventeen to thirty-four years were ninety-seven along with fifty-three patients in category "B" having age thirty-five to fifty years. Researcher diagnosed

liver trauma in sixty (61.86%) and twenty-three (43.4%) patients in category "A" & "B" respectively. The researcher also diagnosed spleen injury in sixty-eight (69.32%) and thirty-four (66.13%) patients in category "A" & "B" respectively. Record statically important ($P = 0.039$) connection of age with liver trauma as well as registered insignificance ($P = 0.0469$) connection of age with spleen trauma.

Table – I: Injury of Organ Stratification

Injury of Organ	Liver Injury		Spleen Injury	
	Number	Percentage	Number	Percentage
Yes	83	55.33	102	68.00
No	67	44.67	48	32.00
Total	150	100	150	100

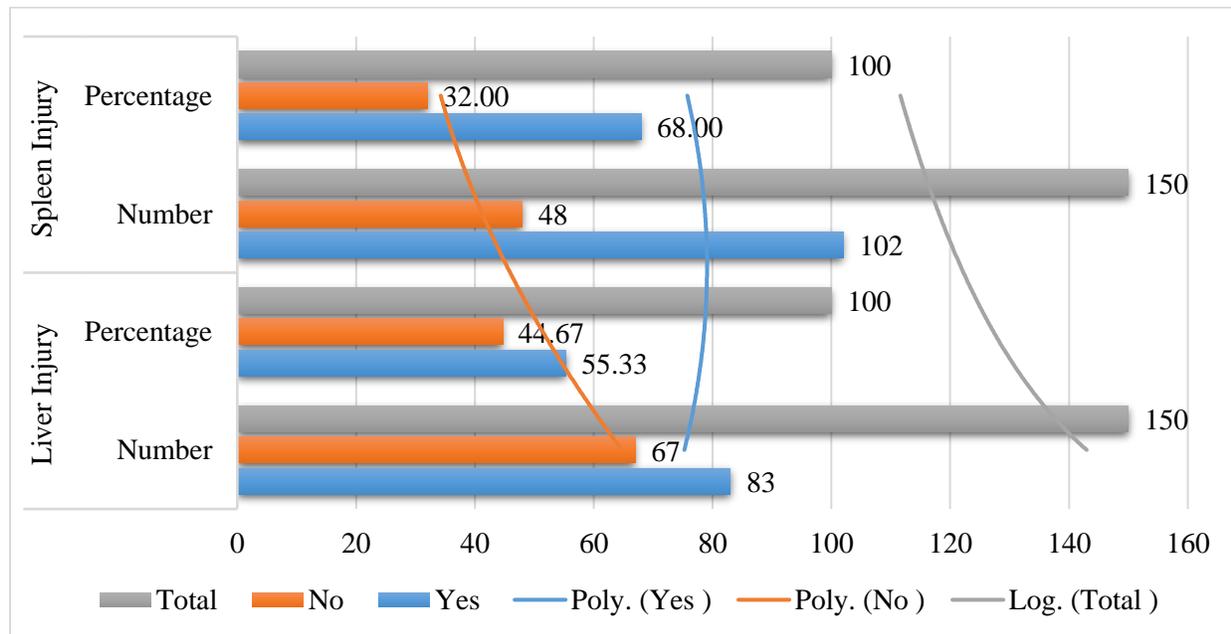


Table – II: Liver and Spleen Injury Grade Wise Stratification

Grades		Percentage
Liver Injury	Grade – I	36.14
	Grade – II	27.71
	Grade – III	22.89
	Grade – IV	9.64
	Grade – V	3.62
Spleen Injury	Grade – I	33.33
	Grade – II	19.61
	Grade – III	24.51
	Grade – IV	19.61
	Grade – V	2.50

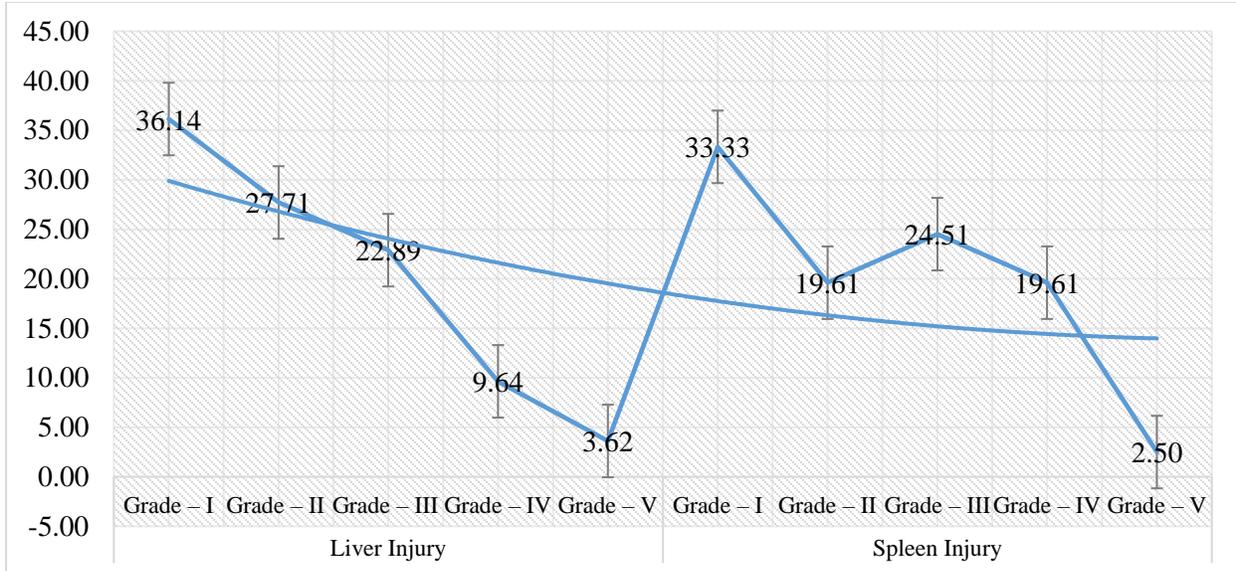
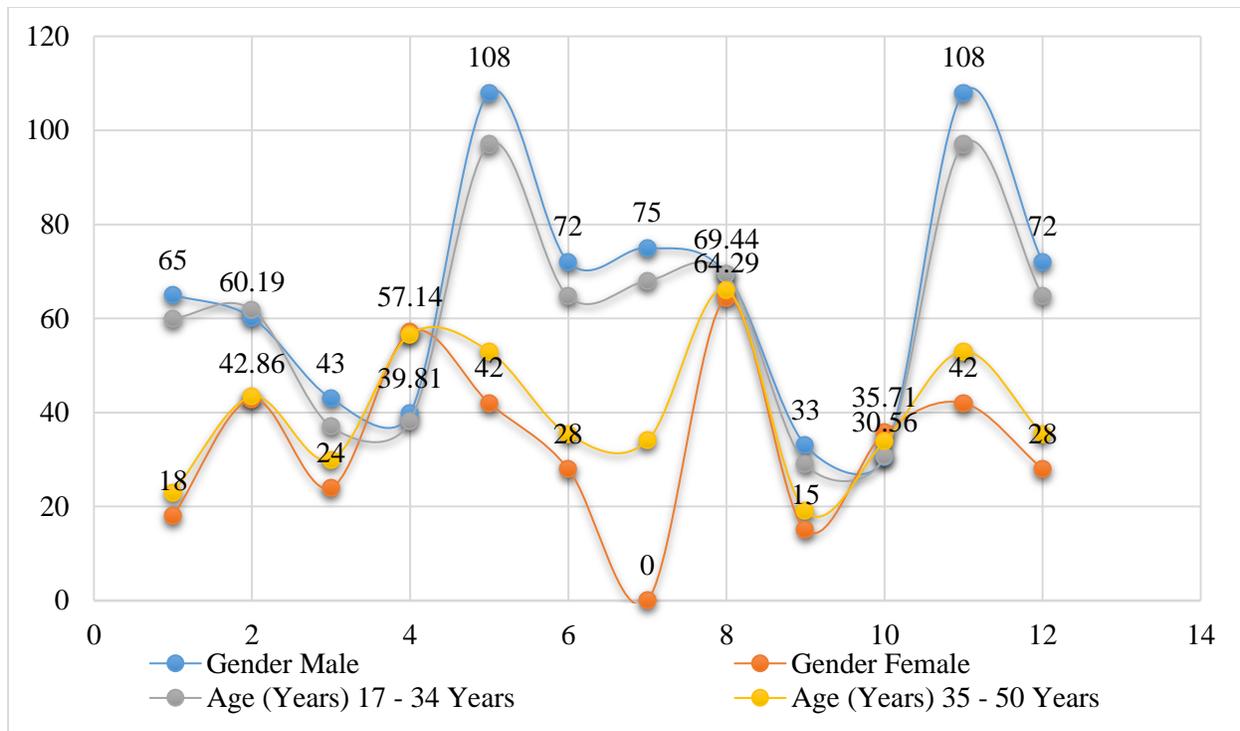


Table – III: Age and Gender Stratification

Gender and Age			Gender			Age (Years)		
			Male	Female	P-Value	17 - 34 Years	35 - 50 Years	P-Value
Liver Injury	Yes	Number	65	18	0.068	60	23	0.039
		Percentage	60.19	42.86		61.86	43.4	
	No	Number	43	24		37	30	
		Percentage	39.81	57.14		38.14	56.6	
	Total	Number	108	42		97	53	
		Percentage	72	28		64.67	35.33	
Spleen Injury	Yes	Number	75	27	0.563	68	34	0.469
		Percentage	69.44	64.29		69.32	66.13	
	No	Number	33	15		29	19	
		Percentage	30.56	35.71		30.68	33.87	
	Total	Number	108	42		97	53	
		Percentage	72	28		64.67	35.33	



DISCUSSION:

Abrupt abdominal injuries are a familiar agent of fatality and bitterness among every age population [12]. Assessing the intra-abdominal trauma pathology is not a smooth activity. Most of them consistently obscure while early span. Mostly related traumas specifically of limb, head, and neck generally to be assumed as initial to look and accomplishing the medicating physician [13]. Abrupt injuries auxiliary to motor vehicle mishaps, motorcycle mishaps, slipping, violation and pedestrian collision are still the most general phenomenon of abdominal trauma [14]. The clinical examination of the abdomen through just physical checkup is not capable of diagnosing intra-abdominal trauma, therefore many identifying techniques developed while the previous three decades along with identifying peritoneal lavage, ultrasound, laparoscopy as well as CT entire of them with merits, demerits, and stipulations. Almost twenty-four percent of the entire injuries need an abdominal analysis [15].

In our research, mostly influenced with abrupt abdominal injuries with reference to women are men [16]. In the current research, the least age of the patients was seventeen years along with fifty years as maximal and noted huge mishaps in seventeen to thirty-four years of age category. Frick et al presented huge patients of blunt abdominal injuries in the age category of twenty to twenty-nine years [17] the age of the patients was twenty-three to forty years which

is accord with an average age (twenty-seven years) of the patients of abrupt abdominal injuries presented in the research of Mufti et al [18]. In our research 53.33% patients of abrupt abdominal injuries diagnosed with liver injury correlatable with Mohamed et al along with Mamon et al [19]. They presented liver wounds in patients of abrupt abdominal injuries as (47.9%) & (53.12%). According to Raza et al research, diagnosed liver trauma in 13.2% of patients and most patients (58.8%) had category III liver trauma. These results are different from our results presented by us in our research [20]. With respect to Eman et al research, the occurrence of liver trauma was 28.57% which is variant from our research [21].

In eighty-three liver trauma patients, category one injury was diagnosed in thirty (36.14%) patients succeeded by category two with twenty-three (27.71%) patients, category III nineteen (22.89%) patients, category IV eight (9.64%) and in category V three (3.62%) patients, diagnosed with trauma. Uniformly Saaiq et al presented category I liver injury in 32.7% patients, category II in 36.2 % of patients, category III in 25.6% patients and category IV in 6.1 % patients [22]. However, prevented below the bony rib cage, the spleen constantly the exposed organ assisting injury from abdominal injured patients in the entire age category. It is fragile and exceptionally vascular organ occupying twenty-five percent of the body lymphoid tissues and her twice

haematological as well as immunological operation [18, 23]. In our research, we diagnosed spleen trauma in sixty-eight percent patients. Raza, Najfiat and ghazal F et al noted spleen trauma in (29.8%, 18.5% & 23%) patients respectively [20, 24]. These outcomes are not correlatable with our research outcomes. In the current research, among one hundred and two spleen trauma cases category I, II, III, IV and V injury recorded by the researcher are thirty-four (33.33%), twenty (19.61%), twenty-five (24.51%), twenty (19.61%) and three (3.5%) patients. Renzulli et al presented spleen trauma in all categories were like 20.9% in category I, 25.2% in category II, 29.1% in category III, 20.4% in category IV and 4.4% in category V [25]. These findings are not uniform with our research because of several causes. The most significant is the number of patients and variant age categories of patients.

CONCLUSION:

The finding of the research proves that most victimized patients of blunt abdominal injuries were mostly men with reference to women. However, researcher diagnosed insignificance disparity in the repetition of spleen and liver injuries in men and women. The finding of the research also declares that the most affected peoples with intense abdominal injuries were young age category with reference to aged peoples. The researcher analyzed that liver injury is strongly connected with the patient's age.

REFERENCES:

1. Raza M, Abbas Y, Devi V, Prasad KV, Rizk KN, Nair PP. Nonoperative management of abdominal trauma-a 10 years review. *World J Emerg Surg.* 2013;8(1):14.
2. Aman Z, Ikramullah AH, Iqbal Z, Aslam R, Aman AWZ, Wahab A. Frequency of Hepatic Trauma in Patients with Abdominal Firearm Injuries. *KJMS.* 2011;3(2):77.
3. Saaiq M, Niaz-and-Din MZ, Shah SA. Presentation and outcome of surgically managed liver trauma: experience at an A cross-sectional on the outcome of blunt abdominal trauma at DHQ Hospital Waqas Raza, et al. 580 tertiary care teaching hospital. *JPMA The Journal of the Pakistan Medical Association.* 2013;63(4):436–9.
4. M Swarnkar, P Singh, S Dwivedi. The pattern of Trauma in Central India: An Epidemiological Study with Special Reference to Mode of Injury. *The Internet Journal of Epidemiology.* 2009 Volume 9 Number 1.
5. Najfi SM, Khan A F A, Gondal K M. Spectrum of injuries in blunt abdominal trauma at Mayo

Hospital, Lahore. *Biomedical,* 1995; 11: 18-22.

6. Ghazanfar A, Chaudhary Z A, Zubair M, Nasir SM, Khan S A, Ahmad W. Abdominal solid visceral injuries in blunt abdominal trauma. An experience in a busy surgical unit of Mayo Hospital, Lahore. *Annals KEMC* 2001; 7: 85-7.
7. Renzulli P, Gross T, Schnüriger B, Schoepfer AM, Inderbitzin D, Exadaktylos AK, et al. Management of blunt injuries to the spleen. *Br J Surg.* 2010 Nov;97(11):1696–703.
8. Hamilton Bailey's Emergency surgery: 13th edition: 2000: p446-471.
9. Brunicaudi CF, Andersen KD, Billiar RT, Dunn LD, Hunter GJ, Mathews BJ, et al. *Schwartz's Principals of Surgery.* 9thed. New York: McGraw Hill; 2010.
10. Williams SN, Bulstrode KJC, O'Connell RP. *Bailey & Love's Short Practice of Surgery.* 25th ed. London: Hodder Arnold; 2008.
11. Farquharson M, Moran B. *Farquharson's Textbook of Operative General Surgery.* 9th ed. London: Hodder Arnold; 2005.
12. Park S. Clinical Analysis for the Correlation of Intra-abdominal Organ Injury in the Patients with Rib Fracture. *Korean J Thorac Cardiovasc Surg.* 2012 Aug;45(4):246–250.
13. Al-Hassani A, Abdulrahman H, Afifi I, Almadani A, Al-Den A, Al-Kuwari A, et al. Rib fracture patterns predict thoracic chest wall and abdominal solid organ injury. *Am Surg.* 2010 Aug;76(8):888-91.
14. Mukhopadhyay. Intestinal Injury from Blunt Abdominal Trauma: A Study of 47 Cases. *Oman Medical Journal* [Internet]. *Oman Medical Journal;* 2009; Available from <http://dx.doi.org/10.5001/omj.2009.52>.
15. Nyongole OV, Akoko LO, Njile IE, Mwangi AH, Lema LE. The Pattern of Abdominal Trauma as Seen at Muhimbili National Hospital Dar es Salaam, Tanzania. *East and Central African Journal of Surgery.* 2013;18(1):40–7. *Journal of Emergencies, Trauma, and Shock* [Internet]. [cited 2014 Jun 9]. Available from: <http://www.linkedin.com/today/post/article/20140419140926-36789366-journal-of-emergencies-trauma-and-shock>.
16. Streck CJ, Jewett BM, Wahlquist AH, Gutierrez PS, Russell WS. Evaluation of forint-abdominal injury in children following blunt torso trauma. Can we reduce unnecessary abdominal CT by utilizing a clinical prediction model? *J Trauma Acute Care Surg* [Internet]. 2012 Aug [cited 2014 Jun 9];73(2). Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3855542/>
17. Gad MA, Saber A, Farrag S, Shams ME,

- Ellabban GM. Incidence, Patterns, and Factors Predicting Mortality of Abdominal Injuries in Trauma Patients. *N Am J Med Sci*. 2012 Mar;4(3):129–34.
18. Frick EJ Jr, Pasquale MD, Cipolle MD. Small-bowel and mesentery injuries in blunt trauma. *J Trauma*. 1999 May;46(5):920–6.
 19. Memon MR, Sanghi AG, Abbasi SA, Memon AA. Role of laparoscopy in blunt abdominal trauma. *Rawal Medical Journal*. 2013;38(1):40–3.
 20. Mufti TS, Akbar I, Ahmed S. EXPERIENCE WITH SPLENIC TRAUMA IN AYUB TEACHING HOSPITAL, ABBOTTABAD. *J Ayyub Med Coll Abbottabad* [Internet]. 2007 [cited 2014 Jun 6]; 19(3). Available from: <http://www.ayubmed.edu.pk/JAMC/PAST/19-3/01%20Tariq%20Mufti.pdf>.
 21. Macleod JBA, Cohn SM, Johnson EW, McKinney MG. Trauma deaths in the first hour: are they all unsalvageable injuries? *Am J Surg*. 2007; 193:195-9.
 22. Saltzherr TP. Optimizing the initial evaluation and management of severe trauma patients. *Nederlands Tijdschrift Voor Traumatologie* [Internet]. Springer Science + Business Media; 2011 Nov 30;19(5):147–147. Available from: <http://dx.doi.org/10.1007/s12506-011-0042-3>.
 23. Khan JS, Iqbal N, Gardezi JR. The pattern of visceral injuries following blunt abdominal trauma in motor vehicular accidents. *J Coll Physicians Surg Pak*. 2006; 16:645-7.
 24. Feliciano DV. Diagnostic modalities in abdominal trauma. Peritoneal lavage, ultrasonography, computed tomography scanning, and arteriography. *Surg Clin North Am*. 1991 Apr;71(2):241–56.
 25. Mohamed AA, Mahran KM, Zaazou MM. Blunt abdominal trauma requiring laparotomy in poly-traumatized patients. *Saudi Med J*. 2010 Jan;31(1):43-8.