



Original Article

SCOPE OF SELECTIVE CONSERVATIVE MANAGEMENT IN PENETRATING ABDOMINAL INJURY

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Abstract

Introduction: Now-a-days penetrating trauma is increasing because of increased incidence of violence in our society and a large number of these patients present in trauma centers with normal vital signs and negative abdominal examination. Historically operative management was the main approach for penetrating abdominal trauma, but in recent time non operative management is also gaining popularity.

Objective: This study was aimed to observe the scope of non-operative management of penetrating abdominal injury in a tertiary level hospital of Bangladesh.

Methods: 54 patients of penetrating abdominal injury were selected from the casualty department of Dhaka Medical College Hospital. Data were collected from these patients by a preformed questionnaire and finally the data were analyzed by SPSS 16.

Results: Among the 54 patients only 9 required exploration, where generalized peritonitis was the major cause of operation and the common organ found to be injured was small intestine.

Conclusion: Selective non-operative approach may be considered for patients with penetrating abdominal injury, provided that sufficient manpower and expertise are available.

Key words: Selective Conservative Management, Penetrating Abdominal Injury

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Introduction

Until 1960, there was a dominant concept that all cases of abdominal penetrating trauma should be operated as soon as possible. The trend has moved in the past two decades from mandatory exploration to selective approach¹. Mandatory laparotomy for penetrating abdominal stab wound leads to unnecessary operations in 38-40% of patients, with 3% to 16% postoperative morbidity². Shaftan was the first to introduce a new approach called "selective conservatism" for management of these patients³. This concept was reinforced in 1969 by Nance and Cohn⁴. Since then, selective non operative management (NOM) of penetrating abdominal trauma has become more readily accepted.

Close monitoring and frequent follow-up are mandatory for the patients, managed by non-operative approach. These patients should have repeated clinical examinations, preferably by the same physician over the period of 12-24 hours ensuing arrival to the hospital. Observation periods over 24 hours are rarely required.

The presence of shock, eviscerations and peritoneal irritation are classic indications for laparotomy after penetrating abdominal injury. The clinician need to monitor the patients carefully & assess the situation as a whole, to determine the presence of haemodynamic instability or peritonitis. Additional diagnostic procedures have been advocated to enhance the sensitivity and specificity of clinical judgment. Several diagnostic methods like, serial physical examination (PE), local wound exploration (LWE) and diagnostic laparoscopy (DL), may be used in significant injuries on carefully selected patients⁴.

Materials and Methods

The study was carried out at the Department of Casualty of Dhaka Medical College Hospital, over a period of 6 months, from April to September of 2016. Patients with penetrating injury to the anterior abdominal wall, presenting within 6 hours of injury, were selected for the study but patients with haemodynamic instability and peritonitis were excluded. 54 patients were selected finally on the basis of inclusion & exclusion criteria.

Results

Table 1: Distribution of respondents (n=54) according to demographic variables

Demographic Variables				
Gender	Gender	Conservative group N = 45	Laparotomy group N = 9	Percentage (%) (total)
	Male	43	9	96.3
	Female	2	0	3.7
Age	Age (years)	Conservative group N = 45	Laparotomy group N = 9	Percentage
	12-20	3	0	
	21-30	24	2	
	31-40	12	4	
	41-50	4	2	
	51-60	2	1	
Habitat	Habitat	Conservative group N = 45	Laparotomy group N = 9	Percentage (%) (total)
	Urban	21	2	42.59

Table 2: Cause and Site of Injury

Cause of Injury	Conservative Group N =45	Laparotomy group N =9	Percentage (total)
Homicidal	42	9	94.44
Accidental	2	0	3.7
R TA	1	0	1.85

Sites of Injury	Conservative group N =45	Laparotomy group N =9
Umbilical	15	3
Epigastrium	13	1
Right Hypochondrium	7	1
Left Hypochondrium	3	0
Right Iliac fossa	4	2
Left Iliac fossa	2	1
Multiple	1	1

Table 3: Time of Arrival after Injury in hours (n=54)

Time of Arrival (Hours)	Conservative group N =45	Laparotomy group N =9	Percentage (total)
1-2	3	0	5.56
2-4	5	1	11.11
4-6	37	8	83.33

Table 4: Reason for Exploration and per operative Findings

Reason for Surgery	
Progressive peritonitis	6
Progressive shock	3
Site of Injury found per operatively	
Small Intestine	3
Liver	2
Colon	2
Mesocolon	1

Discussion

The age range of patients in this study were from 18-60 years. The highest incidence was in between 21 and 30 years, with the mean age of 30.6 years. The injury occurred most commonly among young population & declined rapidly with the advancing age. In our study majority of the patients were male (96.30%) because of their more mobile lifestyle, use of high speed vehicles and involvement in civil violence and crime. In a study, Demetriades D. et al noticed that, among 274 patients, 90% were male and 10% were female, with the mean age of 26 years⁵.

In our study, 57.41% of the patients were rural dwellers and this might be due to increased aggressiveness and arrogance among themselves for protecting their property and pride. Majority of the patients of this study were from lower socioeconomic class (68.52%) and homicidal injury (94.44%) was dominant over accidental (3.70%) injury and others.

After arrival into hospital, individual patient was thoroughly evaluated by serial physical examination. Initially all the patients were haemodynamically stable with no features of peritonitis. Confirmed peritoneal violations were closely monitored and vital parameters were repeatedly checked. Patients with no or minimal peritonitis were managed conservatively. During the period of observation, 3 patients (3.56%) developed features of progressive shock after 8-12 hours of admission and laparotomy was done for this group. 6 patients (11.12%) developed peritonitis (diffuse tenderness, muscle guarding and rigidity, rebound tenderness, fever & absent bowel sound) during the observation period and these patients were also managed by laparotomy. Most common site of external wound was in umbilical region (33.33%) followed by epigastric region (25.93%). During laparotomy most commonly injured organ was found the small gut (33.33%), followed by colon (22.22%) and liver (22.22%). In a study, Demetriades D. et al noticed that the most common injured organs by gunshot injury were the rectum, small bowel and liver⁵.

During observation, 45 patients (83.33%) were haemodynamically stable with no signs of peritonitis. They were managed conservatively and their recovery was uneventful. The overall specificity and sensitivity of serial abdominal examination was 94.69% and 97.67% respectively. Similar study was done by Ertekin C. et al on 117 patients with penetrating stab wounds to the anterior abdominal wall, and none of them required laparotomy⁶.

During laparotomy, no injury could be detected in 1 case. This one (1.85%) negative laparotomy was a matter of concern. In a study at Los Angeles County

University of Southern California medical center from January 2003 to December 2008, a total of 1871 laparotomies were performed as a result of trauma. Of these 3.9% (73 of 1871) were negative laparotomies⁷.

In another study by Navsaria PH. et al showed that 16.7% patients underwent negative laparotomy during management of abdominal penetrating injury⁸. Our study showed that, complications were frequent in laparotomy group. In this group out of 9 laparotomy wounds, 5 (9.25%) became infected. Blood transfusion was required in all patients who underwent laparotomy.

Conclusion

Penetrating abdominal trauma accounts for a substantial proportion of all trauma admissions at tertiary care hospitals. Selective conservative approach for penetrating injury should be considered for selective patients with selected criteria. Surgeons have to make vital decisions to select appropriate diagnostic techniques for non-operative management of penetrating abdominal injury. With prompt and advanced investigational facility, more number of patients could be targeted for conservative approach in tertiary care hospitals.

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