A CLINICAL STUDY ON BLUNT INJURY ABDOMEN

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ABSTRACT

BACKGROUND

Abdominal trauma continues to account for a large number of trauma-related injuries and deaths. Motor vehicle accidents and urban violence, respectively, are the leading causes of blunt and penetrating trauma to this area of the body. Unnecessary deaths and complications can be minimized by improved resuscitation, evaluation and treatment. The new techniques and diagnostic tools available are important in the management of abdominal trauma. These improved methods, however, still depend on experience and clinical judgment for application and determination of the best care for the injured patient. The aim of the study is to 1. Analyse the incidence, clinical characteristics, diagnosis, indications for laparotomy, therapeutic methods and morbidity & mortality rates. 2. To study nature of blunt abdominal trauma. 3. To assess patient for surgical intervention and to avoid negative laparotomy. 4. To assess morbidity rate in different organs injury. 5. To evaluate modalities of treatment, complications and prognosis.

MATERIALS AND METHODS

This study is a prospective study on 97 patients with Blunt injuries to the abdomen admitted in S.V.R.R.G.G. Hospital, Tirupati during October 2013-15.

Inclusion Criteria

Patients > 13 years, with Blunt injury to abdomen either by RTA, fall, object contact, assault giving written informed consent.

Exclusion Criteria

Patients <13 yrs. Blunt injuries due to blasts, patients with severe cardiothoracic and head injuries who are hemodynamically unstable.

CONCLUSION

Blunt Trauma to abdomen is on rise due to excessive use of motor vehicles. It poses a therapeutic and diagnostic dilemma for the attending surgeon due to wide range of clinical manifestations ranging from no early physical findings to progression to shock. So, the Trauma surgeon should rely on his physical findings in association with use of modalities like x-ray abdomen, USG abdomen and abdominal paracentesis. Hollow viscus perforations are relatively easy to pick on x-ray. But solid organ injuries are sometimes difficult to diagnose due to restricted use of modern amenities like CT scan in India. From our study, we conclude that in hemodynamically stable patients with solid organ injury conservative management can be tried and non-operative management is associated with less complication and morbidity.

KEYWORDS

Blunt Trauma, FAST, DPL.

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BACKGROUND

Abdominal trauma continues to account for a large number of trauma-related injuries and deaths. Motor vehicle accidents and urban violence, respectively, are the leading causes of blunt and penetrating trauma to this area of the body. Unnecessary deaths and complications can be minimized by improved resuscitation, evaluation and treatment. Rapid resuscitation is necessary to save the unstable but salvageable patient with abdominal trauma.

Accurate diagnosis and avoidance of needless surgery is an important goal of evaluation. 'As the surgeon directs these activities he must seek the answers to two questions. First, does the patient need an abdominal operation? Second, will the patient tolerate the time required for diagnostic manoeuvres before surgery is performed? However, most avoidable deaths result from failure to resuscitate and operate on surgically correctable injuries.

When the diagnosis is in doubt and clinical judgment suggests surgery, exploration provides definitive treatment

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as well as diagnosis; moreover, the risks of negative exploration have become acceptable.

The new techniques and diagnostic tools available are important in the management of abdominal trauma. These improved methods, however, still depend on experience and clinical judgment for application and determination of the best care for the injured patient.[1]

AIMS AND OBJECTIVES

1. To analyse the incidence, clinical characteristics, diagnosis, indications for laparotomy, therapeutic methods and morbidity & mortality rates.
2. To study nature of blunt abdominal trauma.
3. To assess patient for surgical intervention and to avoid negative laparotomy.
4. To assess morbidity rate in different organs injury.
5. To evaluate modalities of treatment, complications and prognosis.

METHODOLOGY

This study is a prospective study on 97 patients with Blunt injuries to the abdomen admitted in S. V. R. R. G. G. Hospital, Tirupati during October 2013-15.

Inclusion Criteria

Patients >13 years, with Blunt injury to abdomen either by RTA, fall, object contact, assault giving written informed consent.

Exclusion Criteria

Patients <13 yrs. Blunt injuries due to blasts, patients with severe cardiothoracic and head injuries who are hemodynamically unstable.

Patient fulfilling the inclusion and exclusion criteria are selected. Written and informed consent is taken. Demographic data like name, age, sex, occupation, economic status, literacy status noted. Nature of injury, time of event leading to injury, clinical examination, investigations, operative findings, operative procedures and complications during the stay in hospital and in subsequent follow-up was all recorded on a proforma.

After initial resuscitation, patients were subjected to clinical examination. Depending on the findings, decision for further investigations like DPL, radiological studies was made. The decision to operate on the patient is taken based on the clinical and investigation findings.

With midline laparotomy, abdomen is explored from stomach, duodenum, small intestine and large intestine and solid viscera to find the pathology and to grade injury according to the organ injury scale. The collected data is analyzed and statistics were made according to need.

Software

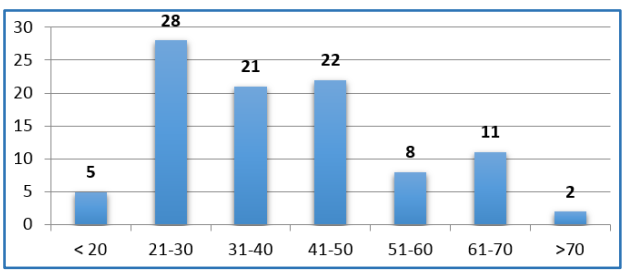
Statistical software mainly SPSS 11.0 and Systat 8.00 was used for the analysis of the data and Microsoft word and excel have been used to generate graphs tables etc.

RESULTS

There were a total of 367 cases of blunt injury to abdomen attended the emergency ward during the study period. And based on symptoms and investigations 97 patients were admitted in the department of general surgery and the analysis on the patients is as followed.

Age in Years	Number	Percentage
< 20	5	5
21-30	28	29
31-40	21	22
41-50	22	23
51-60	8	8
61-70	11	11
>70	2	2
Total	97	100

Table 1. Age Incidence

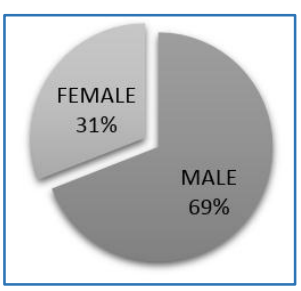


Graph 1. Age incidence

In the present study maximum of cases were in 21-30 years 28 (29%) followed by 41-50 and 31-40 years 22 (23%) and 21 (22%) respectively.

Sex	Number	Percentage
Male	67	69
Female	30	31
Total	97	100

Table 2. Sex Distribution

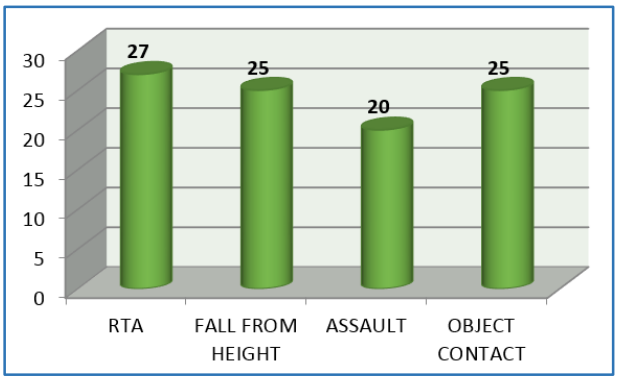


Graph 2. Sex Distribution

In the present study 67 (69%) patients were male and 30 (31%) were female.

Nature of Injury	Number	Percentage
RTA	27	28
Fall from height	25	26
Assault	20	20
Hit by object	25	26
Total	97	100

Table 3. Nature of Injury

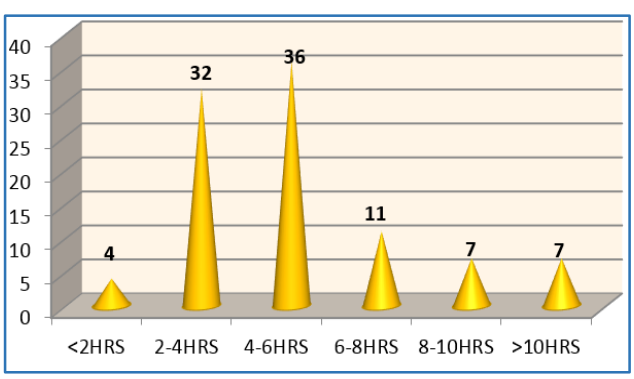


Graph 3. Nature of Injury

In this study, most common cause of blunt trauma to abdomen was road traffic accidents 27 (28%), second common cause was fall from height in 25 (26%) cases. Other causes were hit by blunt object in 25 (26%) cases and assault in remaining 20 (20%) cases.

Latent Period	Number	Percentage
<2 hrs.	4	4
2-4 hrs.	32	33
4-6 hrs.	36	37
6-8 hrs.	11	12
8-10 hrs.	7	7
>10 hrs.	7	7
Total	97	100

Table 4. Latent Period

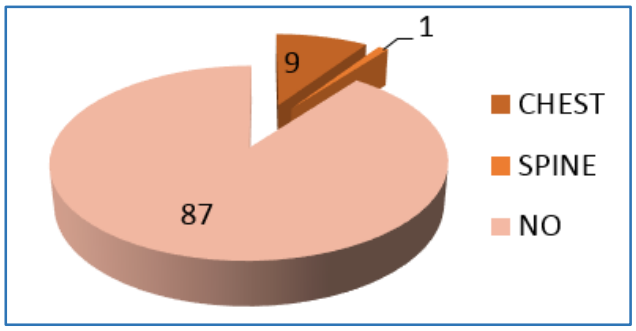


Graph 4. Latent Period

In the present study majority of the patients 72 (74%) attended the hospital within 6 hours after the insult.

Associated Injuries	Number	Percentage
Chest	9	10
Spine	1	1
No	87	89
Total	97	100

Table 5. Associated Injuries

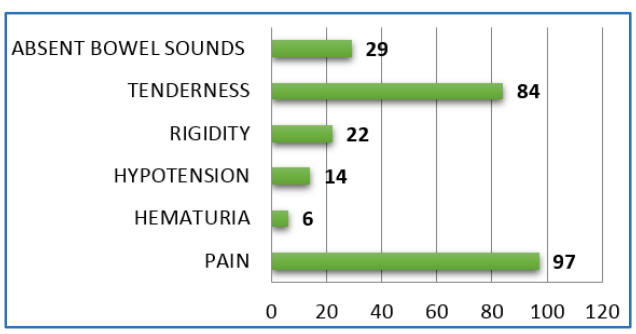


Graph 5. Associated Injuries

Among the patients with blunt injury to abdomen studied, 9 (10%) cases were having associated chest injury with rib fractures. Most of them are significant and were associated with injury to liver and spleen as they are under the ribs in the right and left side respectively. In 1 case there was vertebral fracture which was stable and had jejunal injury, sustained due to shearing force with seat belt in RTA. And in the remaining 87 (89%) cases there are no significant injuries.

Signs & symptoms	Number	Percentage
Pain	97	100
Hematuria	6	6
Hypotension	14	15
Rigidity	22	23
Tenderness	84	86
Absent bowel sounds	29	30

Table 6. Signs & Symptoms



Graph 6. Signs & symptoms

In the present study, the most common symptom of presentation was pain abdomen seen in 97 (100%) cases. Next symptom was shock in 6 (6%) cases. And 14 (15%) cases presented with shock and on laparotomy had significant injury to liver and spleen with haemoperitoneum. And in 22 (23%) cases there was guarding and rigidity and on laparotomy had bowel injury.

Tenderness was noted in 84 (86%) cases including both managed by surgical and conservative group. Haematuria was noted in 6 (6%) cases with retroperitoneal bleed and with renal involvement. Bowel sounds were absent in 29 (30%) cases due to paralytic ileus due to peritonitis or retro peritoneal bleed.

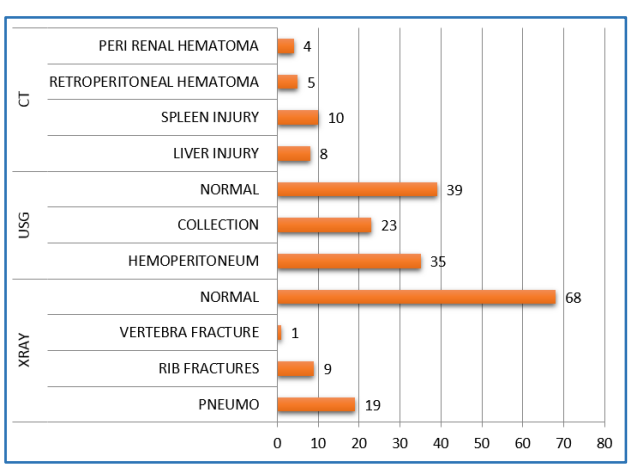
Investigations	Finding	Number	Percentage
X ray	Pneumo peritoneum	19	20
	Rib fractures	9	9
	Vertebra fracture	1	1
	Normal	68	70
USG	Haemoperitoneum	35	36
	Collection	23	24
	Normal	39	40
CT	Liver injury	8	8
	Spleen injury	10	10
	Retroperitoneal hematoma	5	5
	Peri renal hematoma	4	4

Table 7. Role of Investigations

In the present study cases were subjected for X ray chest AP view and X ray erect abdomen and X ray DL spine and air under the diaphragm was noted in 19 (20%) cases, rib fractures were seen in 9 (9%) cases and stable vertebra fracture in 1 case, and in remaining 68 (70%) cases it was normal.

All were subjected to USG and it was noted that 58 (60%) cases had collection in the peritoneal cavity either due to solid organ injury or bowel perforation, mesentery tears. In 35 cases there was associated injury to solid organs like liver, spleen, renal contusion and retroperitoneal collection.

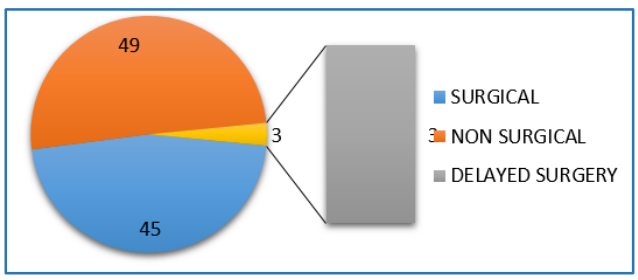
Patients with solid organ injury in USG were subjected to CT abdomen and in 8 (8%) cases liver was found to be injured, in 10 (10%) spleen was injured, in 5 (5%) retro peritoneal hematoma was noted and in 4 (4%) cases renal injury was present. The injuries were graded and managed conservatively and surgically based on the grade.



Graph 7. Role of Investigations

Management	Number	Percentage
Surgical	45	46
Non-surgical	49	51
Delayed surgery	3	3
Total	97	100

Table 8. Case Management



Graph 8. Case Management

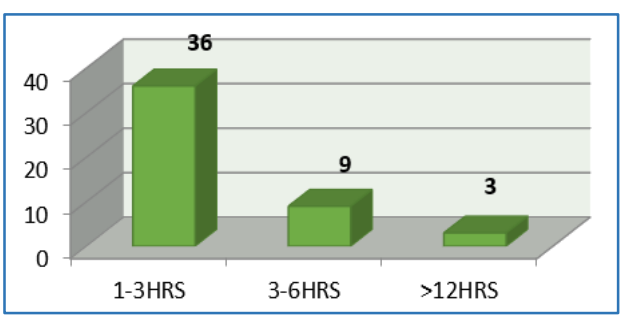
All the 97 cases in the present study were subjected to investigations and decision was made on management. So in 45 (46%) cases surgery was performed within 6 hours after admission.

In 52 (54%) cases conservative management was planned and were kept for observation. 3 cases among them were taken for surgery with in 12 hours due to development of signs of peritonitis in 2 cases and signs of re bleed from spleen in 1 case.

Admission to Surgery Time	Number	Percentage
1-3 hrs.	36	75
3-6 hrs.	9	19
>12 hrs.	3	6
Total	48	100

Table 9. Admission To Surgery Time

In the present study, 48 out of 97 cases were managed surgically. The time interval between admission and surgery varied from 1-3 hours in 36 (75%) cases and between 3-6 hours in 9 (19%) cases.



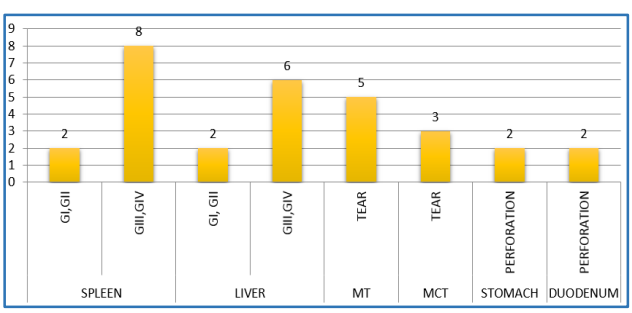
Graph 9. Admission to Surgery Time

But in 3 cases (6%) which were initially managed conservatively were taken up for surgery in the following 12 hours as two patients among them developed symptoms of peritonitis and one developed shock due to continuous bleed from grade II splenic injury. Hence the admission to surgery time was delayed in these cases.

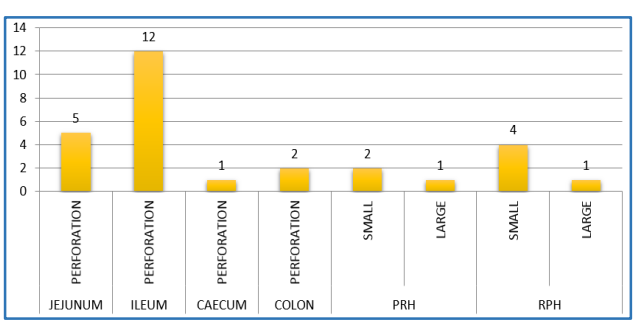
Organs Injured	Type	Number	Percentage
Spleen	GI, GII	2	2
	GIII, GIV	8	9
Liver	GI, GII	2	2
	GIII, GIV	6	6
Mesentery	Tear	5	5
Mesocolon	Tear	3	3
Stomach	Perforation	2	2
Duodenum	Perforation	2	2
Jejunum	Perforation	5	5
Ileum	Perforation	12	13
Caecum	Perforation	1	1
Colon	Perforation	2	2
Perirenal hematoma	Small	2	2
	Large	1	1
Retroperitoneal hematoma	Small	4	4
	Large	1	1
Normal		39	40
Total		97	100

Table 10. Organs Injured

In the present study spleen was involved in 10 cases GI, GII in 2 cases and GIII, GIV in 8 cases, Liver was injured in 8 cases GI, GII in 2 cases and GIII, GIV in 6 cases, mesentery tear in 5 cases, mesocolon tear in 3 cases, gastric, duodenal, colon perforation in 2 cases each, jejunal perforation in 5 cases, ileal perforation in 12 cases, 1 case of caecal perforation, 3 cases of renal contusions and 5 cases of retro peritoneal hematoma was noted. In 39 cases there were no significant injuries and were kept for observation.



Graph 10. Organs Injured



Graph 11. Organs Injured

Organ Injured	Finding	Procedure	Number
Spleen	GI, GII	Conservative	2
	GIII, GIV	Splenectomy	8
Liver	GI, GII	Conservative	2
	GIII, GIV	Gell foam	6
Mesentery	Tear	Repair	5
Mesocolon	Tear	Repair	3
Stomach	Perforation	Primary closure	1
		GJ	1
Duodenum	Perforation	Primary closure	1
		GJ	1
Jejunum	Perforation	Primary closure	4
		Resection anastomosis	1
Ileum	Perforation	Primary closure	8
		Resection anastomosis	2
		Stoma	2
Caecum	Perforation	Rt hemi colectomy	1
Colon	Perforation	Primary closure	1
		Colostomy	1
Perirenal Hematoma	Small	Conservative	2
	Large	Wash Gelfoam	1
Retro peritoneal Hematoma	Small	Conservative	4
	Large	Wash Gelfoam	1

Table 11. Procedures Performed

In the present study involvement of spleen was noted in 10 cases with GI, GII in 2 cases which were managed conservatively and with GIII, GIV in 8 cases splenectomy was done.

Liver was injured in 8 cases with GI, GII in 2 cases which were conservatively managed and with GIII, GIV injury in 6 cases laparotomy was done and Gelfoam was applied. And cases with mesentery tear in 5, mesocolon tear in 3 were repaired.

1 case of gastric perforation was managed with primary closure and in other case gastro jejunostomy was done. Similarly for 1 case of duodenal perforation primary closure was done and gastro jejunostomy was done in the other.

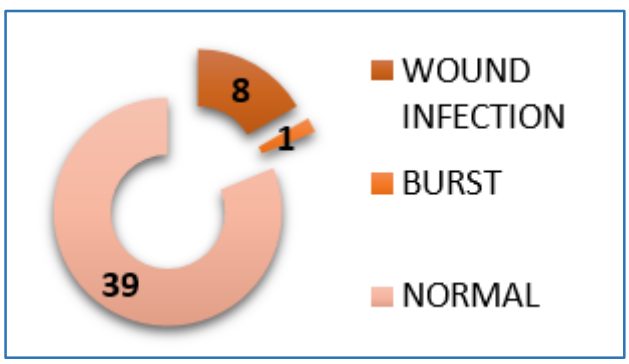
A case of ascending colon perforation was closed primarily and in 1 case of transverse colon perforation colostomy was done.

In 4 cases of jejunal perforation primary closure was done and in 1 case resection and anastomosis was done. Similarly in 8 cases of ileal perforation primary closure was done and in 2 cases resection and anastomosis was done in 2 cases ileostomy was performed.

The caecal perforation was managed with right hemi Colectomy. 2 cases of renal contusions and 4 cases of retro peritoneal hematoma were managed conservatively.

Complication	Number	Percentage
Wound Infection	8	17
Burst	1	2
Normal	39	81
Total	48	100

Table 12. Post Opoerative Complications



Graph 12. Post Opoerative Complications

In the present study, wound infection was the most common complication after surgery seen in 8 (17%) cases. Burst abdomen was noted in a case. There are no other complications like pelvic abscess, anastomotic leak. There were no deaths noted.

DISCUSSION

In the clinical study in 97 cases of blunt injury to the abdomen performed in the department of general surgery in S.V.R.R.G.G. hospital it was noted that

Age Incidence

Maximum number of cases were in 21-30 years 28 (29%) followed by 41-50 and 31-40 years 22 (23%) and 21 (22%) respectively. This shows that maximum numbers of patients are in reproductive age group and working population exposed to work stress and insults. And hence the impact of injury is maximum in the working population and the injury may affect the earning capacity and economy of the family. This goes in accord with studies of Davis et al.[2] and Lowe et al.[3]

In study by Richardcurie[1] which showed maximum number of cases in second decade (35%). Similar observations were also made by ALLEN et al which showed 28% cases between 20-29 years of age and Williams and Zollinger. showed 66% cases between 10-30 years of age.

Sex Distribution

About 67 (69%) patients were male and 30 (31%) were female. This shows that male gender is more prone for blunt injury due to RTA, fall or hit by object due to their occupation than females. And female were involved in the assault injury in the house with minimal trauma.

It was same compared to other studies like Tripathi et al (1991)[4] reported a ratio of 4.4:1.

Nature of Injury

In this study, most common cause of blunt trauma to abdomen was road traffic accidents 27 (28%), This was equivocal with other studies conducted by Perry.[5] and Morton et al.[6] Thus prevention of accidents can decrease fatality.

Mohapatra et al[7] also reported 62% cases of blunt injury abdomen were due to RTA. Another study by Curieet al[8] also reported 58.6% cases of blunt injury to abdomen were due to RTA. Fall from height was found to be the second common cause in 25 (26%) cases. Other causes were hit by blunt objects in 25 (26%) cases and assault in remaining 20 (20%) cases.

Latent Period

In the present study majority of the patients 72 (74%) attended the hospital within 6 hours after the insult. This can be explained by the development of trauma care centres in each place and the transportation facilities.

The delay in hospital admission in the other cases was due to the fact that unavailability of resources, difficulty in transportation, poor socio economic status and delay in referral from other primary health canters. Delay in hospital admission was also reported by other Indian authors as well Tripati et al

Associated Injuries

Among the patients with blunt injury to abdomen studied, 9 (10%) cases were having associated chest injury with rib fractures. Most of them are significant and were associated with injury to liver and spleen as they are under the ribs in the right and left side respectively. In 1 case there was vertebral fracture which was stable and had jejunal injury, sustained due to shearing force with seat belt in RTA. And in the remaining 87 (89%) cases there are no significant injuries.

Signs and Symptoms

In the present study, the most common symptom of presentation was pain abdomen seen in 97 (100%) cases. Next symptom was shock in 6 (6%) cases. And 14 (15%) cases presented with shock and on laparotomy had significant injury to liver and spleen with haemoperitoneum. And in 22 (23%) cases there was guarding and rigidity and on laparotomy had bowel injury. Tenderness was noted in 84 (86%) cases including both managed by surgical and conservative group. Haematuria was noted in 6 (6%) cases with retroperitoneal bleed or with renal involvement. Bowel sounds were absent in 29 (30%) cases due to paralytic ileus due to peritonitis or retro peritoneal bleed. A study by Tripati et al also reported pain abdomen in 91% of their patients. Our study is comparable to study by Tripati et al which reported tenderness as most common sign in 80% of their patients and shock in 37.2% of their patient.

Another study by Mohapatra et al[7] also reported tenderness as most common sign in 70.85% of patients and 13.9% of patients with shock.

Diagnostic Peritoneal Aspiration

In the present study, diagnostic aspiration was done in 97 patients and positive in 37 cases. Out of 48 operated cases, 37 cases have undergone DPL and the results were found to be positive. This shows that it is 100% accurate in intra-abdominal pathology but poor in detecting retro peritoneal area lesions. In a study Mohapatra et al showed diagnostic aspiration to be accurate in 95% cases. Another study by T.Narsing Rao et al showed diagnostic aspiration to be 100% accurate.

Investigations

In the present study cases were subjected for X ray chest AP view and X ray erect abdomen and X ray DL spine and air under the diaphragm was noted in 19 (20%) cases, rib fractures were seen in 9 (9%) cases and stable vertebra fracture in 1 case, and in remaining 68 (70%) cases it was normal. Another study Mohapatra et al reported accuracy of x-ray erect abdomen to be 100% in detecting Hollow viscous injuries. All were subjected to USG and it was noted that 58 (60%) cases had collection in the peritoneal cavity either due to solid organ injury or bowel perforation, mesentery tears. In 35 cases there was associated injury to solid organs like liver, spleen, renal contusion and retroperitoneal collection.

In our study USG was sensitive in detecting solid organ. This is comparable to other studies like Soffer Detal (2006) which showed USG to have 89% accuracy, 77% sensitivity and 97% specificity. But it was not very helpful in detecting hollow viscous injuries Patients with solid organ injury in USG were subjected to CT abdomen and in 8 (8%) cases liver was found to be injured, in 10 (10%) spleen was injured, in 5 (5%) retro peritoneal hematoma was noted and in 4 (4%) cases renal injury was present. The injuries were graded and managed conservatively and surgically based on the grade.

Management

All the 97 cases in the present study were subjected to investigations and decision was made on management. So in 45 (46%) cases surgery was performed within 6 hours after admission. In 52 (54%) cases conservative management was planned and were kept for observation. 3 cases among them were taken for surgery with in 12 hours due to development of signs of peritonitis in 2 cases and signs of re bleed from spleen in 1 case. Hence keeping the patients with significant injury to abdomen for observation will avoid morbidity and provide appropriate care with in time. Our reports are comparable to Mohapatra et al who reported 39% laparotomy rates in their series. Non operative management consisted of Nasogastric aspiration, urine output measurement, I. V. fluids, analgesics and antibiotics.

Organs Injured

In our study a total of 18 cases were found to be having solid organ injury.

Out of which 4 (25%) were managed conservatively and 14 cases (75 %) were managed surgically. All patients in non-operative group recovered uneventfully except for one who was operated for delayed rebleed. Our study shows that 25% of solid organ injuries can be managed non operatively. A study by Rutledge et al also showed that incidence of non-operative management in 48% of both hepatic and splenic injuries. This disparity may be because of change in the sample size.

In the present study, 48 out of 97 cases were managed surgically. The time interval between admission and surgery varied from 1-3 hours in 36 (75%) cases and between 3-6 hours in 9 (19%) cases. This shows the attention given on the trauma patients in the emergency ward and better radiological and laboratory facilities. The delay in few cases was due to resuscitation of patient. The time interval varied from 2-6 hours with mean interval of 4 hrs.

But in 3 cases (6%) which were initially managed conservatively were taken up for surgery in the following 12 hours as two patients among them developed symptoms of peritonitis and one developed shock due to continuous bleed from grade II splenic injury. Hence the admission to surgery time was delayed in these cases.

In the present study spleen was involved in 10 cases GI, GII in 2 cases and GIII, GIV in 8 cases, Liver was injured in 8 cases GI, GII in 2 cases and GIII, GIV in 6 cases, mesentery tear in 5 cases, mesocolon tear in 3 cases, gastric, duodenal, colon perforation in 2 cases each, jejunal perforation in 5 cases, ileal perforation in 12 cases, 1 case of caecal perforation, 3 cases of renal contusions and 5 cases of retro peritoneal hematoma was noted. In 39 cases there were no significant injuries and were kept for observation.

Procedure Done

In the present study involvement of spleen was noted in 10 cases with GI, GII in 2 cases which were managed conservatively and with GIII, GIV in 8 cases splenectomy was done.

Our study is contrast to study done by Davis et al which reported 24.7% of cases had splenic injuries, out of which 10.7% were operated and 14% were managed conservatively. Another study by R. Curie et al reported 27.5% of cases had splenic injuries, out of which 15% were operated and splenorrhaphy was done in all cases.

Liver was injured in 8 cases with GI, GII in 2 cases which were conservatively managed and with GIII, GIV injury in 6 cases laparotomy was done and Gelfoam was applied.

And cases with mesentery tear in 5, meso colon tear in 3 were repaired. Mesenteric tear was observed in 5% cases, which were operated. Our study is comparable to a study done by Davis et al which showed 3.4% cases of mesenteric tear.

Our study is contrast to study by Davis et al which showed 16.47% of liver injuries, out of which 14% underwent laparotomy and suturing was done in all cases. Another study by R. Curie et al showed 20.6% of liver injuries.

Our study is comparable to most other studies which showed Hepatosplenal injuries as most commonly injured organs in blunt trauma. A study by Robert Rutledge et al[9] found spleen to be most commonly injured organ than liver. 1 case of gastric perforation was managed with primary closure and in other case gastro jejunostomy was done. Similarly for 1 case of duodenal perforation primary closure was done and gastro jejunostomy was done in the other. In 4 cases of jejunal perforation primary closure was done and in 1 case resection and anastomosis was done. Similarly in 8 cases of ileal perforation primary closure was done and in 2 cases resection and anastomosis was done in 2 cases ileostomy was performed. In our study, injury to small intestine was in 24% and compared to a study done by Allenand Curry[8] which showed 35.3% cases. A case of ascending colon perforation was closed primarily and in 1 case of transverse colon perforation colostomy was done.

Large bowel injury was observed in 3% cases, which were operated. Our study is comparable to a study by R. Curie et al which showed 3.44% of their patients with injury to large bowel. The caecal perforation was managed with right hemi Colectomy. 2 cases of renal contusions and 4 cases of retro peritoneal hematoma were managed conservatively.

Complications

In the present study, wound infection was the most common complication after surgery seen in 8 (17%) cases. Burst abdomen was noted in a case. There are no other complications like pelvic abscess, anastomotic leak. There were no deaths noted.

Our study is comparable to a study by Jolly et al [10] which showed wound infection in 14% of the cases. Another study by Davis et al showed wound infection as a complication in 15% of the cases. This was consistent with studies conducted by Beall et al.[11]

In our study, out of 97 cases, there are no deaths. But in study by Jolly et al which showed 10% mortality in their study with septicaemia shock the most common cause of death. Another study by Davis et al showed 15% mortality with septicaemia the most

CONCLUSION

Blunt Trauma to abdomen is on rise due to excessive use of motor vehicles. It poses a therapeutic and diagnostic dilemma for the attending surgeon due to wide range of clinical manifestations ranging from no early physical findings to progression to shock. So, the Trauma surgeon should rely on his physical findings in association with use of modalities like x-ray abdomen, USG abdomen and abdominal paracentesis. Hollow viscus perforations are relatively easy to pick on x-ray. But solid organ injuries are sometimes difficult to diagnose due to restricted use of modern amenities like CT scan in India. From our study, we conclude that in hemodynamically stable patients with solid organ injury conservative management can be tried and non-operative management and damage control surgery in trauma is associated with less complication and morbidity.

SUMMARY

There were a total of 367 cases attending to emergency ward of SVRRGG hospital Tirupati. Out of those 367 cases 97 cases were admitted to trauma care unit.

Out of these 67 were male and 30 were female. Road Traffic accidents were the most common cause of blunt abdominal trauma (28%). 69% were males and females were 31%. 74 % cases were in 21-50 years of age, maximum number of cases were in the age group of 21-30 years. 100% patients presented with pain abdomen, most common sign on admission was Tenderness of abdomen (86%). Only 14% of patients were admitted within >8 hours of injury and maximum number of patients (86%) was admitted within 6 hours after injury. Diagnostic aspiration is an accurate investigation in intra-abdominal pathology but poor in detecting retro peritoneal area lesions. X-ray erect abdomen was most sensitive investigation for hollow viscous injury with 100% accuracy. Most useful investigation for solid organ injuries was ultrasound scan of abdomen and CT. Maximum number of cases (75 %) was operated between 3-6 hours of admission. Spleen was the most common solid organ involved. Small bowel is most commonly injured over all. Wound infection was most common post-operative complication in 17% cases**.** 48 cases (49%) were managed surgically and 51% were managed conservatively.

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