

# Pleural effusions at the Internal Medicine Unit, Centre National Hospitalier Universitaire, Cotonou, Benin

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## Abstract

This cross-sectional study aimed to determine the aetiology and clinical outcomes of pleural effusions in the Internal Medicine Unit of the Centre National Hospitalier Universitaire HK Maga (CNHU/HKM) of Cotonou in Benin. Ninety-five (95) patients hospitalised at CNHU/HKM were recruited. Tuberculosis was found as the main aetiology (42.3%), followed by neoplasia (25.7%) and bacterial infections (20%). Dyspnoea was found in 42.3%. Pleural effusions were haematic in 51.1%, purulent in 23.9% and citrine in colour in 22.8%. The clinical outcome was successful in 65% of patients and death occurred in 13%. This retrospective study shows that even though clinical symptoms and etiologies of pleural effusions are in most cases poor predictors of outcome, clinical issues of patients were resolved successfully. We suggest that medical school and residency training programmes place more emphasis on teaching the management of pleural effusions.

## Introduction

Pleural effusion is frequently observed in pulmonary pathology and other associated diseases such as cardiovascular failure and liver disease. In Africa, most studies on pleural effusions are retrospective. Its prevalence is variable (1.70–23%) in West Africa.<sup>1–3</sup> In Cotonou, Benin, pleural effusion represents 6.4% cases of hospitalisation in the Internal Medicine Unit of the Centre National Hospitalier Universitaire HK Maga (CNHU/HKM).<sup>4</sup> Our study aimed to describe the clinical aspects of pleural effusion, to determine its aetiology and evolution in Benin.

## Methods and patients

This descriptive cross-sectional study was carried out at CNHU/HKM in Cotonou, Benin from January 2009 to

June 2011. All in-patient files registered with a diagnosis of pleural effusions in the Internal Medicine Unit were selected. Uncompleted files were removed from data analysis. A form for data collection was created. The data collected were demographics (age, sex, and location), clinical (medical history, symptoms, and physical signs), laboratory analysis (haemogram, biochemistry, microbiology, cytology, and X-ray), and evolution. Data were analysed using SPSS version 17.

## Results

During the study period 97 files were analysed. The mean age was 46±18 years (16–85 years) with a male:female sex ratio of 2:1. Dyspnoea was the major symptom observed in 42% of patients (see Table 1). Medical histories showed tobacco and alcohol use in 20% and 32% respectively. Breast cancer antecedent was observed in eight cases and there was one case of liver cancer. Pleural effusions were found in 98%, frequently located in the right-hand side of the chest (60%), but also in the left (24%) or bilateral (16%) (see Figure 1). The macroscopic aspect of thoracentesis liquid was hemorrhagic (51%), empyema (24%), or citrine in colour (23%). Pleural effusions were exudative in 86%. Pulmonary infections were more frequent with tuberculosis (42%) and bacterial infections (20%); neoplasia was found in 26% and cardiac failure in

Symptoms	Frequency	Percentage
Dyspnoea	41	42
Thoracic pain	36	37
Cough	32	33
<b>Medical history</b>		
Tobacco	19	20
Alcohol	30	32
Tuberculosis	6	6
Neoplasia	9	9
<b>Associated signs</b>		
Fever	64	66
Anorexia	60	62
Weight loss	56	58
Evening sweats	24	25
Ascites	11	11
Pericarditis	4	4

Table 1 Distribution of symptoms, illness history, and associated signs

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Aetiology	Frequency	Percentage
Tuberculosis	41	42
Bacterial infections	19	20
Neoplasia	25	26
Cardiac failure	9	9
Pulmonary embolism	1	1
Rheumatoid arthritis	1	1
Unknown	2	2

Table 2 Aetiology of pleural effusion

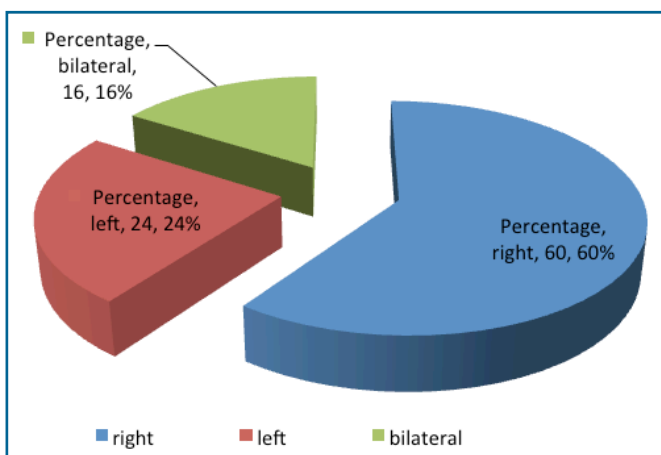


Figure 1 Pleural effusion location

9% (see Table 2) The primary cancer location was breast (32%), lung (20%), liver (12%), and lymphoma (8%). Death occurred in 13% of cases.

## Discussion

The weakness in the methodology of this study is the use of retrospective cohort data (missing data, no collected information); the findings are more informative regarding pleural effusions status in the Internal Medicine Unit of CNHU/HKM.

Compared with Ndongo et al in a Senegal cohort study and Ouedraogo et al in Burkina-Faso,<sup>1,2</sup> our mean age was higher. But in all cohorts (Senegal, Burkina-Faso, and Benin) males were more exposed than females to pleural effusions. This could be explained by the fact that men are more addicted than women to drugs such as tobacco in the West Africa region.<sup>5</sup> As shown in our results, Ndongo et al found that pleural effusions were more frequently located in the right rather the left side of the chest.<sup>1</sup>

Contrary to what we observed, the macroscopic aspect of pleural effusions in two different pneumology units of Abidjan (Côte d'Ivoire) reported clear fluid at first, followed by purulent and hemorrhagic effusions.<sup>6,7</sup> Pulmonary infection, with tuberculosis predominant, was observed to be the main aetiology in pleural effusion. This has also been found in other studies, except for the study by Domoua et al who found that non-tuberculous bacterial infections were mostly observed (56.8%) compared with tuberculosis infections (7.9%).<sup>7</sup>

Our study showed that neoplasia aetiology is more

frequent in pleural effusion (in the Africa cohort). On the other hand, Koffi et al observed that tumoral disease was involved in 3% in Abidjan.<sup>3</sup> This lower frequency in Abidjan could be explained by the fact that their study was conducted in a pneumology unit, while in Benin our study was conducted in the Internal Medicine Unit which admits all categories of patients.

Mortality was higher in our cohort. In the literature, most studies on malignant pleural effusion have investigated mortality in pleural effusion and its predictor.<sup>8-10</sup> Ouedraogo et al found in their pleural study that mortality in patients without HIV (608%) was lower than in HIV-infected patients (15.2%).<sup>2</sup> Predictor factors and associated diseases play a major role in morbidity and mortality of patients with pleural effusion.

## Conclusion

In conclusion, the results of this work show that pleural effusion in Benin takes multiple forms. Even if infections remain the major aetiology other causes such as neoplasia could occur. Prognosis is poor with a high mortality rate, which must be related to associated disease and other predictor factors. A prospective study in our context would be more beneficial; it would help to establish a new algorithm of patient management and determine predictor factors to ensure rapid readaptation to routine activities and reduce morbidity and mortality in patients with pleural effusion.

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