

Penetrating Injuries due to Violence (Stabs) in an Urban Population. 3 Year Analysis

Guillermo Padrón Arredondo*

General Surgeon, Surgery Department General Hospital Playa del Carmen, México

***Corresponding Author:** Guillermo Padrón Arredondo, General Surgeon, Surgery Department General Hospital Playa del Carmen, México.

Received: January 22, 2020; **Published:** February 11, 2020

Abstract

Background: White gun injuries in emerging cities such as Playa del Carmen, Quintana Roo this phenomenon has increased alarmingly.

Material and Method: Descriptive and cross-sectional study on patients with penetrating trauma by knife in any part of the body during a period of three years (2017 - 2019).

Results: Obtain thirty-eight cases, 36 were male and two female; 27 cases were related to alcohol intake. 17 cases were admitted to the resuscitation unit in a state of shock, 14 were placed with a pleural catheter, 29 were taken to the operating room, three cases presented with postoperative complications, five were admitted to the Intensive Care Unit and there was one death.

Discussion: Prehospital care by citizens or the police who are the first to observe a crime is necessary because the time decreases while the ambulance arrives and the injured is transported in a private vehicle, which reduces mortality upon arrival at the hospital. The treatment of hemodynamically stable wounds continues in controversy but when they present multiple lesions they can present intra-abdominal damage and clinical observation may not be appropriate in these cases, therefore imaging support and the surgeon's findings are required.

Conclusion: The results obtained in the care of victims who entered our hospital presented a low in-hospital mortality.

Keywords: *Stabbing Injury; Trauma; Penetrating; Mortality; Violence*

Background

White gun injuries have been present in Mexico for many years, but in emerging cities like Playa del Carmen, Quintana Roo, México, this phenomenon has increased alarmingly. It is estimated that by 2020 the population will consist of approximately 250 thousand inhabitants since in the last census in 2014, it was 186,700 inhabitants with an annual growth rate of 5.6%. In a previous study on the subject over a period of four-years (2014 - 2017) there were 26 cases of penetrating injuries, 24 cases by knife. However, in the last three- years (2017 - 2019) there were 38 cases of injuries by this means of aggression [1,2].

Puncture-related gun injuries are related to gender, preponderantly young age and young adult age and the socioeconomic level of the offenders and are usually due to assaults on public roads or quarrels between alcohol drinkers in group or self-inflicted [3,4].

It is known that in advanced countries this problem is minimal and in a report by Johannesdottir, *et al.* they found that in Scandinavia these lesions are rare with a stable incidence and only one in five patients have serious injuries, two thirds require surgery and one third entered the intensive care unit with low mortality [5].

Objective of the Study

The objective is to know the prevalence of these injuries in the city during the last three years and to take into account the hospital services in the care of the patients.

Materials and Methods

Descriptive and cross-sectional study on patients with penetrating trauma by knife in any part of the body during a period of 3 years (2017 - 2019). Inclusion criteria: patients admitted to the shock area due to penetrating injuries by knife, of both sexes, of all ages, with a complete file. Exclusion criteria: all patients admitted to the shock unit due to causes not due to this type of injury, incomplete files or no records. Descriptive statistics were used for analysis.

Results

During the years 2017 - 2019, 235 homicides were committed in this city and our hospital treated 38 (100%) cases of patients who survived the initial aggression and were treated in the shock unit, operating room, intensive care and hospitalization; with the support of X-rays, laboratory and blood bank.

Of the 38 cases treated 36 (95%) corresponded to the male sex and 2 (5%) to the female; 27 cases (71%) were related to alcohol intake (Figure 1).

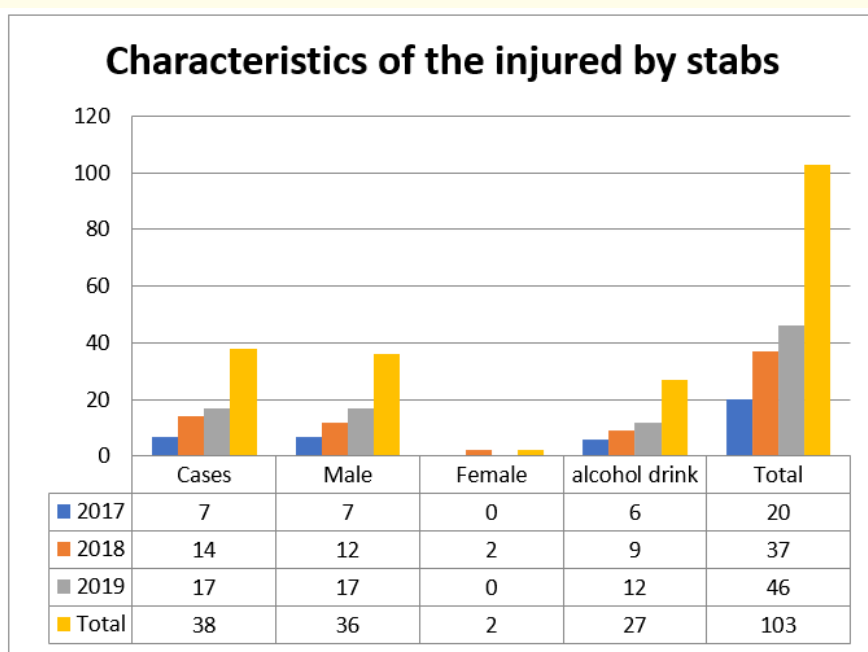


Figure 1: Characteristics of the injured by stabs 2017 - 2019 in Playa del Carmen, Q. Roo. México.

17 cases (45%) entered the resuscitation unit in a state of shock, 14 (37%) had a pleural catheter, 29 (76%) went to the operating room once stabilized, 3 cases (8%) presented postoperative complications, 5 (13%) entered the Intensive Care Unit and there were 1 (3%) deaths in the operating room and the ICU (Figure 2).

The most injured regions were thorax 20 (53%) and abdomen with 23 cases (61%) operated by exploratory laparotomy with various lesions to intra-abdominal organs of the digestive system and 5 cases (13%) with renal injury all cases were resolved with the protocols

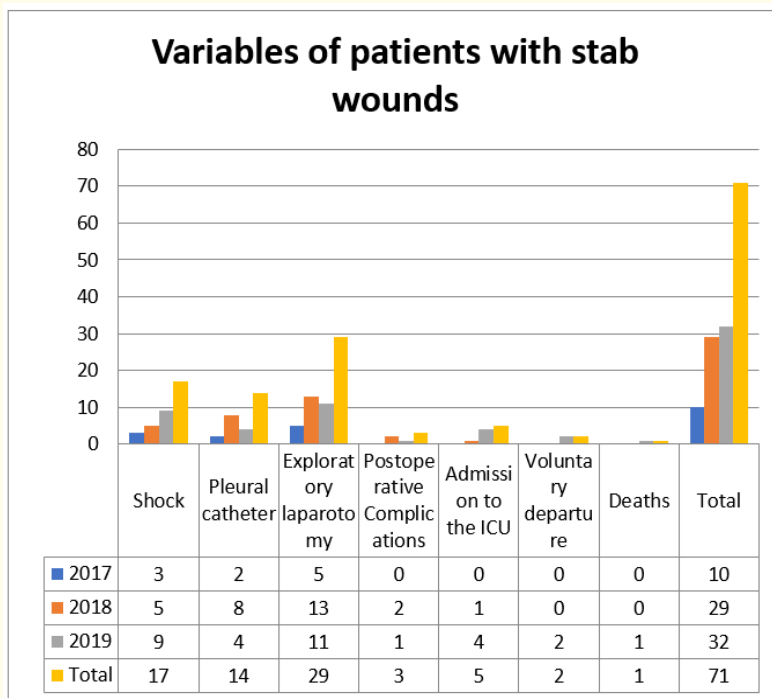


Figure 2: Variables of patients treated at the HGPC 2017 - 2019 in Playa del Carmen, Q. Roo. México.

established for emergencies and with rescue surgery and subsequent second look when merited (Table 1). The lesions on the face were treated by maxillofacial surgery, the lesions of upper and lower limbs by Orthopedics and those of skull by neurosurgery. Regarding the statistical analysis for age and in-hospital days, there was no significant difference due to the homogeneity of the injured group (Table 2).

Regions	Years			Total
	2017	2018	2019	
Face	0	2	1	3
Neck	0	0	2	2
Left thorax	2	7	8	17
Right thorax	1	2	0	3
Abdomen	5	6	12	23
Upper limbs	2	0	5	7
Lower limbs	0	1	1	2
Spine	0	2	0	2
Kidney	2	2	1	5
Liver	1	1	0	2
Ureter	0	1	0	1
Lower cava vein	0	1	0	1
Total	13	25	30	68

Table 1: Regions injured in patients treated at the HGPC 2017-2019 in Playa del Carmen, Q. Roo. México.

Years	Parameter	Average	Median	Mode	SD	Range	Minimum	Maximum
2017	Age	31	29	42	9.8	27	15	42
	LOS	3	2	2	2.5	6	1	7
2018	Age	29	27	40	8.9	28	16	44
	LOS	3	3	3	1.4	4	1	5
2019	Age	29	27	30	9.2	30	17	47
	LOS	4.5	3	2	3.3	12	1	13

Table 2: Age statistics and long of stay (LOS) 2017-2019 in Playa del Carmen, Q. Roo. México.

Discussion

Prehospital care by citizens or the police who are the first to observe a crime is necessary because the time decreases while the ambulance arrives and the injured is transported in a private vehicle, which reduces mortality upon arrival at the hospital [6]. The treatment of thermodynamically stable wounds continues in controversy but when they present multiple lesions they can present intra-abdominal damage and clinical observation may not be appropriate in these cases, therefore imaging support and the surgeon’s findings are required [7].

The initial diagnosis should be clinical and it has been observed that in the local examination of the wound vs Ultrasound there is little difference in diagnostic certainty. With the same specificity but different sensitivity (91.48 vs. 85.1 when laparotomy is required [8].

Regarding the use of negative computed tomography for intra-abdominal injury, there is a prevalence of (8.7 CI = 6.1 - 12.2) of lesions that require therapeutic laparotomy and almost half (47, 95 CI = 30 - 64) in bowel injuries thin [9]. In our hospital we do not have this diagnostic support service, so we do not need it.

A frequent feature is that the puncture wounds are made in the back and it is important to take into account retroperitoneal and intraperitoneal lesions such as the spleen, kidney and colon [10]. In such a way that among our cases we find concomitant renal damage through this lesion.

At present, the management of renal damage is conservative with careful clinical monitoring and imaging for any deterioration of the patient, using minimally invasive techniques that include angioembolization in cases of active bleeding and the placement of endourological stents in cases of urinary extravasation [11].

In this review almost half of the gunshot injuries (42%) were caused and most had alcohol (37%) as the main trigger of the quarrels and without relation to the causes of the injuries caused by firearms. Likewise, wounds caused by a knife usually recur in hospital admissions for the same reasons [12]. Same that caused a great lethality in our population and failed to reach the hospital alive, which as Braga, *et al.* refers to, the caliber of firearms and the injured region are the cause of the great mortality hospital observed in our environment [13].

Selective non-operative management (SNOM) should always be considered in order not to perform unnecessary surgeries and if the case requires it to operate when strictly indispensable [14]. However, when there is epiploic evisceration or acute abdomen data, surgery is indispensable without unnecessary delays [15].

As for the thoracic lesions, they do not necessarily require surgery and in all our cases the pleural catheter was sufficient face damage control [16]. However, the predictors that help estimate survival depend on the management of the patient in the area of shock and are the stability of the patient, the time at which the emergency thoracotomy is performed and the heart rate at the end of the procedure, in our patients we had two cases with that procedure and both died in the crash unit [17].

Conclusion

Puncture-related injuries affect health services because they involve unexpected expenses, however, the results obtained in the care of victims who entered our hospital had low in-hospital mortality.

Bibliography

1. Padrón-Arredondo G. "Penetrating abdominal trauma in a general hospital of the second level: Four years analysis (2014-2017)". *Scholars Report* 3.1 (2018): 92-97.
2. De la redacción. Mujer ejecutada. Por Esto. Dic 14. Riviera Maya-Cozumel. 2 Municipios. Solidaridad (2020): 2.
3. Vulliamy P, et al. "Temporal and geographic patterns of stab injuries in young people: a retrospective cohort study from a UK major trauma centre". *British Medical Journal* 8 (2018): e023114.
4. Nishimura T, et al. "Different Patterns in Abdominal Stab Wound in the Self-Inflicted and Assaulted Patients: An Observational Analysis of Single Center Experience". *Kobe Journal of Medical Sciences* 63.1 (2017): 17-21.
5. Johannesdottir U, et al. "Penetrating stab injuries in Iceland: a whole-nation study on incidence and outcome in patients hospitalized for penetrating stab injuries". *Scandinavian Journal of Trauma, Resuscitation and Emergency* 27 (2019): 7.
6. Cowley A, et al. "Presence of a pre-hospital enhanced care team reduces on scene time and improves triage compliance for stab trauma". *Scandinavian Journal of Trauma, Resuscitation and Emergency* 27 (2019): 86.
7. Jeroukhimov I, et al. "Frequency of intra-abdominal organ injury is higher in patients with concomitant stab wounds to other anatomical areas". *BMC Emergency Medicine* 18 (2018): 18.
8. Vafaei A, et al. "Diagnostic Accuracy of Abdominal wall Ultrasonography and Local Wound Exploration in Predicting the Need for Laparotomy following Stab Wound". *Emergency* 5.1 (2017): e34.
9. Baron BJ, et al. "Accuracy of Computed Tomography in diagnosis intra-abdominal injuries in stable patients with anterior abdominal stab wounds: a systematic review and meta-analysis". *Academic Emergency Medicine* 25.7 (2018).
10. Kong VY, et al. "The spectrum of injuries resulting from posterior abdominal stab wounds: a South African experience". *Annals of the Royal College of Surgeons of England* 97 (2015): 269-273.
11. Erlich T and Kitrey ND. "Renal trauma: the current best practice". *Therapeutic Advances in Urology*. 10.10 (2018): 295-303.
12. Leow JJ, et al. "A review of stab wound injuries at a tertiary trauma center in Singapore: are self-inflicted ones less severe?" *Singapore Medical Journal* 57.1 (2015): 13-17.
13. Braga AA and Cook PJ. "The Association of Firearm Caliber with Likelihood of Death From Gunshot Injury in Criminal Assaults". *Journal of the American Medicine Association Network Open* 1.3 (2018): e180833.
14. Dayananda KSS, et al. "Selective non-operative management of abdominal stab wounds is a safe and cost effective strategy: A South African experience". *Annals of the Royal College of Surgeons of England* 99 (2017): 490-496.
15. De Robles MB and Ayuste Jr EC. "Mandatory Laparotomy in Penetrating Abdominal Injuries with Omental Evisceration: Experience in a Major Trauma Center in the Philippines". *Cureus* 11.9 (2019): e5688.

16. Dayananda KSS., *et al.* "A selective non-operative approach to thoracic stab wounds is safe and cost effective - a South African experience". *Annals of the Royal College of Surgeons of England* 100 (2018): 641-649.
17. Refaely Y., *et al.* "Predictors of survival after emergency department thoracotomy in trauma patients with predominant thoracic injuries in Southern Israel: a retrospective survey". *Emergency Medicine Journal* 11 (2019): 95-101.

Volume 7 Issue 3 March 2020

©All rights reserved by Guillermo Padrón Arredondo.