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Penetrating Abdominal Wounds "Selective Abstentionism versus Systematic Laparotomy"

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Abstract **Original Research Article**

The management of penetrating wounds of the abdomen is still, at present, a subject of controversy. The aim of this study was to analyse the results of the management of penetrating abdominal wounds. This retrospective study was carried out over a period of 5 years, from January 2017 to January 2021. It covered 90 cases of penetrating abdominal wounds collected at the level of the Surgical Emergency Department of the Mohammed VI University Hospital of Marrakech. It involved 88 men and 2 women, with an average age of 27 years. Two groups of patients were identified. A first group of 61 patients (group I) where the diagnosis of penetration was based on the following findings: epiplocele, evisceration, flow of abdominal fluid, and in which laparotomy was systematically performed. Group II included 29 patients, with no signs of severity, who received simple wound trimming under local anaesthesia with plane-by-plane closure and simple monitoring. Age, gender, causative agent and circumstances of injury were comparable in both groups. The overall mortality was 2.2% (2 cases) and concerned only group I patients. The overall morbidity was 13.3% and consisted of: - 6 cases of peritonitis of which 5 cases were in group II, giving a secondary intervention rate of 17.2%; the other cases of morbidity concerned only group I patients with 3 cases of parietal suppuration, 2 cases of delayed transit resumption and 2 cases of evisceration. The rate of unnecessary or blank laparotomies was 25% in Group I. Laparotomy from the outset in the case of any penetrating wound of the abdomen has the advantage of making a precise assessment of the injury, hence its medico-legal interest, especially in the case of an assault. However, "selective abstentionism" has the advantage of avoiding unnecessary laparotomies. In short, there is no dogma in this matter.

Keywords: Abdomen, Penetrating wounds, Laparotomy.

INTRODUCTION

Wounds of the abdomen are traumas with rupture of the abdominal parietal continuity. If these wounds reach the peritoneal cavity, they are called penetrating wounds; when they result in injury to the underlying viscera, the wound is said to be perforating.

In Morocco, the incidence of penetrating abdominal wounds (PPA) seems to be increasing. As early as 1984, Fall *et al.*, [1] reported 110 cases in 15 years.

The management of these penetrating abdominal wounds is still, at present, a matter of controversy.

Indeed, the debate is between a classic, dogmatic attitude of systematic exploratory laparotomy [2] and an attitude known as "selective abstentionism" or armed expectation [3] mainly advocated by the Anglo-Saxons, after noting a significant number of unnecessary or unnecessary laparotomies. The latter attitude is mainly used in the case of APS with knives.

The aim of this study was to evaluate and compare the results of these two attitudes in Morocco, in order to make our modest contribution to this controversy.

MATERIAL AND METHOD

This is a retrospective study of 90 cases of APP collected between January 2017 and January 2021.

It involved 88 males and 2 females, mean age 27 +/- 10 years.

Ninety-nine cases of APP were identified.

They were secondary to an assault (91% of cases), an accident (4%), self-harm (2%), goring (2%) and attempted self-harm (1%).

The main causal agent was a stabbing weapon (87% of cases), a firearm (6%), a broken bottle (4%), an ox horn (2%) and a piece of iron (1%).

The patients were divided into 2 groups:

- Group I consisted of 61 patients who had a systematic laparotomy from the outset. The indication for laparotomy was the presence of the following signs: epiplocele, evisceration, digestive fluid discharge, shock, signs of peritoneal irritation, digestive haemorrhage and haematuria. Firearm wounds and border region wounds were routinely operated on.
- Group II consisted of 29 patients who showed no signs of severity, in whom only wound trimming was performed under local anaesthesia with plane-by-plane parietal closure. Patients were monitored in the surgical setting with hourly clinical examination. Secondary worsening led to surgical intervention.

Morbidity and mortality were studied in both groups.

RESULTS

Age, causative agent, circumstances of occurrence and time to management were similar for both groups.

In group I

The visceral injuries observed at laparotomy are summarised in Table I.

The surgical procedures performed at laparotomy are summarised in table II.

Morbidity was 13.1% and was distributed as follows in group I: 1 case of peritonitis, 3 cases of parietal suppuration, 2 cases of delayed transit and 2 cases of evisceration.

Mortality was 3.2% (2 cases). The 2 cases of death were secondary to irreversible haemorrhagic shock despite laparotomy, which revealed liver damage in both cases.

The rate of useless or white laparotomies was 24.6% (15 cases).

Table I: Organs injured during laparotomy in group I

Organes lésés	Nombre de fois
Grêle	17
Estomac	6
Foie	4
Mésocôlon	4
Côlon	4
Pancréas	2
Mésentère	2
Duodénum	2
Diaphragme	1
Vésicule biliaire	1
Rate	1
Épiploon	32
Total	**76**

Table II: **Treatment of lesions in group I**

Organes	Traitement	Nombre
Grêle et Mésentère	Suture simple	10
	Résection -Anastomose	6
	Stomie	2
Estomac Foie	Suture simple	6
	Suture simple	2
	Aucun geste	2
Pancréas	Suture simple	2
Colon	Suture simple	2
	Stomie	2
Duodénum	Suture simple	1
	Exclusion Duodénale	1
Rate	Splénectomie	1
Vésicule biliaire	Cholécystectomie	1
Diaphragme	Suture simple	1
Total		**39**

In group II

In this group, 5 patients developed secondary peritonitis during surveillance, which required laparotomy. Thus, the secondary intervention rate was 17.2% (5 cases). The visceral injuries found were: 4 small bowel wounds and 1 colonic wound.

The surgical procedures consisted of 4 simple sutures for the small wounds and a colostomy for the colonic wound.

The postoperative course was simple for all the patients operated on, with no morbidity, apart from the colostomy.

The mortality rate was zero in this group.

Table III: Comparative data for routine laparotomy

Auteurs	Année	Nombre de cas	Laparotomies blanches (%)	Morbidité (%)	Mortalité (%)
El Idrissi [8]	1994	106	26	6,5	0
Guiberteau [9]	1992	146	31,5	11,6	2,7
Ayité [10]	1996	44	40,9	25	10,8
Notre Série	2002	61	24,6	13,1	3,2

Table IV: Comparative data on "selective abstentionism

Auteurs	Année	Nombre de cas	Taux (%) d'interventions	Morbidité (%).	Mortalité (%)
El Idrissi [8]	1994	67	10,4	6,9	0
Masso-Misse [4]	1996	25	52	8	0
Notre Série	2002	29	17,2	17,2	0

DISCUSSION

In the case of PPA, the course of action is dictated by the risk of associated visceral lesions. Laparotomy is necessary in the case of serious signs, wounds in border regions and finally wounds caused by firearms. For some authors, laparotomy should be systematic once the diagnosis of penetration is made [2, 4].

The most recognised disadvantage of this classic attitude of systematic laparotomy is the high number of unnecessary or unnecessary white laparotomies [5-7].

The percentage of these white laparotomies varies between 25% to 40% as shown in Table III [8-10]. In our series, the 24.6% of white laparotomies concern patients in whom the indication was based on the observation of an isolated omentum exit without other signs of gravity. This raises the eternal question that keeps the controversy alive: is it lawful to do just a local trimming, to reintegrate the omentum and to proceed with armed surveillance in the case of an isolated omentum exit without signs of gravity? Or should it be explored systematically?

Because of the high rate of blank laparotomies, an author like Shaftan [3] advocates an attitude called "selective abstentionism".

This attitude was applied to patients who had an APP without signs of severity.

In our series, it is responsible for a secondary intervention rate of 17%, slightly higher than the rate reported by El Idrissi *et al.*, [8], (10.4%).

However, the latter percentages contrast with that of Masso-Misse *et al.*, [4], which is a 52% secondary intervention. The mortality rate in this group is zero for these authors as well as in our series, as shown in table IV [4, 8].

This zero mortality may be explained by the fact that monitoring is more intensive and that the slightest worsening of the condition is followed by immediate intervention. This attitude is often reserved for stabbing. However, some authors suggest that it should be extended to firearm PPPs [7].

The mortality rate after systematic laparotomy varies from 0 to 10% according to the literature [8-10]. It was 3.2% in our series. This mortality rate can be explained by the greater frequency of injuries to organs such as the liver and/or its vessels, the spleen with haemodynamic disorders leading to a state of haemorrhagic shock that is sometimes irreversible; but also by the frequency of hyper septic peritonitis, especially in the case of colorectal injuries. Our series includes 2 deaths due to states of haemorrhagic shock, secondary to liver lesions that laparotomy was unable to control.

The morbidity after systematic laparotomy was 13.1% in our series. It ranges from 6 to 25% according to the literature as shown in table III [8-10].

The rate of white or unnecessary laparotomies (24.6%) seems higher than the rate of secondary interventions (17.2%).

These different observations plead in favour of "selective abstentionism" whenever it is possible to achieve it. However, in our current conditions of practice, caution must be exercised and systematic laparotomy still has very broad indications, especially from a medico-legal point of view in the case of aggression. Systematic laparotomy has the advantage of allowing a precise lesion assessment. This last attitude, shared by several authors from developing countries, is

dictated by material conditions that do not allow appropriate monitoring of non-operated patients [2, 10].

CONCLUSION

Our results, added to those of the literature, confirm the idea that conservative treatment or "selective abstentionism" should be reserved for rigorously selected patients. The choice of the type of initial management in case of PPA depends on the clinical state of the patient, the material and technical conditions available.

The dogma of systematic laparotomy in the case of PAP can then be questioned.

In reality, not all patients with PAP are alike. As for the surgeon who receives this type of patient, he or she always has an ulterior motive, or even an intimate conviction.

The answer to this question, regarding one or the other attitude, cannot be definitive.

Indeed, only a prospective randomised study could provide this answer.

But is it ethically conceivable and feasible?

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