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ORIGINAL RESEARCH

Assessment of clinico- cytopathologic study of pericardial effusion

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Abstract

Background: Body fluids including pleural, peritoneal, and pericardial fluids accumulated in pathologic conditions, including benign and nonneoplastic disorders, and benign and malignant neoplasms. The present study was clinico- -cytopathologic study of pericardial effusion.

Materials & Methods:37 pericardial effusion specimens of both genders was recorded. Parameters such as cytologic features and the cytologic diagnosis of PE was classified into five categories in accordance with ISRSFC.

Results: Out of 37 specimens, males were 20 and females were 17. Diagnosis was negative for malignancy (NFM) in 30, atypia of undetermined significance (AUS) in 4, suspicious for malignancy (SFM) in 2 and positive for malignancy (MAL) in 1 case. The difference was significant (P< 0.05). Symptoms/signs were raised jugular venous pulse in 24, breathlessness in 12, tachycardia in 15, tachypnea in 23, fever in 8, hypotension in 4, cough in 10 and body swelling in 3. Etiology was unknown in 15, Tb pericarditis in 6, traumatic in 8, heart disease in 1, renal disease in 1, autoimmune in 3 and malignancy/Suspicion for malignancy in 3 cases. The difference was non- significant (P> 0.05).

Conclusion: PF specimens are uncommon. Unknown etiology the most common cause to produce malignant PF in both males and females.

Keywords:pericarditis, pleural, specimen

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Introduction

Body fluids including pleural, peritoneal, and pericardial fluids accumulated in pathologic conditions, including benign and nonneoplastic disorders, and benign and malignant neoplasms.[1] The pericardium is a double-walled sac containing the heart and roots of the great vessels and is composed of both serous and fibrous pericardium. The serous pericardium is divided into the parietal pericardium and visceral pericardium.[2] Both of these layers lubricate against the friction that occurs during heart activity. Hence, 20 to 60 ml of fluid normally accumulates in the pericardial space.[3] PE accumulation is caused by variable mechanisms in a similar manner to other body fluids including infection, malignancy, connective tissue disease, hemodynamic instability, and idiopathic causes. It results in considerable morbidity and contributes to mortality. A systemic evaluation of PE cytology is rare in the literature however compared to pleural or pericardial effusions.[4]

It may have an asymptomatic presentation in a substantial number of patients and therefore it is often accidentally detected on chest x-rays or echocardiograms. Further, due to

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geographically diverse clinical presentation and etiology, data from these geographies cannot be generalized.[5]Cytologic evaluation is one aspect of the overall workup of pericardial fluid (PF), which, together with general chemical analysis and microbiology cultures, has as its main purpose the determination of the etiology of the PF.[6] The present study was clinico- -cytopathologic study of pericardial effusion.

Materials & Methods

The present study comprised of 87 pericardial effusion specimens of both genders.

Data such as name, age, gender etc. was recorded. Parameters such as primary tumor location, treatment, outcomes, and cytologic features were recorded. The slides including liquid-based cytology and cell blocks of all cases were formed. The cytologic diagnosis of PE was classified into five categories in accordance with ISRSFC. These categories are non-diagnostic (ND), negative for malignancy (NFM), atypia of undetermined significance (AUS), suspicious for malignancy (SFM), and positive for malignant cells (MAL).Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

Results

Table I: Distribution of patients

Total- 37		
Gender	**Males**	**Females**
Number	20	17

Table I shows that out of 37 specimens, males were 20 and females were 17.

Table II:Cytologic diagnosis of pericardial effusion

Diagnosis	Number	P value
Negative for malignancy (NFM)	30	0.01
Atypia of undetermined significance (AUS)	4	
Suspicious for malignancy (SFM)	2	
Positive for malignancy (MAL)	1	

Table II, graph I shows that diagnosis was negative for malignancy (NFM) in 30, atypia of undetermined significance (AUS) in 4, suspicious for malignancy (SFM) in 2 and positive for malignancy (MAL) in 1 case. The difference was significant (P< 0.05).

Graph I:Cytologic diagnosis of pericardial effusion

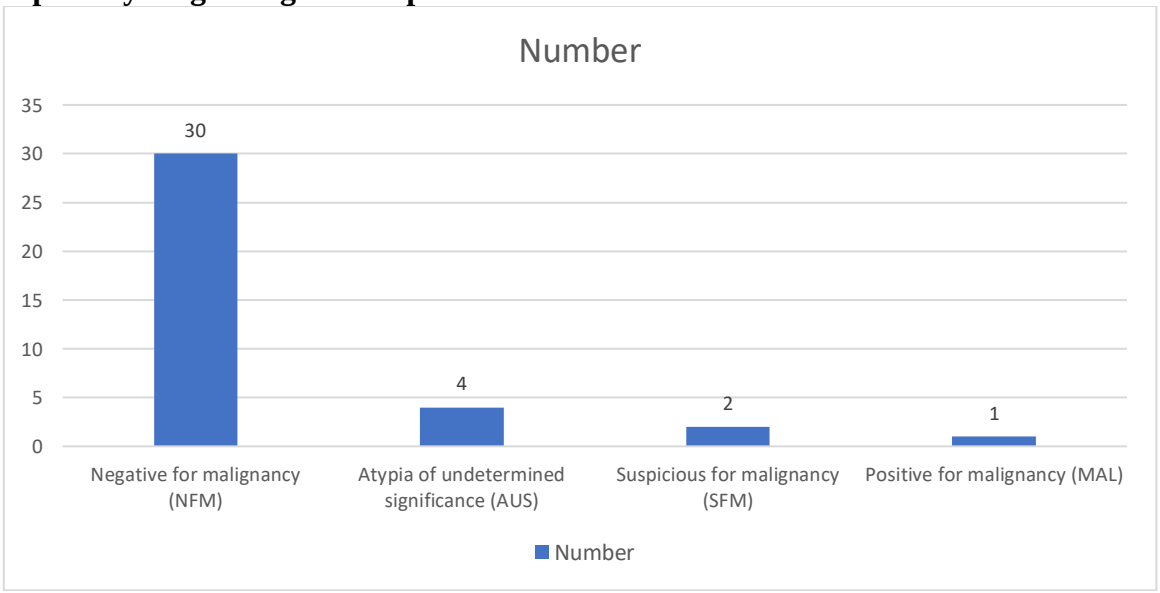

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Table III Assessment of parameters

Parameters	Variables	Number	P value
Symptoms/signs	Raised jugular venous pulse	24	0.46
	Breathlessness	12	
	Tachycardia	15	
	Tachypnea	23	
	Fever	8	
	Hypotension	4	
	Cough	10	
	Body swelling	3	
Etiology	Unknown	15	0.04
	Tb pericarditis	6	
	Traumatic	8	
	Heart disease	1	
	Renal disease	1	
	Autoimmune	3	
	Malignancy/suspicion for malignancy	3	

Table III shows that symptoms/signs were raised jugular venous pulse in 24, breathlessness in 12, tachycardia in 15, tachypnea in 23, fever in 8, hypotension in 4, cough in 10 and body swelling in 3. Etiology was unknown in 15, Tb pericarditis in 6, traumatic in 8, heart disease in 1, renal diseasein 1, autoimmune in 3 and malignancy/Suspician for malignancy in 3 cases. The difference was non- significant (P> 0.05).

Discussion

Several well-known conditions can produce a pericardial effusion such as infection, malignancy, connective tissue disease, pericardial injury, metabolic causes, heart disease, or idiopathic causes.[7] Each effusion is treated based on the specific etiology and hemodynamic stability of the patient.[8] With knowledge of the specific cause that triggered the accumulation of the pericardial effusion, clinicians can tailor the treatment to target that specific cause or simply provide supportive measures.Patients with small amounts of pericardial effusion can be completely asymptomatic.[9] In addition, if a patient has a concomitant pleural and pericardial effusion, the pleural effusion is preferentially tapped unless there is hemodynamic compromise. Therefore, the collection of a large number of PF cytology cases for a systematic analysis is difficult to accomplish. However, with an appropriate sample, conclusions specific to PF cytology can be drawn.[10] The present study was clinico- -cytopathologic study of pericardial effusion.

We found that out of 37 specimens, males were 20 and females were 17. Diagnosis was negative for malignancy (NFM) in 30, atypia of undetermined significance (AUS) in 4, suspicious for malignancy (SFM) in 2 and positive for malignancy (MAL) in 1 case. Song et al[11] in their study a total of 574 PE specimens were obtained from 486 patients, representing 1.5% (574/38,589) of all body fluid specimens. Three hundred and eighty-two (66.6%) cases were “negative,” 54 (9.4%) cases were “atypia of undetermined significance,” 10 (1.7%) cases were “suspicious for malignancy,” and 128 (22.3%) cases were “malignancy”. The most common origin for malignant PE was the lung (82.1%), in both men (70.5%) and women (50.6%). Breast cancer (20%) in women and gastric cancer (4.9%) in men were the second most common malignant PE, respectively. The mean interval from the occurrence of malignant PE to death was 10.06 months (range; 0– 116.03 months, median 3.5 months), and the 1-year survival rate was 16.7%. In addition,the1-

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yearsurvivalratesaftermalignantPEonsetwere0%forgastric cancer,13.9% for lung cancer, 19.8% for breast cancer, and 21.1% for the other cancers (p = 0.011).

We observed that symptoms/signs were raised jugular venous pulse in 24, breathlessness in 12, tachycardia in 15, tachypnea in 23, fever in 8, hypotension in 4, cough in 10 and body swelling in 3. Etiology was unknown in 15, Tb pericarditis in 6, traumatic in 8, heart disease in 1, renal disease in 1, autoimmune in 3 and malignancy/Suspicion for malignancy in 3 cases. Singh et al[12]assessed the clinical presentation and etiology of pericardial effusion at a tertiary-care centre in India. The mean age of the patients was 46.87±14.40 years. Almost equal frequencies of men 36 (51.4%) and women 34 (48.6%) were observed. The most commonly observed signs/symptoms of patients diagnosed with pericardial effusion was raised jugular venous pulse in 39 (55.7%) patients, breathlessness in 36 (51.4%) patients, and tachypnea and tachycardia (heart rate >100 beats per minute) in 33 (47.1%) patients each. An etiology of tubercular effusion was common 32 (44.4%) patients. On analyzing data according to the underlying etiology, the most frequent sign/symptom was raised jugular venous pulse in 20 (62.5%) patients diagnosed with tubercular effusion, tachypnea in 10 (52.6%) patients diagnosed with hypothyroidism and tachycardia in 12 (63.2%) patients with a diagnosis other than pericardial effusion or hypothyroidism.

Dragoescu EAet al[13] in their study a total of 128 PF specimens were obtained from 113 patients (56 males and 57 females), representing 4.5% of all fluids. Of these, 95 cases (74.2%) were benign, 2 (1.6%) had ‘‘severely atypical cells’’ and 31 cases (24.2%) were malignant. The most common etiologies for benign PF specimens were neoplasm (23.1%), idiopathic (19%), infection (14.7%), and connective tissue disease (12.6%). The most common neoplasm producing malignant PF was lung carcinoma, both in males (75%) and females (52.2%), with adenocarcinoma being the most common type (72.2%). In females, breast carcinoma was the second most common neoplasm (39.1%). Approximately 87.1% of patients with malignant PF specimens had a prior history of malignancy and approximately 32.7% underwent a concomitant pericardial biopsy.

The limitation the study is small sample size.

Conclusion

Authors found that PF specimens are uncommon. Unknown etiology the most common cause to produce malignant PF in both males and females.

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