

## LIVER INJURY IN A DISTRICT HOSPITAL (BLUE NILE STATE IN SUDAN)

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### ABSTRACT

**Background:** Liver injury management has changed over the last two decades including both operative and non-operative management.

**Objectives:** To evaluate the management and outcome of liver injury at Aldamazine district hospital blue Nile state.

**Methods:** This is a retrospective study including 20 patients who sustained liver injury between February 2003 and December 2009 literature was reviewed and data was analyzed using SPSS version 16.

**Results:** All patients were treated operatively and recovered with exception of only one operative mortality. A total of 20 patients were included in this study. 19 males and only one female the mean age was 21, 8 years ranging between 2- 45 years. Eleven patients received blood transfusion (5-13 unit), Bile leak was observed in two patients.

**Conclusion:** Operative management of liver injury was an effective method of management it required reasonable blood transfusion, hospital stay and accepted complication

**Keywords:** Liver injury, operative management, outcome.

### Introduction

Despite its relatively well protected localization, the liver is the most frequently injured organ in abdominal trauma, although the frequency of splenic lesions is greater in non penetrating trauma [1]. In Europe in the last 10 years the incidence of liver trauma appears to have risen due to the increase in the frequency of abdominal contusions because of traffic accidents [2, 3]. Treatment of traumatic liver injuries is based on patient physiology, mechanism and degree of injury, associated abdominal and extra-abdominal injuries and local expertise.

### Patients and Methods

All patients with liver injury managed at the state hospital at Aldamazine were included in this study. Medical records of all patients admitted with the diagnosis of liver injury between February 2003 and December 2009 in Al-Damazine hospital were retrospectively reviewed. Al-Damazine is the capital of Blue Nile State in South-Eastern Sudan.

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Data sheet including hemodynamic status, method of abdominal evaluation. GCS, radiological, operative reports and method of management associated injuries (intra-abdominal and extra-abdominal), blood transfusion requirements and hospital stay including length of stay (LOS) in the Intensive Care Unit (ICU), were also included.

### Results

The initial number of retrieved records was 20. The mean age of the patients was (21± 8 years) range from 2 to 45 years. Nineteen (19) males and one (1) female. Four (4) patients were excluded from the study.

Two patients with stab wound and two with gunshot who died during transport before reaching the hospital. Thus, only 16 were analyzed, nine of them had penetrating liver injury and seven patients sustained blunt liver injury. In our study group only 3 patients had isolated liver injury and from penetrating liver injury group, the rest of the patients had associated other injuries, either single or multiple.

**Table (1): Associated Injuries**

No.	Organ Injured	Frequency
1	Small bowel injury	5
2	Spleen injury	2
3	Uterine injury	1
4	Diaphragmatic injury	3
5	Head injury	2
6	Spine injury	2
7	Rib injury	2

Operative management (OM) was required in 16 patients (10 adults and 6 Children) .All patients managed operatively had an average GCS of 8, and 11 of them were hemodynamically unstable (%). Other causes for surgical treatment were: signs of peritoneal irritation on physical examination, pneumo-peritoneum, suspicion of diaphragmatic injury or suspicion of hollow visceral organ injury.

Beside meticulous clinical evaluation and close regular follow up, some of our patients underwent variable investigations, such as; two had diagnostic peritoneal lavage (DPL), two had ultrasound (U/S) examination and 8 were taken directly to the theatre without diagnostic

tests. The remaining 4 had a variable combination of ultrasonography; chest radiography and regular follow up.

8 patients sustained both intra-abdominal and extra-abdominal injuries indicating the severity of trauma to this sub-group of patients Out of the 16 patients who underwent OM, 11 received blood transfusion with a mean of 7, 4 units.

**Table (2): Blood Transfusion Requirement**

Units of blood	No patients
5	2
6	1
8	1
10	2
12	1
13	1

A strange mode of trauma was noticed in one patients who was 25 years old, farmer, had been injured, with what they call Cocab in the right upper abdomen, the diaphragm, the liver through the gall bladder and small bowel in multiple sites. Another 20 years old pregnant lady was stabbed by her brother with a knife in her abdomen liver, multiple bowel injury, and 8 stabs in her uterus. In this series 13 out of 16 patients had an injury on the (right) lobe one patient had both lobes injuries, and two patients had (left) lobe. One patient 2years old male sustained bullet injury in the back and at the surgery the built was removed from the anterior surface of the liver. The surgical technique, performed in all patients in this group exploratory laparotomies and treatment of the associated injuries. For liver injuries, we used to suture liver injuries with chromic type of suture material size 2 rounded needle blunt edge using figure of 8 technique (One patient died on the operative table (GCS 3-4). Two patients developed biliary leak both treated conservatively by delaying removal of the drain until dryness.

Length of hospital stay was significantly different between the two groups ( $p = 0.001$ ). The median length of stay in the paediatric group was 4 days (range 1–12) compared with 8 days in the adult group (range 1–22).

**Table (3): Hospital Stay**

Days	No. of patients
1-5	2
6-10	2
11-15	4
16-20	6
More than 22	2

### Discussion

Operative therapy has been the standard method of care for liver injuries from the beginning of the 20<sup>th</sup> Century until the beginning of the 1990s. This has been based on the dual rationale of hemostasis and bile drainage. Since the early 1980s, sporadic reports of adult patients. With blunt hepatic trauma treated non-operatively have appeared in the literature (Farnell MB *et al.* 1988, Brasel KJ *et al.* 1997). The liver is an organ commonly injured in trauma. 4, 5, 6 in our study the vast majority of liver injuries were due to penetrating trauma (56, 25%). This observation is similar to reported results from Europe but contrasts with those of North America and South Africa where the majority of liver trauma is due to blunt injury. 5 Imaging techniques particularly CT scanning, have made a great impact on the treatment of patients with liver injuries. (non of our patients had CT) and use of these techniques has resulted in marked reduction in the number of patients requiring surgery and non-therapeutic operations (Nawaz Khan A *et al.* 2009).

Non surgical treatment has become the standard of care in hemodynamically stable patients with liver injuries (7). In the literature, blunt liver trauma is associated with spleen injury in 45% of patients. Comparing to 28, 56% in our study. Rib Fractures are associated with injury to the right superior aspect of the liver in 33% of patients, almost similar to our study.

Both blunt and penetrating liver injuries are more common in males. Most liver injury occurs in adults who drive motor vehicles (Nawaz Khan A. *et al.* 2009), similar to our results. Patients were follow up for a mean of 7, 5 month all patients were well.

Similar to data from the literature, our results show that resolution of bile leaks occurred after a mean of 22 days (range 3-68 days), following insertion of size 18 nasogastric tube as Adrian and this is similar to endoscopic intervention [7,8]. Operative mortality occurred in only one patient (6,7%) bile leak observed in 2patients all stopped after conservative management within (3-68) days.

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