IF : 4.547 | IC Value 80.26

Volume-6, Issue-4, April - 2017 • ISSN No 2277 - 8160

Original Research Paper

General Surgery

A case study on BLUNT ABDOMINAL TRAUMA (BAT) - Approach, Association's, Management and outcome in a TRAUMA CENTRE of a tertiary health care setup.

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ABSTRACT Case study of 40 cases of blunt trauma abdomen to evaluate role of various modalities of treatment available for solid and hollow organ injuries with an aim to reduce the morbidity and mortality over a period of six months.

KEYWORDS : blunt trauma abdomen (BAT), TRAUMA CENTRE, tertiary health care

Introduction:

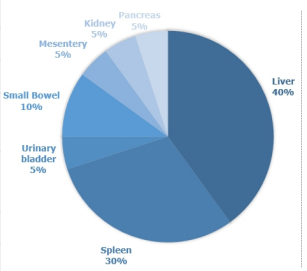
- Abdominal trauma is one of the most common causes among injuries caused mainly due to road traffic accidents. Rapid increase in road traffic accidents has caused rapid increase in blunt trauma abdominal injuries accounting for 75 % to 80 % of blunt trauma abdomen injuries.
- Other causes include fall from height, assault with blunt objects, bomb blasts etc.
- Due to inadequate treatment of abdominal injuries most of the cases are fatal. The mortality rate in India is 21 % and globally it is 12 %.
- In spite of the best technique and advance in diagnostic and supportive care the morbidity and mortality remains large. The reason for this could be the interval between trauma and hospitalization, delay in diagnosis, and associated trauma especially to the spine, head, thorax, and extremities.

Aims of Study:

- To study the incidence and pattern of closed abdominal injury in hospitalized trauma patients'.
- To establish relationship and comparison between conservative and operative treatment and outcome.
- To study the relationship between the time interval from the injury to getting definitive treatment and it' s impact on outcomes in the patient with closed abdominal injury.
- To evaluate the role of various modalities of treatment available for solid and hollow organ injuries with an aim to reduce the morbidity and mortality.
- To evaluate the complexities of blunt trauma abdomen.
- Table regarding time of patient injury and operation planned.

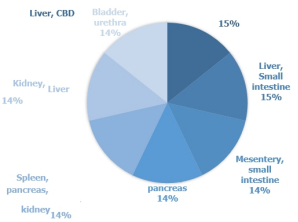
Observation and Discussion: Organs Involved

Organ	Number of Cases	Percentage
Liver	16	40 %
Spleen	12	30 %
Urinary Bladder	02	05 %
Small bowel	04	10 %
Mesentery	02	05 %
Kidney	02	05 %
Pancreas	02	05 %



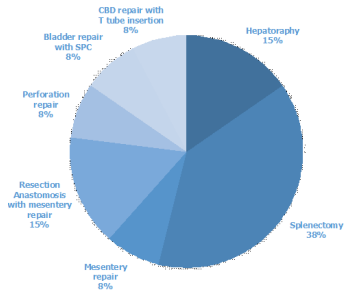
Multiple Organ Injury:

- Liver, CBD: 02
- Liver, Small intestine: 02
- Mesentery, small intestine: 02
- Spleen, pancreas: 02
- Spleen, pancreas, kidney: 02
- Kidney, Liver: 02
- Bladder, urethra: 02



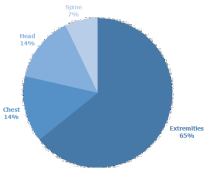
Operative Procedures:

Operative Procedures	Number of Cases
Hepatoraphy	04
Splenectomy	10
Mesentery repair	02
Resection Anastomosis with mesentery repair	04
Perforation repair	02
Bladder repair with SPC	02
CBD repair with T Tube insertion	02



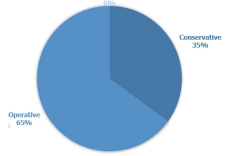
Associated injuries:

Associated Injuries	Number of Cases
Extremities	06
Chest	04
Head	04
Spine	02



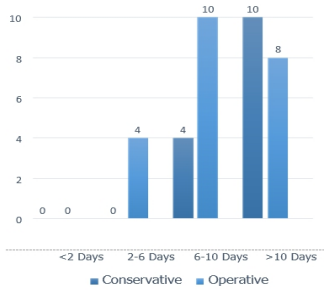
Treatment:

Treatment	Number of Cases	Percentage
Conservative	14	35 %
Operative	26	65 %
Total	40	100 %



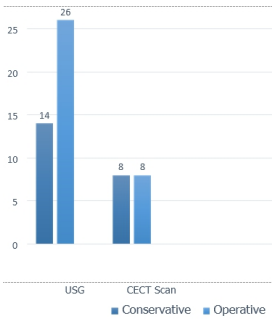
Duration of Hospital Stay:

Duration of Hospital stay (in Days)	<2	2-6	6-10	>10
Conservative	00	00	04	10
Operative	00	08	10	08
Total	00	08	14	18



Investigations: CT Scan and USG

Investigations	USG	CECT Scan
Conservative	14	08
Operative	26	08
Total	40	16



Time Interval:

Time interval between injury and hospitalisation12 alization among conservative and operative patients'.

Time interval (in hours)	0-1	1-2	2-6	6-24	>24
Conservative	00	02	02	04	06
Operative	00	06	08	10	02
Total	00	08	10	14	08

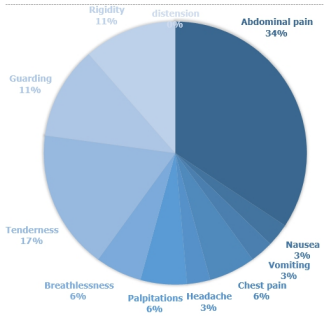
Around 20 % of patients' admitted in other institutes were transfered to our institute after 24 hours of injury.

Complications:

Complica tions	Conserva tive	Operative	Total
Wound Infection	00	02	02
Pneumonia	02	02	04
Faecal Fistula	00	00	00
Pseudocyst	02	2	04
Death	02	02	04
Total	06	08	14

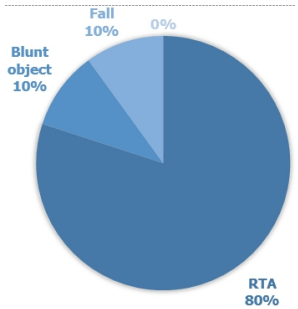
Signs and Symptoms:

Signs and Symptoms	Number of Cases
Abdominal pain	12
Nausea	01
Vomiting	01
Chest pain	02
Headache	01
Palpitations	02
Breathlessness	02
Tenderness	06
Guarding	04
Rigidity	04
Abdominal Distension	05



Modes of Injury:

Modes of Injury	Number of patients
RTA	32
Beaten by Blunt object	4
Fall down	4

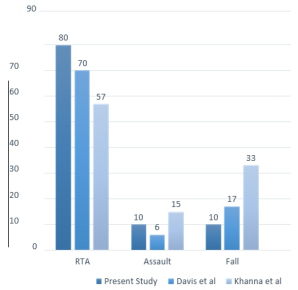


- Penetrating trauma abdomen is not included in this study.
- Follow up:
- All patients' were followed upon the O.P.D. basis after discharge.
- Follow up was carried out for minimum period of 2 months

Comparison with Other Studies:

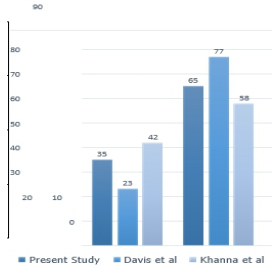
- **Mode of Injury**

Mode of Injury	Present Study	Davis et. al.	Khanna et. al.
RTA	80 %	70 %	57 %
Blunt object Assualt	10 %	06 %	15 %
Fall down from Height	10 %	17 %	33 %



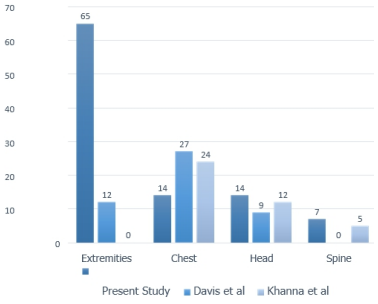
- **Management:**

Treatment	Conservative	Operative
Present Study	35 %	65 %
Davis et. al.	23 %	77 %
Khanna et. al.	42 %	58 %



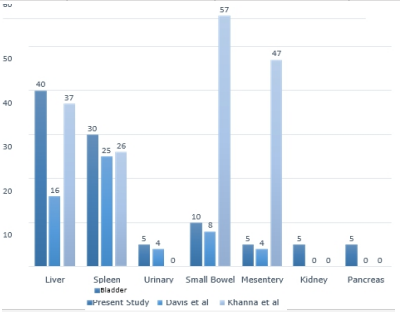
- **Associated Injuries:**

Associated Injuries	Present Study	Davis et. al.	Khanna et. al.
Extremities	65 %	12 %	00 %
Chest	14 %	27 %	24 %
Head	14 %	09 %	12 %
Spine	07 %	00 %	00 %



- **Organ Injuries:**

Organ	Present Study	Davis et. al.	Khanna et. al.
Liver	40 %	16 %	37 %
Spleen	30 %	25 %	26 %
Urinary Bladder	05 %	04 %	00 %
Small bowel	10 %	08 %	57 %
Mesentery	05 %	04 %	47 %
Kidney	05 %	00 %	00 %
Pancreas	05 %	00 %	00 %



Summary:

- Commonest cause of blunt abdominal trauma was found to be Road Traffic Accident.
- Most of the patients were admitted within the first six to twenty four hours of injury.
- In my study, liver is the most commonly involved organ, followed by spleen.
- In this study, USG remains the most suitable investigation in our setup, while CT scan plays a significant role in polytrauma with multiple organ injuries.
- Out of 40 cases, 35 % were managed conservatively while 65 % required operative intervention.
- There are complications associated with the operative mode of treatment; most commonly being wound infection.
- Highest incidence of operative intervention was found among the patients of road traffic accident.

Conclusion:

- Vehicular accidents remain the most common cause of blunt abdominal trauma, liver and spleen being the most common organs to be injured.
- Not all patients having blunt abdominal trauma with evidence of intra abdominal injury require operative intervention, they can also be managed conservatively.
- Repeated and careful examination is required when patients are treated conservatively.
- In case of doubt operative intervention should be done as diagnostic as well as therapeutic measure.
- Clinical criteria, along with high index of suspicion for specific organ injury, are more important than laboratory and radiological investigation for better outcome of patient.
- Conservatively treated patients could resume their routine activities earlier, while operated patients needed to be kept for more days for post-operative management and monitoring.
- Detailed history, careful and repeated examination reveal the injury to gastrointestinal tract in most of cases.
- Radiology is helpful in diagnosis of the injury, but negative radiology does not rule out gastrointestinal injury.
- The best way of reducing the morbidity and mortality from blunt abdominal trauma is prevention. Efforts on controlling traffic, making people conscious about the traffic rules, better facilities of working and more safety will lessen the incidence of accident.
- Facility of emergency ward, definitely helps in the initial phase of the treatment and reduce the morbidity and mortality.
- Well trained and co-ordinated team of trauma specialist Surgeons, Radiologists, Orthopaedics, and Anaesthesiologist in trauma centres can reduce the morbidity and mortality of patients.
- There is an acute need of Trauma centre, which is well equipped with all modern facilities in tertiary care centre.

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