



CASE STUDY

Subject: Surgery

Blunt abdominal trauma in a general hospital of second level. Analysis of four years (2014-2017).

Guillermo Padrón Arredondo^{a*}

a General Surgery Service of the General Hospital of Playa del Carmen Av. Constituyentes s / n c / Av.
135 Colonia Ejido Playa del Carmen, Quintana Roo. Mexico CP. 77712
Phone: 01-984-206-1691, E-mail: hospital2011_@yahoo.com.mx

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SUMMARY

Introduction:

It has long been thought that patients with open abdominal trauma should undergo surgery as soon as their clinical conditions permit, and that closed abdominal traumas put the surgeons in a dilemma whether or not they should operate and when they doubted the results could be catastrophic.

Material and Method:

An observational, retrospective and cross-sectional study of all patients with closed abdominal trauma in a general community hospital of the second level was conducted over a period of four years. Inclusion criteria: all closed abdominal traumas of any age, of both sexes and by any etiology. Exclusion criteria: open abdominal trauma, multiple trauma patients, cranioencephalic trauma and orthopedic trauma without abdominal involvement. Descriptive statistics were used for the results obtained.

Results:

During the study period, 38 cases of abdominal trauma were collected, of which nine were closed. Eight male and one female cases. At admission, two patients were reported in shock and seven were stable. Five cases were exclusively abdominal and four cases were thoraco-abdominal.

Discussion:

Closed abdominal trauma presents a diagnostic challenge and for the surgical evaluation of patients with closed abdominal trauma, a reliable physical examination is not possible when patients have concomitant injuries that cause disturbing pain, or when patients are unconscious. Exploratory laparotomy is necessary for up to 10% of patients with closed abdominal trauma and is only necessary when there is solid organ injury and the patient is hemodynamically unstable, with its exceptions.

1. Introduction

It has long been thought that patients with open abdominal trauma should undergo surgery as soon as their clinical conditions permit, and that closed abdominal

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Corresponding Author: Guillermo Padrón Arredondo, gpadronarredondo@hotmail.com

traumas put the surgeons in a dilemma whether or not they should operate and when they doubted the results could be catastrophic. [1] The disjunctive still prevails despite technological advances and the clinical examination is still an angular tool for the abdominal assessment of these patients.

In general, closed abdominal traumas occur in 11.2% to 26% of abdominal trauma and of these up to 40% may have visceral injuries; liver with 38% and pancreatic 28%, and morbidity and mortality are between 6% -25% and 30-60% respectively; Duodenal injury is rare 0.2% to 3.7%. [2-7]

Material and Method:

An observational, retrospective and cross-sectional study of all patients with closed abdominal trauma in a general community hospital of the second level was conducted over a period of four years. Inclusion criteria: all closed abdominal traumas of any age, of both sexes and by any etiology. Exclusion criteria: open abdominal trauma, multiple trauma patients, cranioencephalic trauma and orthopedic trauma without abdominal involvement. Descriptive statistics were used for the results obtained.

Results

During the study period, 38 (100%) cases of abdominal trauma were collected, of which 9 (24%) were closed (Table 1). Eight (89%) male and one (11%) female cases. At admission, two patients (22%) were reported in shock and seven stable (78%). five cases (55%) were exclusively abdominal and four cases (45%) were thoraco-abdominal.

Regarding the etiology, this is presented in Table 2. The statistical analysis is presented in Table 3. One (11%) tomographies and two (22%) ultrasounds were taken; the injured organs and their treatment are presented in table 4, of these cases one (11%) should not be operated because there were no intra-abdominal injuries; One case was managed conservatively and did not require surgery: Three patients (33%) required a pass to the ICU (splenectomy, iliac artery injury and packaging). There were no deaths in this review.

Table 1. General data in nine cases of blunt abdominal trauma.

Year	Cases	%	Male	%	Female	%
2014	3	33.3	3	33.3	0	0
2015	2	22.2	2	22.2	0	0
2016	3	33.3	1	33.3	2	22
2016	1	11.2	1	11.2	0	0
Total	9	100.0	7	78	2	22

Table 2. Etiology in nine cases of blunt abdominal trauma.

Etiology	Cases	%
Car	5	55.0
Fall from your own height	2	22.5
Fall from construction site	2	22.5
Total	9	100.0

Table 3. Statistical analysis of nine patients with blunt abdominal trauma.

Measure	Age	Haemoglobin g/dL	HS*
Average	26	11.7	12.4
Median	26	12.3	9
Mode	26	N/A	6
SD	10.7	2.3	10
Minimum	2	7.4	2
Maximum	37	14.4	35

*HS = Hospital Stay

Table 4. Injured organs, treatment of blunt abdominal trauma in 38 cases.

Case	Committed Organs	Treatment
1	None	Observation
2	Spleen Grade III	Esplenectomy
3	Spleen Grade III; Left kidney Grade III	Esplenectomy; Nephrectomy
4	Left iliac artery injury	Arterial repair
5	Colon; Liver Grade III; Pancreas; Spleen	Primary closure; Raffia; Distal pancreatectomy; Splenectomy
6	Liver Grade III; Spleen Grade IV	Liver raffia; Splenectomy
7	Liver Grade IV; Pneumothorax	Liver raffia; Packaging
8	None	White laparotomy
9	Ileon dehiscence	End to end secondary anastomosis

Discussion

Closed abdominal trauma presents a diagnostic challenge and for the surgical evaluation of patients with closed abdominal trauma, a reliable physical examination is not possible when patients have concomitant injuries that cause disturbing pain, or when patients are unconscious. Radiological procedures play an important role in the treatment of patients with closed abdominal trauma, especially for intubated patients. [8]

Positive findings on physical examination, ultrasound, and computed tomography, increase in white blood cell count and liver function tests, decrease in hemoglobin were associated with an increase in the need for surgery, such that surgical intervention was increased by 3.5 times in positive physical examinations, 3.8 times in liver function tests and 3.5 times in positive echographic findings. [9]

Since 1990, the best way to check a traumatized abdomen patient was by FAST ultrasound, however, the greatest utility of this method is in the trauma of closed abdomen or in thoracic injuries and when the ultrasound gives us free fluid in abdominal cavity generally it is an indication of surgery; however, in some cases with free intra-abdominal fluid and hemodynamic instability, up to 17.2% of the patients did not present intra-abdominal injury and more than half of the patients were treated with other therapeutic modalities and without emergency surgery, hence the emergency tomography is recommended to clarify with more precision the possible intra-abdominal damage. [10][11]

Exploratory laparotomy is necessary for up to 10% of patients with closed abdominal trauma and is only necessary when there is solid organ damage and the patient is hemodynamically unstable, the problem arises when there are hollow organ lesions and it is associated with the delay in diagnosis, for this the tomography is useful since it can

discriminate both organs and will be taken in case the patient's conditions allow it. [12][13]

It must be taken into consideration that traumatic events of the abdomen can be insidious and their manifestations can appear up to several days after the event, for example in case of a bicycle fall that initially did not manifest itself in any way and nine days later it required surgical attention. As well as another similar case with a mesenteric hematoma that remained under observation and subsequently required surgery. In any case, in case of finding bruises, assess whether they are small or large, if they are small, they can be observed with control tomographies and if they are large they should be resolved in the same operative actor. [14-19]

Another rare and late diagnosis lesion is perforation of the gallbladder [20]; damage to the confluence of the hepatic duct [21]; kidney damage [22]; necrotizing fasciitis [23]. Liver damage continues to be the organ with the highest morbidity and mortality and its management must be carefully evaluated to determine its conservative or immediate treatment, which will depend above all on the patient's hemodynamic status (systolic blood pressure ≤ 90 mmHg in the patient after massive resuscitation. [24]

Currently, laparoscopy has changed the management of patients with parenchymal organ trauma, which has allowed an increase in the number of patients who have not required laparotomy. [25]

When a traumatized patient presents with multiple intra-abdominal injuries and in exsanguination, the packaging continues to be a control method that can save lives. [26] Management with open abdomen is used in trauma because when the triad of hypotension acidosis (pH < 7.2), hypothermia (temperature < 34 ° C), and coagulopathy are strong predictors of the need to shorten the surgical act and leave the abdomen open for direct control. [27]

Conclusion

Closed abdominal trauma is not common in our environment, with an average of nine cases in this study, hemodynamic stability is the rule. The main cause of injury is vehicular accident, followed by injury due to falls.

The surgical management of the open abdominal traumas was exploratory laparotomy in all cases and three cases (33%) with mixed lesions were found; one case (11%) was only observed; one case (11%) with white laparotomy; one case (11%) with packaging; one case (11%) vascular; one case (11%) with ileum dehiscence operated in another hospital; and one case (11%) with grade III splenic lesion with successfully managed. There were no deaths in this review.

Conflict of interest

The authors declare that they have no conflict of interest.

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Declaration

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Single Author.

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