ABDOMINAL WOUND STAB: EPIDEMIOLOGICAL/CLINICAL ASPECT AND EMERGENCY MANAGEMENT AT THE REGIONAL HOSPIAL OF NGAOUNDERE

PLAIE ABDOMINALE PAR ARME BLACHE: ASPECT ÉPIDÉMIOLOGIQUE / CLINIQUE ET GESTION DES URGENCES À L'HÔPITAL RÉGIONAL DE NGAOUNDERE

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RÉSUMÉ

The abdominal stab wounds are wounds located between the diaphragm and the pelvic cavity whatever the opening of entry. The purpose of this study was to highlight the diagnostic and therapeutic problems concerning cases of stab wounds in order to improve and ensure their effective care. We carried out a retrospective, descriptive study of 10 years (2005-2014) which compiled 306 cases of abdominal stab wounds registered in the Regional Hospital of Ngaoundéré. Most of the people were male with a rate of 86% and aged for the most between [20-29 years] with a percentage of 45.7%. 48 cases were penetrating wounds (15.7%) and were systematically operated. Generally, the weapon used was knife with an occurrence rate of 194 either a percentage of 63.4%. Occurrence of circumstances was dominated by holdup (55.9%). Intra-abdominal lesion was clinically evident at the existence of hemorrhagic shock, hemoperitoneum and evisceration. In a precarious situation taking into consideration low-income countries like Cameroon with insufficienthuman and material resources as is the case of the Regional Hospital of Ngaoundéré, the attitude remains a systematic laparotomy whenever we are faced with a penetrating abdominal wounds. The high mortality rate of 20.8% could be improved by a better post-operative monitoring despite a 12.5% rate of null laparotomy..

Mots-clés :*abdominal wounds stab, cold steel, management, care*

ABSTRACT

Les plaies abdominales par arme blanche sont des plaies intéressant la région comprise entre le diaphragme et la cavité pelvienne quel que soit l'orifice d'entrée. L'objectif de cette étude était de ressortir les problèmes diagnostiques et thérapeutiques liés à ce traumatisme en vue d'améliorer leur prise en charge dans les formations sanitaires disposant d'un plateau technique inadéquat. De ce fait nous avions mené une étude rétrospective et descriptive sur une période de 10 ans (2005-2014) où nous avons colligé 306 cas de plaies abdominales par arme blanche à l'Hôpital Régional de Ngaoundéré.

En guise de résultat, nous découvrons que la plupart des blessés était de sexe masculin 263 soit un pourcentage de 86% et âgés pour la majorité entre [20-29 ans], 48 cas étaient pénétrantes (15,7%) et ont été systématiquement opérés. (15,7%) ont été systématiquement exploré chirurgicalement. L'arme blanche la plus utilisée a été le couteau avec un effectif de 194 soit un pourcentage de 63,4%. Les circonstances de survenue ont été dominées par les agressions 171 soit un pourcentage de (55,9%).

En conclusion, l'atteinte intra-abdominale a été cliniquement évidente devant l'existence d'un choc hémorragique, d'un hémopéritoine, d'une éviscération. En situation précaire comme dans les pays en voies de développement, le cas du Cameroun et compte tenu de l'insuffisance de ressources humaines et matérielles au sein de l'Hôpital Régional de Ngaoundéré, l'attitude est la laparotomie systématique devant toutes plaies pénétrantes de l'abdomen malgré un taux de 12,5% de laparotomie blanche. Le taux de mortalité de 20,8% pourrait être amélioré par un meilleur suivi post opératoire.

Keywords: *Plaies abdominales, arme blanche, prise en charge*

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INTRODUCTION

Lesions due to assaults or accidents represents the second cause of mortality in the world; this mortality rate is in direct relation with the gravity of the trauma and delay in care management [1]. Stab wounds are the most common cause of penetrating wounds whereby its severity depends on the superficial or penetrating nature of the wound, its location and injured organs [2]. Abdominal wounds are traumas with rupture in the continuity of the parietal abdomen no matter the orifice of entry. It is defined by a break-in of platinum at the cervical level, a break-inof the parietal pleura at the thoracic level and of the peritoneum at the abdominal level [3]. These traumas represents a variety of lesions that may rapidly engage vital risks if vital organs are attained. These traumas have already known protocols of emergency management in developed countries with adequate plateau technics whereas in low income countries with inadequate plateau technics like that of the regional hospital of Ngaoundéré (Cameroon), the emergency management plan must be drawn dependent of the available resources'. Our research question therefore focused on the impact of the inadequate plateau technics and insufficient means of narrow investigation concerning the management of abdominal wound stabs.

OBJECTIVES

The general objective of this design study is to bring out diagnostic and therapeutic problems related to abdominal wound stabs at the regional hospital of Ngaoundéré so as to ameliorate their care management.
More specifically, we had to determine the epidemiological aspects of abdominal wounds, then evaluate the gravity of lesions so as to propose and adapt a specific case to case therapy and at last describe the management of these wounds.

METHODOLOGY

Study location
Regional hospital of Ngaoundéré (Cameroon)

Type of study
An observation case study of type retrospective and descriptive going from January 1st 2005 to December 31st 2014. That is 10 years.

Population
All abdominals wound stabs patients of the town of Ngaoundéré and its localities

- Inclusion criterion

All abdominal wound stab patients alive at admission at the regional hospital of Ngaoundéré with complete medical file

- Non-inclusion criterion

All abdominal wound stabs patients with incomplete medical file and or dead before admission in the premises of the hospital

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Sample
A non-probabilistic sample method was used, hence all registered patients in the emergency department services were enrolled which permitted us to have a total of 306 patients with abdominal wound stabs out of the 317 abdominal wounds.

Data collection
We used the followings for data collection:
- The consultation register;
- The surgical procedure register;
- Hospitalization register;
- Deceased register

Data analysis
The following variables were analyzed from the records of each file: age, sex, profession, outcome circumstances, causal agent, lesion assessment and the patient's outcome. Data were collected by direct count of all abdominal wound stabs from the different registers. Data were registered using Microsoft Excel 2013 and transferred to R 2.13.0 Software for analysis. Results are presented in tables and graphs.

RESULTS

We identified 306 cases of abdominal wound stab alive during admission amongst which are 263 men for 43 women, thus a sex ratio of 6:1 in favor of men as shown in figure1 below.

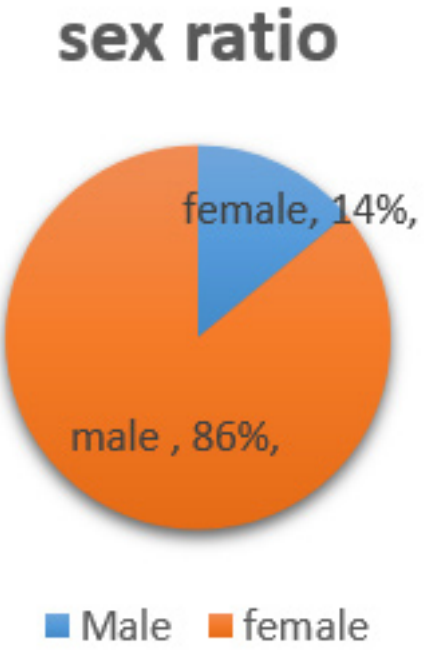

Figure1: sex distribution

We notice from the figure above that, the age group most represented is that of [20-29] years with a percentage of 45.7%. The least represented is the age group of [40-49] years with 4.2%. The youngest victim was aged 2 years and the oldest was aged 87 years. The average mean age was 26.5 years.

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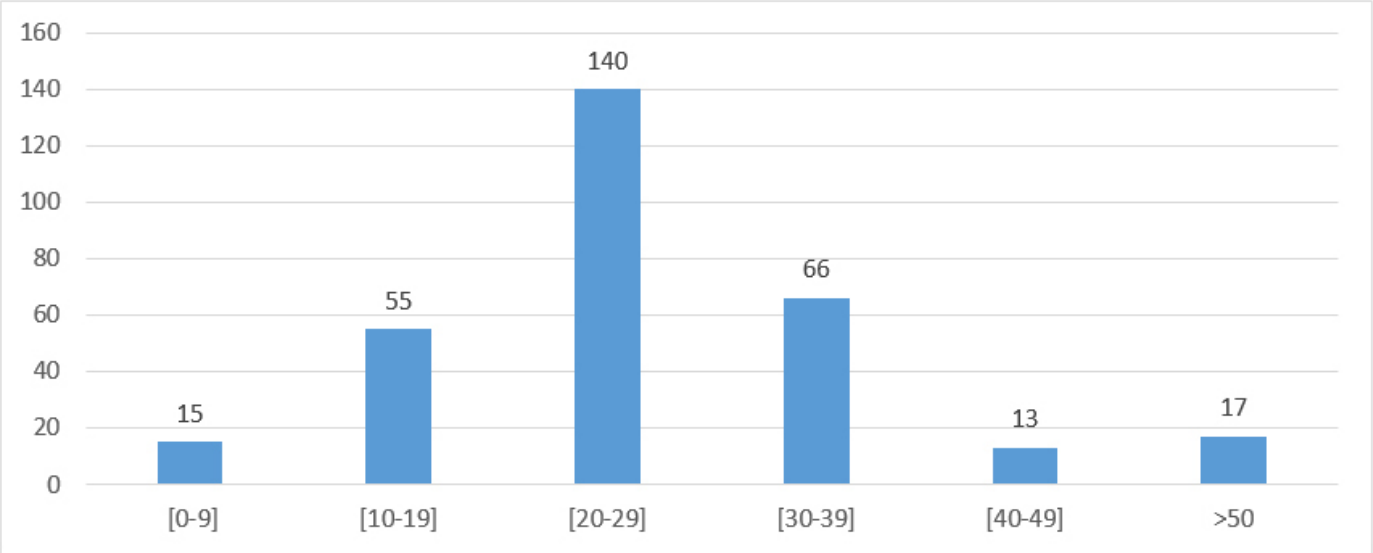

Figure2: age distribution

The research of the causes of these wounds reveal that, assaults was the main circumstance of arrival of abdominal stab wounds with a total number of 171 cases either a percentage of 55.9%. Suicide was the least of the circumstances with a 01 case registered or 0.3%.

Table1: arrival circumstances distribution of wounds

Arrival circumstance	Number (n)	Percentage (%)
Assault	171	55.9
Highway accident	26	8.5
Fight	25	8.1
Accident	14	4.6
Horned cases	3	1
Non determined	66	21.6
Suicide	1	0.3
Total	306	100

Accident: it concerned sport, domestic and work accidents

For these different circumstances of arrival, the tool mostly used was knife in 194 cases either 63.4%. Arrow was used only once during this study period with 0.4% as shown in the table below.

Table2: nature of causal agent

Nature of causal agent	Number (n)	Frequency (%)
Highway accident	31	10.1
Glass bottle	4	1.3
Cow horn	4	1.3
Knife	194	63.4
Arrow	1	0.4
Blade	3	1
Machete	4	1.3
Non determined	64	21.2
Total	306	100

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The table above reveals that moto taxi-men were the most exposed to abdomi-

nal wound stabs by artificial weapons with 57 cases either 18.7%; comparatively to teachers and lecturers least represented with 5 cases either 1.6%.

Table3: patients' distribution following profession

Profession	Number (n)	Frequency (%)
Students	47	15.4
Security agents	9	2.9
Others	43	14
Shepherds	17	5.5
Commercials	24	7.9
Farmers	12	4
Teachers/lecturers	5	1.6
Housewives	26	8.5
Moto taxi men	57	18.7
Non determined	37	12
Without any profession	29	9.5
Total	306	100

Others: refers to cartographers, bakers, carpenters, firemen, machine operatives, builders, hair-dressers, etc

Security agents: refers to guardians, policemen, watchmen etc

Among the 306 identified cases, 48 were diagnosed clinically as abdominal wound stabs and systematically operated. The figure (3) below shows the ratio of death to alive cases after surgery.79.2% of all cases were completely healed and 20.38% didn't survive after surgery.

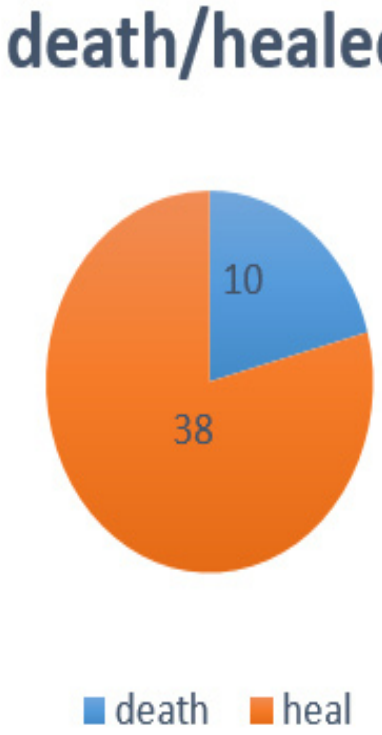

Figure3: patient outcome after surgery

Table 4 below reveals that 70% of the deceased resulted in post-surgery and arrives for the most 72 hours after surgery.

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Table 4: impact of patients' hospitalization on the death outcome

Hospitalization period (days)	Number of death (n)	Frequency (%)
Less than 3 days	3	30
More than 3 days	7	70
Total	10	100

DISCUSSION

This design study shows that men (86%) are the most affected by abdominal wound stabs with a sex ratio of 6:1. These results are similar to those obtained by Oumar [5] and Sani and al.[6] who found a predominance of men of 83.3% and 90% respectively. This may probably be due to the position men occupies in the socioeconomic domain of life and equally because of the exposition of men to the activities of moto taxi in our country and precisely in this part of the region.

The age group [20-29] years are the most exposed with and average age of 26.5 years. The same phenomenon was described by Doumbia [7] and Oumar [5], who found and average age of 26 years. This age group is composed of young active individuals, which is the case of most of our African countries and Cameroon in particular. We registered in the course of this study 55.8% of assaults and thus occupies the first place in our series. Obtained results are confirmed by the study of Doumbia [7] who obtained 69.7%; Shangumanathan and al.[8] obtained 55.5% and Jachson and al.[9] obtained 80% assaults. This rate is justified by the aggressively increased criminality rates in our societies as a result of increased juvenile delinquency, unemployment, idleness, poverty etc.

Knives were the most used type of weapon with 63% revealed in this study. This may be explained by the fact that carrying knife with self is a cultural habit in this region of the country since there is yet no law abiding it. Hence it is well managed by the last as a result this revealed results. Youssouf [10] obtained similar results either 63%. Similar mechanisms were found by several authors notably Bull [11]; Telmon and al. [12] respectively obtained 66.6% and 75%. Moto taxi drivers were the most represented with a rate of 18.6% because of their activities that sometimes involves late night requirements in all the streets of the town.

On the other hand, Almahadi [13] obtained a predominance of shepherds in his design study due probably to their nomad way of life. Potel and al.[14] besides obtained a 23.07% predominance of scholars which is as close to this design study where 15.4% of the sample size represented students and pupils in this study (university town). Null laparotomy in this study is 12.5% with 20.8 rate of mortality. Sani and al.[6] found 18% of mortality rate whereas Lenriot [15] obtained a mortality rate varying between 10 to 30% even though of the progress realized so far for the treatment of wounded patients. Results obtained in this study are different from those of Sani and al probably because of a better plateau technic they disposed and the quality of monitoring combined with the army. On the other hand, our results confirmed those of Lenriot because his study concerned equally low income countries with limited human and material resources.

Hence, when working conditions or means of investigations are not available at time, laparotomy must be envisaged so as to avoid any complication that may occur. Thus, it will preferable to reduce the rate of mortality at the cost of null laparotomy. However, we noticed that post-laparotomy death occurs after a stay period of 6.7 days which may not be chargeable to surgery but probably post-surgery monitoring insufficiencies.

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CONCLUSION

Faced to this situation of inadequate plateau technic making diagnosis and monitoring difficult in low income countries like ours, where material and human resources are limited, we obtained a mortality rate of 20.8% among surgical patients. Looking at this result, it seems adequate for proceed to a systematic laparotomy when we are have an abdominal wound stab so as to anticipate surgical treatment and as such eliminate some complications reliable to the inadequate plateau technic. Taking into account that the rate of mortality is of the order of 70% after 3 days of surgery, a well-managed post-operative monitoring will greatly decrease the rate of mortality encountered in this study.

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