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The Evaluation and Management of Abdominal Trauma

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Abstract: ***Background:*** ***The purpose of study is to evaluate the patients with abdominal trauma and give effective management at right time. Abdominal trauma continues to account for a large number of trauma related injuries and deaths.*** ***Methods:*** ***The study was carried out in patients of Krishna hospital and Medical research centre, Karad in period of January 1992 to December 1993. We evaluated 100 patients. 68 out of 100 patients were having blunt injury and 32 out of 100 patients were having penetrating abdominal injury.*** ***Results:*** ***Approximately 10% of civilian injuries that require operation are result of blunt abdominal trauma. 49 patient out of 68 blunt trauma were treated conservatively and 19 out of 68 blunt trauma patients needed surgical intervention. 28 out of 32 penetrating injury were treated surgically while 4 were treated conservatively.(out of 4 ,one died due to shock before any surgical intervention).*** ***Conclusion:*** ***Blunt abdominal trauma is more common than penetrating abdominal trauma. The diagnosis is much more difficult in blunt trauma, but we can obtain some clue from Radiodiagnosis like USG. Overall mortality rate is 12%.***

Keywords: Detailed History , Clinical Examination, Proper Diagnosis

1. Introduction

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.

Rapid resuscitation is necessary to save the unstable but salvageable patients with abdominal trauma. Accurate diagnosis and avoidance of needless surgery is an important goal for evaluation, Unnecessary deaths and complications can be minimized by improved resuscitation , evaluation and treatment.

When the diagnosis is in doubt, and the clinical judgment suggests surgery, exploration provides definitive treatment as well as diagnosis; moreover, the risk of negative exploration has become acceptable.

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 maneuvers, before the surgery is performed? However, Most avoidable deaths result from failure to resuscitate and operate on surgically correctable injuries.

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

2. Methods

Ethical Statement: The Study made the standards outlining the declaration of Helsinki and Good Epidemiological practices. This study did not change or modify the laboratory of clinical practices of each centre and differences of practices were kept as they are.The data collection was anonymous and identifiable patient information was not submitted.

Individual researchers were responsible for complying with local ethical standards and hospital registration of study.

Study Population: the Present study was carried out in patients of Krishna Hospital, and Medical Research Centre ,Karad during period of January 1992 to December 1993. In the series of 100 patients, 68 patients were having blunt injury and 32 were having penetrating abdominal injuries.

Diagnosis: In Diagnosing, the main stress was given on the detailed history, either obtained from patient or from his relatives (when the patients was unconscious). Detailed history and thorough clinical examination played a very important role in arriving at the correct diagnosis. In History, following points were stressed: time of injury, object with which patient was injured and site of injury over abdomen.

In the present series, 94 out of 100 patients came with pain in abdomen (remaining 6 patients were either unconscious or drowsy), 29 patients had a story of vomiting, 35 had abdominal distention , 14 had hematuria, 44 presented with retention of urine , while 13 patients had constipation. 18 out of 68 patients with blunt trauma and 11 out of 32 patients with penetrating injury were in hypotension at the time of admission.

3. Observations and Results

The present series was carried out from January 1992 to December 1993. In this series, 100 patients of abdominal injury were studied.

Table 1: Incidence of Blunt and Penetrating Abdominal Trauma

Abdominal injury	No. of Patients	Percentage
Blunt	68	68
Penetrating	32	32
Total	100	100

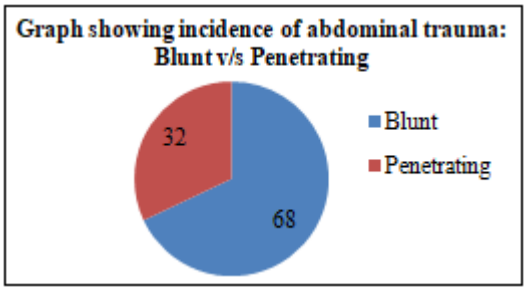


Table 2: Relation of abdominal trauma to age

	Types of Abdominal injuries			
	Blunt		Penetrating	
Age Range (years)	No of cases	Percentage	No of cases	Percentage
0-10	9	13.3	3	9.4
11-20	12	17.6	5	15.6
21- 30	20	29.5	9	28.1
31- 40	12	17.6	6	18.7
41-50	7	10.3	5	15.6
51-60	7	10.3	2	6.3
61-70	1	1.4	2	6.3

Table 3: Relation of Abdominal trauma and sex distribution

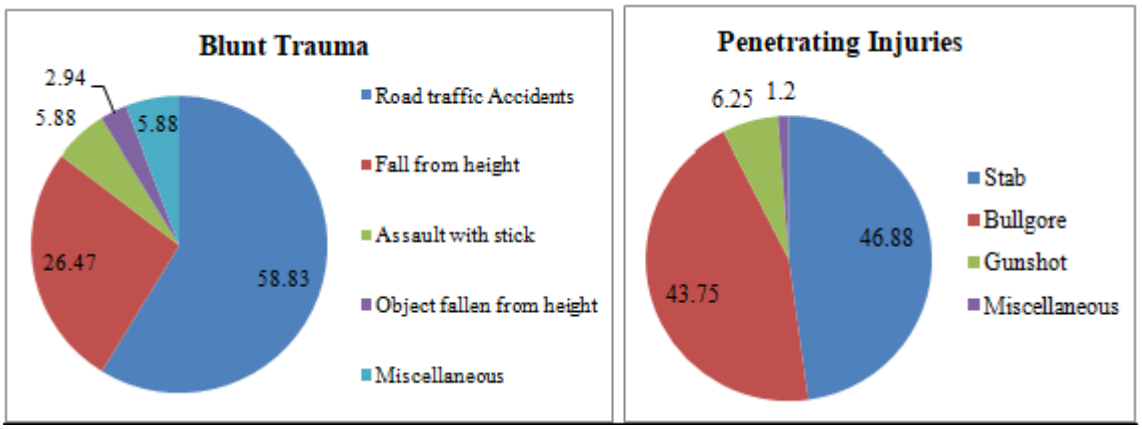
	Types of Abdominal injuries			
	Blunt		Penetrating	
Sex	No of cases	Percentage	No of cases	Percentage
Male	64	94	27	84.4
Female	4	6	5	15.6
Total	68	100	32	100

Table 4: Youngest and Eldest Male and Female patients in Abdominal Trauma

		Age in years	
Abdominal Trauma	Sex	Youngest	Eldest
Blunt	Male	2 ½	63
	Female	16	35
Penetrating	Male	2	70
	Female	11	50

Table 5: Relation of Abdominal trauma to occupation

	Abdominal Trauma			
	Blunt		Penetrating	
Occupation	No of cases	Percentage	No of cases	Percentage
Farmer	21	30.88	13	40.62
Labourer	10	14.70	0	00.00
Businessmen/ Servicemen	10	14.70	2	6.25
Student	18	26.47	9	28.13
Household	2	2.95	4	12.50
Driver/ Cleaner	5	7.35	2	6.25
Nil	2	2.95	2	6.25
Total	68	100	32	100



Graph showing Mechanism of Abdominal Injuries

Mode of treatment

Blunt abdominal trauma : 68 patients
49 patients were treated conservatively whereas 19 needed surgical intervention

Penetrating abdominal trauma: 32 patients
28 patients were treated surgically while 4 were treated conservatively.
(out of 4, one died due to shock before any surgical intervention)

Table 6: Abdominal trauma and Mode of Treatment

Abdominal Trauma	Treatment	
Blunt	49	19
Penetrating	4	28
Total	53	47

Table 7: Abdominal Injury and Mortality

Abdominal Trauma	No of Cases	No of deaths	% of death
Blunt	68	10	14.70
Penetrating	32	2	6.25

Table 8: Average hospital stay in Abdominal Trauma

	Blunt trauma	Penetrating Trauma
Hospital stay in days	32	81

4. Discussion

Approximately 10% of the civilian injuries that require operation are the result of blunt trauma. Unrecognized injury to intra-abdominal contents remains a distressingly frequent cause of preventable death .most preventable deaths due to trauma are, according to this series, the result of delay in admission, and/ or extensive injury and to some extent due to inadequately treated abdominal injuries. Motor vehicle accidents (75%) and urban violence, respectively, are the leading causes of blunt and penetrating trauma to this area of the body . the symptoms and signs of injury in cases of blunt trauma are often masked by head injury, major fractures, alcohol and eithertoxins. Since high speed surface travel is becoming more universally available, it is certain that blunt trauma will continue to comprise an important fraction of the major injuries which the surgeon is called to treat,The incidence of penetrating abdominal trauma is increasing in urban hospitals as a consequence of rising frequency of violent crimes in Urban areas.

Due to advances in resuscitation, evaluation 2nd surgical techniques, our ability to salvage people with major abdominal injuries and minimize preventable deaths, have increased remarkably

The appropriate management of blunt abdominal trauma depends on a careful initial evaluation, the timely use of diagnostic procedures, and vigorous, therapy directed at immediate life-threatening problems .In contrast to penetrating trauma, the decision to perform laparotomy for blunt abdominal trauma is far more complex because structural injury is less obvious and associated multisystem trauma may demand more urgent operation.

5. Conclusion

1) Blunt trauma is more common than penetrating abdominal trauma
2) The incidence of penetrating abdominal trauma is also increasing due to increase in crime and violence
3) In both, blunt and penetrating abdominal injuries, the maximum incidence is seen between the age groups of 22 to 28 years.
4) As males are more exposed to causative factors, abdominal trauma shows a male preponderance.
5) As farmers are more exposed to the causative factors, e.g. Field work, outdoor activity, violence, crime and motor vehicle accidents, they commonly fall prey to both blunt and penetrating trauma to the abdomen.
6) The classical triad of diffuse tenderness, diffuse rigidity and absent peristalsis is pathognomonic of intra-abdominal injury. Hence, repeated clinical examination by the same surgeon plays and important role on diagnosis.
7) The diagnosis is much more difficult in blunt trauma, but we can obtain some clue from radio diagnosis like USG.
8) Four quadrant aspiration has a definite role in the diagnosis of abdominal trauma
9) Resuscitation and preoperative management holds same importance as that of surgical management
10) Pulse rate, temperature, blood pressure and intensity of pain in abdomen play an important role in the conservative line of treatment.
11) Tachycardia, hypotension, increased abdominal distension, and tenderness and pallor were considered as important factors for exploration .
12) Overall mortality rate is 12%. The high rate is due to involvement of multiple organs, very poor condition of the patient at the time of admission and post-operative complications in spite of vigorous medical care of the patients.
13) Abdominal; trauma is associated with head injury and chest trauma has shown increased morbidity and mortality.

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