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Closed Chest Trauma: Epidemiological, Clinical and Therapeutic Aspect in the Thoracic Surgery Department of the Donka National Hospital

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Abstract

Closed traumas of the thorax are dynamic pathologies in their occurrence and their evolution, their severity is linked to the respiratory and circulatory complications which they cause immediately and at a distance.

The aim of this study was to study the epidemiological aspect, to describe the clinical aspects and to evaluate the management of closed trauma to the thorax.

***Methods :** This was a retrospective descriptive type of covering a period of 1 year from 1 June 2016 to 31 May 2017.*

***Results** In this study, 72 cases of blunt trauma of the chest were collected in patients 2 to 80 years, 59.01% of patients admitted to the thoracic surgery department (122 patients).*

We noted a male predominance with a sex ratio of 4.53. The age group between 21-30 years old was the most affected with 29.16%. The socio-professional category most concerned consisted of merchants 25%. Chest pain was present in all patients, 100% followed by dyspnea with 68.05%.

AVP was the predominant etiology in our study with 77.78%. Medical treatments were associated.

***Conclusion :** The vital importance of the intra-thoracic organs makes closed trauma to the thorax a medical and surgical emergency.*

Keywords: Closed trauma of the thorax, pleural drainage, trimming of wounds.

Introduction

Trauma to the thorax is a major problem, especially when the diagnostic means and the technical platform are limited [1].

Closed traumas of the thorax are dynamic pathologies in their occurrence and their evolution, their severity is linked to the respiratory and circulatory complications which they cause immediately and at a distance [2].

Traumas of the thorax are defined as traumatic lesions involving the wall and / or the contentsvisceral of the thorax [3]. Whether open or closed, isolated or associated with other traumas, the immediate or delayed development of thoracic traumas can jeopardize the respiratory and / or circulatory function, and compromise the vital prognosis [4]. They therefore constitute a real therapeutic emergency. The management strategy involves several actors, the surgeon, the resuscitator and the radiologist who has become an essential aid for the realization of rapid and efficient imaging. Pleural drainage is often an initial and fundamental gesture in the management of these traumas [5; 6]. Worldwide, trauma to the thorax accounts for approximately 30% of admissions for serious trauma related to a public traffic accident (VPA) [7]. In Africa, trauma to the thorax remains a real public health problem and is grafted with heavy morbidity and mortality [8].

In Morocco in 2013, Ilham I reported that out of 81 patients victims of thoracic trauma, 33 or 40.74% had a closed trauma to the thorax including 5 deaths or 6.17% [9].

In Guinea, blunt trauma of the chest are more and more experienced in hospitals due to the rise of road accidents and the increase in attacks in times of events in recent years are among other reasons for choosing this scientific article .

Material and Methods

We realized a study retrospective descriptive over a period of from 1 June 2016 to 31 May 2017.

It was performed in the thoracic surgery department of the Donka National Hospital. Were included in the study, all records of patients admitted to closed chest trauma satisfied with the conditions of recruitment. N e were not included for years our study all incomplete records of patients hospitalized with blunt trauma of the chest. The variables studied were frequency, age, sex, profession, time of admission, socio-professional category, etiologies, type of rolling stock, clinical and para-clinical aspects, trauma management. closed chest (surgical gesture), evolution. Quantitative variables were expressed as mean or median (range).

Results

Sex ratio = 4.53 M / F

Average age 34.45 years, extreme 02 - 80 years

Firm trauma to the chest has been associated with the following pathologies

Pleurisy in 17 cases, pyothorax in 8 cases, pneumothorax in 8 cases, pyopneunothorax in 8 cases, open trauma of the thorax in 5 cases, pericarditis in 4 cases.

We had noted, 5 cases by stabbing, 3 cases following a fight, 2 cases by firearm.

According to the etiologies , 56 cases were accidents on the public highway against 6 cases of fall.

TableV. *Distribution of patients according to associated lesions*

Associated lesions	Effective	%
Upper limbs	9	28.13
Lower limbs	9	28.13
fractured collarbone	5	15.63
Cervical	4	12.50
Pubic fracture	2	6.25
Cranial	2	6.25
Dorso-lumbar	1	3.13
Truck	5	8.93

TableVII. *Distribution of patient files according to the reasons for consultation*

Reasons for consultation	Effective	%
Chest pain	72	100.00
Dyspnea	49	68.06
Carriage damage	30	41.22
Emphysema S / C	20	27.78
Parietal wounds	7	9.72
Productive cough	5	6.94
Hemoptysis	1	1.39

TableVIII. *Distribution of patient records according to radiographic images*

X-ray images	Effective	%
Line of fracture	34	47.22
Hemopneumothorax	34	47.22
Normal	22	30.56
Hemothorax	4	5.56

TableIX. *Distribution of patient files according to thoracic lesions*

Thoracic lesions	Effective	%
Costal fracture	34	47.22
Hemopneumothorax	34	47.22
Pulmonary contusion	32	44.44
Non- penetrating wounds	7	9.72

Pleural drainage has been realized in 38 patients and trimming in 7 patients.

Average length of stay: 7.41 days Extreme length : 1 day and 17 days

The operative suites were favorable in 63 patients, complicated in 1 patient and we had deplored 8 cases of death

Discussion

Over a period of 1 year, closed chest injuries accounted for 59.01% (72cases) of admission to the thoracic surgery department of the Donka national hospital . This frequency underwent variations compared to a study previously published in Guinea in 2017 by Bah ML and Coll [2] on TFT with 18.07 (30 cases).

This frequency is explained by the ignorance and non-compliance with road safety measures, as well as the insufficiency and lack of maintenance of the road networks.

The age group between 21-30 years old was the most concerned with 21 cases, a frequency of 29.16% followed by that of 31-40 years old with 13 cases, a frequency of 18.05%.

The average age was 34.45 years with extremes of 2 and 80 years.Yena S et al [10] in Mali in 2006 reported an average age of 28.5 +/- 14 years.

This high frequency in young adults is explained by both their hyperactivity; inexperience in driving a car and non-compliance with road safety measures and their behavior in the face of risks.

In our study, we observed a male predominance with 59 cases or 81.95% against 13 women or 18.05% for a sex ratio of 4.53 M / F.

This male predominance is conventionally observed in the literature.Marie- Edith et al. [11] in France in 2001 reported 68% of men.

This frequency could be explained by the place of man in our society; their privileged exposure to various activities; carelessness and non-compliance with road safety measures; as well as their bold and aggressive behavior.

All categories were represented in our study; however, a predominance was observed among merchants with 18 cases or 25% followed by pupils and students with 15 cases or 20.84%.

Yena S et al [10] reported a prevalence of closed trauma to the thorax in pupils and students of 36.4%. The high mobility of this socio-professional category could explain this result

Accidents on the public highway (AVP) constituted the most dominant etiology in our study with 56 cases or 77.78% followed by fall from height with 6 cases or 8.33%.Petit Jean et al. in France in 2001 [12] reported69.7 % AVP.

This frequency would be explained by the fact that in recent years; we have witnessed the increase in car fleets as well as the advent of motorcycle taxis in the country, this without sufficient increase or maintenance of the road networks and above all the non-compliance with road codes.

Cars were the most accused in road accidents with 40 cases, a frequency of 71.43% followed by motorcycles with 11 cases, a frequency of 19.64%.

Condé. F in Guinea in 2016 [13] observed out of 118 cases, that 77.61% were due to motorcycles and 33 cases or 21.71 were caused by cars.

This result could be explained by the constantly increasing use of cars and motorcycles, the non-compliance with the road code by users and the deterioration of road infrastructure.

Chest pain was noted in all patients, ie a frequency of 100% followed by dyspnea with 49 cases or a frequency of 68.05% and cartilage damage with 30 cases or a frequency of 41.67%.James DL et al [14] in Niger in 2009 reported 100% of patients with chest pain and 33.97% of patients with dyspnea

In fact, chest pain was the most constant sign in chest trauma and which drew the practitioner's attention to the respiratory system.

In our study, lesions of both the upper and lower limbs were involved with 9 cases, or 28.13% each.

Front and profile chest radiography was performed on all of our patients for better diagnostic research. In addition to pleural detachment, it shows the state of the parenchyma, the presence or absence of an effusion and fracture marks.

She highlighted 34 cases, ie 47.22% of mixed pleural effusion and costal fractures each.

Twenty-two (22) photos, or 30.56%, were without particularities.

Four (4) cases (5.56) demonstrated isolated pleural effusion.

Surgical treatment Pleural drainage

It empties the effusion, shortens the hospital stay and promotes the return of the lung to the wall.

Pleural drainage was performed in 38 of our patients, or 52.77%. It was immediately indicated in the cases of:

- Massive post-traumatic hemopneumothorax with subcutaneous emphysema in 34 patients (47.22%).
- Hemothorax in 4 patients, ie 5.56%.

Trimming of non-penetrating wounds: performed on 7 patients or 9.72% to ensure hemostasis and avoid infection.

Duration of hospitalization

In our study, the average length of hospital stay was 7.43 days with extremes of 1 to 17 days.

Choua O et al in N'Djamena, Chad in 2016 [15] reported an average hospital stay of 8.9 days.

In our study, the evolution was favorable in 63 cases or 87.5% and unfavorable in 9 cases or 12.5%, hence one case of complication in Pyo pneumothorax and 8 cases of death. The main causes of death were the seriousness of the injuries associated with closed trauma to the chest and the delay in caring for patients.

Tomta K et al in Lomé in 2004 [16] recorded 5.31% of deaths.

This frequency is explained by a delay in treatment in the context of multiple trauma.

Conclusion

Closed traumas of the thorax are frequent pathologies due to the resurgence of AVP. The vital importance of the intra-thoracic organs makes TFT a medico-surgical emergency of primary importance. Early management is essential for a better result.

The main causes of death were linked on the one hand to the seriousness of the lesions associated with the closed trauma of the thorax and on the other hand to a delay in treatment.

Thus, the use of pleural drainage, first line in severe chest contusions with effusion, offers all the security of a complete return of the lung to the wall without sequelae.

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