Blunt Liver Trauma In Mulago Hospital

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Background: The paper presents 51 patients with blunt liver injury in Mulago national referral and teaching Hospital for Makerere University between Jan.1998-Jan.2003.
Objectives: This study was aimed at finding the epidemiology, treatment and outcome of blunt liver injuries in Mulago Hospital.
Methods: This was a retrospective study done using Hospital records of patients with liver trauma treated at Mulago Hospital from January 1998 to January 2003.
Results: There were a total of 51 patients with liver injury. The male to female ratio was 17:1. The average age was 37 years, 39 patients had positive "peritoneal movement test", 30 patients had positive 4-quadrant tap, and 30 patients had at least 3 more injuries. None of the patients had Ultra Sound or Computerized Tomography (CT). All 51 patients had a laparotomy. At laparotomy, in 28 patients nothing was done to the liver, in 10 patients the liver as sutured, in 8 patients the liver was packed and in 4 non-anatomical resection of the liver was done. No liver transplantation was done. The commonest complications were fever (40 patients) jaundice (30 patients). 10 patients died (20%).
Conclusion: Ultra sound or CT scan wound allow the haemodynamically stable patients to be treated non-operatively. The mortality rate of 20% is higher than in other series reported.

Introduction

Liver injury has been studied extensively in Europe and Asia[1]. The commonest cause has been cited as Road Traffic Crash (RTC)[1]. In 1982 Calne[2] reported 26 cases and classified the liver injuries. Specific investigations for liver trauma include ultra sound and CT[3]. The patients who are haemodynamically stable are treated non-operatively and those who are unstable are treated operatively. The usual operation is laparotomy and then either do nothing, suture, pack, resect or transplantation[4,5].Liver surgery is associated with many postoperative complications of haemorrhage, sepsis[6] and others. The mortality in developed countries is 5% for penetrating and 10% for blunt injuries[1]. The main objective of this study was to determine the prevalence, causes, demography, clinical presentation and outcome of treatment of blunt liver trauma in Mulago Hospital.

Patients and Methods

This was a retrospective study of all patients who presented with liver injury at Mulago National Referral and Teaching Hospital between 1998 and 2003. All medical files which had diagnosis of liver injury were retrieved and the following data was collected: Age, sex, aetiology, number of injuries, symptoms, surgery done, post operative complication and mortality.

Results

During the period under review, a total of 51 patients were managed for liver injuries. Figure 1 shows their age distribution. The peak was between 31 - 40 years. The male to female ratio was 16:1. The cause in thirty out of 51 patients was road traffic crash followed by falls from a height (Fig 2). Forty-three patients out of 51 had 3 or more injuries. The commonest associated injuries were those of lower limb fracture (Table1). On admission, 20 patients presented with haemorrhagic shock. In 39 patients, the Peritoneal Movement Test (PMT) was positive (Table 2). All patients had a laparotomy. In the majority of patients a right upper paramedian incision was used (Table 3). Using Calne's classification of the liver injuries, 24 patients had class I (Table 4). In 28 patients, nothing was done at laparotomy (Table 5).

Postoperatively, 40 patients had fever. There were 10 deaths (Table 6). According to Calne's classification there were 4 deaths in class II, 3 in class IV and 2 in class V (Table 7).

Fig 1: Age Distribution of 51 Patients with Blunt Liver Injury

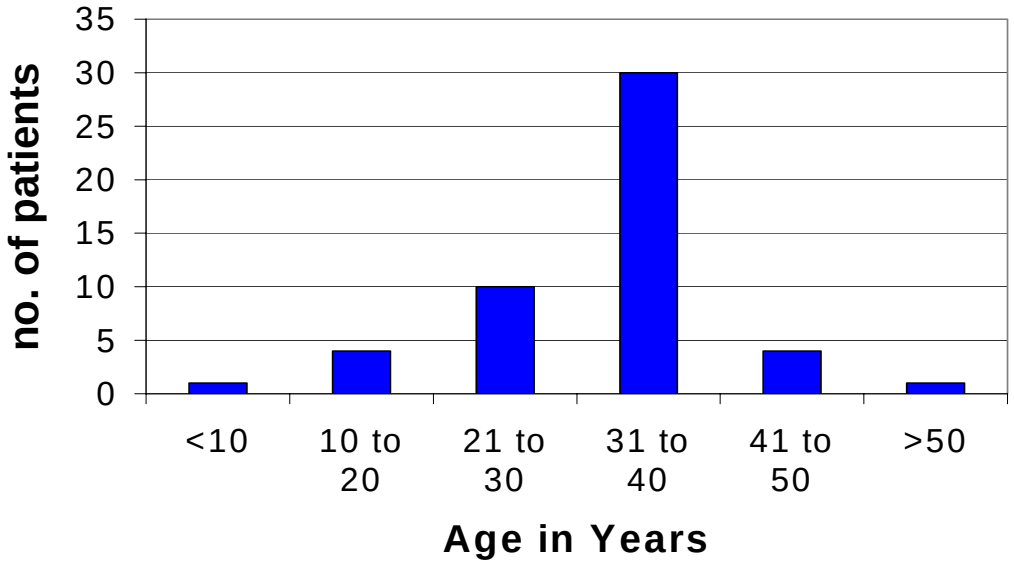

Table 1. Polytrauma (N = 51)

No. of Injuries	No. of Patients
1	2
2	6
3	35
>4	8
Total	51

Table 2. Findings in 51 patients.

Sign	*No. Of Patients*
Tale tale marks	24
4Q positive	30
PMT positive	39

Q = Quadrant. PMT = Peritoneal Movement Test

Table 3. Incision N= 51

RUP	HOC. I	A	TOTAL
.30	18	3	51

RUP = Right upper Paramedian. Hoc.I = Hockey IncisionAT= Abdomino-Thoracic

Table 4. Calnes Classification N=51

Class	No. Of Patients
I	24
II	12
III	8
IV	4
V	3
Total	51

Table 5. Procedure done at Surgery.

Procedure	No. Of Patients
Nothing done	28
Suture	11
Packing	8
Resection	4
Total	51

Table 6. Result And Complication N=51

Complications	No. Of Patients
Fever	40
Jaundice	30
Sepsis	25
Biliary Leakage	5

Table 7. Mortality According To Calne's Classification

	I	II	III	IV	V	Total
No of Patients	24	12	8	4	3	51
Dead	0	4	3	1	2	10

Discussion

This study has confirmed that like in other studies from elsewhere, Road Traffic Crushes are the major cause of liver injury and also the commonest cause of all other injuries[7]. The peak age of 31-40 years found in our series was in agreement with that found by Alison et al in 1991[1]. The reason is because this age group is closely associated with RTC. The male to female ratio in this study is 17:1 is comparable with that reported by Pachet and other workers[7]. This is expected since males are normally more involved in many hazardous activities.

The clinical features in liver trauma are vague and non-specific. However there are tale-tell marks such as were present in 30 of our patients. Although peritoneal lavage was not done in the present series, Schweizer[8] showed that it is positive in 95% of liver injuries. A test that has not been described before in literature, "*the peritoneal movement test (PMT)*" was positive in 39 patients out of 51.The test is positive in the majority of patients with closed abdominal injury. A conscious patient is asked to distend his abdomen and then to relax it. The test is positive if the patient fails to go through the exercise because of pain, which indicates peritoneal irritation. However the test is non-specific and does not indicate the point to the organ that is injured.

Patients with liver injury may be haemodynamically unstable and may present in haemorrhagic shock requiring urgent resuscitation[8] as was the case in 20 of our patients. Often the patients have polytrauma[8]. Thirty patients had at least 3 other injuries. Pachet et al[7] found that 60% of liver trauma patients had other injuries

Investigations

In this study ultrasound and CT were not done. This was unfortunate since other studies[1] have shown that when done, these investigations the number of patients treated non-operatively increases.

Treatment

In the present series, all patients underwent laparotomy. This was due to lack of modern technology in accident and emergency unit in our hospital. Otherwise the concept now is to treat the haemodynamically stable patient non-operatively[3,7,8]. Hospitals that lack modern technology tend to do more laparotomies and

have to face their associated complications and expenses.

In this study the most commonly used incisions were the right upper paramedian, the hockey stick and in three patients, the abdominal thoracic. Currently, the left or right subcostal incision is considered the best incision[8]. It gives good access to the liver. The finding in this study based on Calne's classification were comparable to those reported by Schweizer et al[8]. Majority of the patients had Class I and II injuries. This may explain why in 30 (58,8%) of the patients nothing was done at laparotomy. The surgeons found that the liver has stopped bleeding. These are the patients (Calne's II & I) who would have most likely been managed non-operatively had CT been available.

Procedures acceptable in managing liver trauma include packing[5,7,9]. It allows control of haemorrhage and if need be referral to a referral hospital. At least two abdominal mops should be used, one posteriorly and the second anteriorly. The abdomen closed and reopened within18-24 hours. If there is delay in reopening the abdomen[5] there are complications associated with the park e.g. high risk of infection[6].

The commonest complications seen after surgery were fever and jaundice. The Mortality rate was 20%. Death was related to both the grade of the liver injury and the multiplicity of the associated injuries. The 4 patients who died in class II had chest and head injuries.

Conclusion and Recommendations

U/S and CTS were not used routinely in Accident and Emergency unit in Mulago Hospital. Consequently unnecessary laparotomies were done. The mortality of 20% is high when compared to the 4-10% reported from elsewhere.

It is recommended that:

1. Ultra sound and CT scan should be used in liver injuries to pick up those that should be treated non-operatively.
2. Peritoneal Movement Test should be studied further.

References

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