

Clinical and Etiological Profiles of Pericardial Effusions in the Military Hospital of Marrakech

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Abstract

Original Research Article

Objective: To provide a description of the clinical, etiological, and therapeutic aspects of pericardial effusions in Marrakech. **Material and methods:** This is a retrospective and cross-sectional study conducted in the cardiology department of the Avicenna military hospital from January 2014 to August 2018 of patients hospitalized for pericardial effusion, confirmed by echocardiography-doppler. **Results:** The study included 52 patients. The mean age was 43.6 ± 4.2 years (ranging from 24 to 81 years) with a sex ratio of 1.4. Exertional dyspnea and chest pain were the main symptoms. Sinus tachycardia was the main electrocardiographic sign. Pericardial effusion was moderate in 24 patients (46.15%). Pericardiocentesis was required in 8 cases (15.4%). The etiologies of the effusion were: idiopathic/viral (77%), tuberculosis (15.4%), neoplastic (3.8%), lupus and rheumatism (3.8%). **Conclusion:** Pericardial effusions mainly concern young subjects, their diagnosis is based on echocardiography, the treatment is according to the cause, tuberculosis is epidemic in our context but its frequency is decreasing in favor of more inflammatory/viral causes.

Keywords: Pericardial effusion, pericardial disease, tuberculosis.

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INTRODUCTION

Pericardial diseases (PD) cover a spectrum of clinico-pathological entities characterized by pericardial involvement. Pericarditis is the most common form of PD worldwide [1, 2].

Pericardial diseases are either isolated or integrated into a systemic disease; their clinical presentations are highly variable and range from asymptomatic to life-threatening presentations.

The prevalence of pericardial disease is highly dependent on the population involved. Tuberculosis is the most common cause of PD in Africa [3].

Diagnosis and treatment of pericarditis/pericardial effusions have improved over the past 10 years [1, 2], but their etiologic assessment is difficult in resource-limited African settings, morbidity and mortality rates remain quite worrisome, especially in HIV co-infected patients with tuberculous pericarditis [3].

In Morocco, the frequency and characteristics of acute pericarditis/pericardial effusions are not well documented. The aim of this work is to study the clinical, paraclinical and etiological profiles of pericardial effusions in the cardiology department of the Avicenna Military Hospital in Marrakesh.

PATIENTS AND METHODS

This descriptive study was a retrospective cross-sectional study of pericardial effusion cases hospitalized in the cardiology department of the Avicenna Military Hospital in Marrakech over a 4-year period from January 2014 to August 2018.

Patients with a recent history of myocardial infarction or surgery were excluded since their origin is clear.

The descriptive parameters studied were epidemiological (age and sex), clinical (history of flu-like illness, primary functional sign or symptom), paraclinical (repolarization disorders on electrocardiogram and the existence of a pericardial effusion on echocardiography) and therapeutic.

The systematic etiological assessment included an inflammatory workup, hepatitis and HIV serologies, an immunological analysis and cytobacteriological exams of the pericardial fluid in case of puncture or drainage. A diagnosis of tuberculous pericarditis was retained when there were signs of impregnation, active or sequelae of extra-pericardial tuberculosis, and/or the identification of BK on direct examination of the sputum or the fluid and Interferon gamma assays. Idiopathic pericarditis was evoked when the systematic etiological assessment was negative and evolution was favourable under colchicine. Neoplastic pericarditis was considered in a context of evolving cancer or diagnosed hemopathy.

RESULTS

During the study period, 52 patients with pericardial effusion were included, their clinical and paraclinical characteristics are listed in table 1.

The mean age was 43.6 ± 4.2 years with extremes of 24 and 81 years. The male to female ratio was 1.4 history of flu-like illness was found in 10 patients, dyspnea and chest pain were the main functional signs encountered in 75% of the cases each.

On physical examination, rapid heart sounds were present in 46.15% of our patients, they were muffled in 32.7%, 38.5% in our subjects had polypnea, pericardial rubbing was heard in 23% of cases, and hypotension with signs of pre-shock were found in 5 of 52 patients. Fever was recorded in only 2 patients

The electrocardiogram showed sinus tachycardia in 46.15% of cases, repolarization disorders (Holzman stage I, II, and III) were seen in 27% of cases, and micro-voltage in 15.4% of them. Elevated inflammatory markers (CRP or/and SR) were detected in 69.2% of patients.

Transthoracic echocardiography (TTE) was performed in all our patients and revealed a mild pericardial effusion in 21 of our patients, a moderate effusion in 24, and a large effusion in 7 cases.

Intrapericardial fibrinous strands were found in 55.8% of patients, right heart chamber compression was observed in 15.4%, and 9.6% of patients had evidence of tamponade. Left ventricular systolic function was impaired in only one patient.

Pericardiocentesis was performed in eight cases, the evacuated pericardial fluid was clear in five and hemorrhagic in three.

The most common causes of pericardial effusions were idiopathic/viral (77%), especially in mild effusions, followed by tuberculosis (15.4%), one case of lymphoma and one case of lung cancer, one case of pericarditis in the setting of rheumatoid arthritis, and one case of lupus pericarditis; no cases of seropositive pericarditis were found. Patients with pericarditis thought to be idiopathic/viral were treated symptomatically with colchicine and acetylsalicylic acid in anti-inflammatory doses, and the other cases were treated etiologically with good clinical evolution upon hospitalization.

Table 1: Distribution of patients according to their clinical and paraclinical characteristics

		Patient count	%
History of flu-like illness		10	
Functional signs and symptoms	Chest pain	39	75
	Dyspnea	39	75
	Cough	5	9,6
	Lower extremity edema	3	5,7
	Fever	2	3,8
Physical signs upon examination	Rapid HR	24	46,15
	Muffled heartsounds	17	32,7
	Polypnea	20	38,5
	Pericardial rub	12	23
	Hypotension (pre-shock/paradoxical pulse)	5	9,6
electrocardiogram	Sinus tachycardia	24	46,15
	Repolarization disorders	14	27
	Microvoltage	8	15,4
	Normal	6	11,45
Echocardiographic findings	Abundance		
	Mild	21	40,4
	Moderate	24	46,15
	Large	7	13,6
	Fibrinous strands	29	55,8
	Structures compression	8	15,4
	Tamponade	5	9,6
	Impaired LVEF	1	1,9

Etiologies	Idiopathic/viral	40	77
	Tuberculosis	8	15,4
	Lymphoma	1	1,9
	Lung cancer	1	1,9
	Lupus	1	1,9
	Rheumatoid arthritis	1	1,9
	HIV	0	0

DISCUSSION

The normal pericardium contains 10 to 50 milliliters of a plasma that serves as a lubricant between the pericardial layers. However, if the pericardium is damaged or diseased, the subsequent inflammation (pericarditis) can lead to excess fluid. Alternatively, fluid can build up around the heart without inflammation, such as from bleeding, malignancy or thoracic trauma.

Men aged 16 to 65 years have a statistically higher risk of pericarditis (relative risk of 2.02) than women in the general population, particularly among young adults [2]; In our study, the mean age was 43.6 ± 4.2 years, which is similar to those reported by North African [4], sub-Saharan [5, 6] and French [7] series. All these studies support the fact that pericardial effusions preferentially affect relatively young patients, the male predominance found in our study has also been established in recent literature.

Typical symptoms include chest pain and exertional dyspnea that evolves into orthopnea, non-specific symptoms reflect the compressive effect of the fluid on the heart chambers resulting in blood pressure falling and tachycardia, such manifestations include cough, fatigue and palpitations [2]; The major symptoms reported in our series were dyspnea and chest pain in 75% of the cases, in agreement with the results of the mentioned series.

Fever is a feature that may be related to pericarditis, whether infectious or immune, it was found in only two patients in this study.

Medical examination may be entirely normal in patients whom hemodynamics are not jeopardized; Should a complication occur, typical signs include elevated jugular pressure, a paradoxical pulse, and muffled heart sounds on auscultation in moderate to large effusions; Pericardial rub is rarely heard; it can usually be detected in patients with concomitant pericarditis [2], In our study, it was detected in 23% of patients.

The electrocardiogram is often used to make the diagnosis; the most commonly seen findings are microvoltage and repolarization disturbances. The definite diagnosis relies on visualization of the pericardial effusion by echocardiography, which also provides an accurate assessment of the size of the pericardial effusion and its hemodynamic effects, it is a

widely available bedside-tool, easy to use and repeat, free of radiation exposure, and safe in patients with coexisting disease.

A standard diagnostic workup (clinical evaluation, ECG, routine blood chemistry, inflammatory and myocardial injury markers, thoracic x-ray, and doppler echocardiography) allows the clinician to first select patients at high risk for non-idiopathic/non-viral etiologies as well as for complications warranting hospitalization, and second, to suggest an individualized diagnostic and therapeutic strategy [1]. The biological inflammatory syndrome was positive in 69.2% of our patients, it is generally inconsistent and its absence should not rule out the diagnosis.

The diagnosis of tuberculous pericarditis is made by a conjunction of epidemiological, biological and echocardiographic considerations; its treatment consists of antibacillary drugs in combination with colchicine to avoid constriction and in some cases corticosteroid treatment, in the present series, tuberculosis was diagnosed in 15,4% of cases.

Limited data are available regarding the diagnostic utility of pericardial fluid analysis. The ESC guidelines [2] incorporate diagnostic criteria and a new set of recommendations that are based primarily on expert opinion.

The simplest etiological classification of PD includes infectious and non-infectious causes. Further categorization depends on the epidemiologic context, the population of interest, and the clinical setting. In developed countries, viral causes are the most frequent, whereas tuberculosis is the main source of pericardial disease in developing countries, where it is still endemic [2]. Our etiological profile of pericardial effusions is somewhat similar to that of Mediterranean countries. In sub-Saharan Africa, Tuberculosis is the most common cause of PD, the increase in the incidence of tuberculous pericarditis in the last two decades is driven by the HIV epidemic [3]. HIV seroprevalence is 0/52 in our study, incomparable to the rate of 47% reported by Pio in Lomé [5].

Pericardial effusions are generally associated with either established or unrecognized medical conditions (for example, hypothyroidism). The treatment should be that of pericarditis when inflammatory signs are present.

Idiopathic pericardial effusion and pericarditis have a good overall prognosis with a very low risk of complications, especially if the effusion is mild to moderate [2].

Primary neoplastic pericarditis is rare. Secondary neoplastic localizations are more prevalent, mostly related to breast or lung cancer, or hematologic malignancy, with moderate to large effusions being more likely for these etiologies, with a high mortality rate [2].

Pericardiocentesis is generally not indicated in all patients with pericardial effusion. Its specific indications include cardiac tamponade, significant symptomatic effusion unresponsive to medical treatment, and suspected bacterial or neoplastic etiology [1]. In our study, pericardiocentesis was performed in eight cases, all related to hemodynamic instability.

CONCLUSION

Pericardial effusions in the cardiology department of the Avicenne military hospital in Marrakech electively affects individuals in their forties. Tuberculosis etiology is decreasingly frequent in our country, hence the importance of preventive measures contributing to this decline. We are presently witnessing an increase in the frequency of viral and inflammatory forms of pericarditis. Echocardiography remains the cornerstone of diagnosis and management.

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