


A case report of self-audible pericardial rub secondary to acute pericarditis from post-pericardiotomy syndrome (pericardial rub tinnitus)

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Background

Pericarditis is a common pericardial disorder that is frequently accompanied by a pericardial friction rub, which can be detected during a physical examination. Although patients' awareness of cardiac murmurs and vascular bruits has been extensively reported, there are no reports on patients' self-awareness of a pericardial friction rub.

Case summary

We present the first case of a patient with acute pericarditis associated with objective self-awareness of a pericardial friction rub, which we recorded with an electronic stethoscope and confirmed the sound with the patient. The patient had a recent history of three-vessel coronary artery bypass grafting and presented with a progressively worsening, rhythmic, and 'sandpaper-scratching' sound in both ears. The sound was more pronounced in the left lateral decubitus position. The symptom resolved with colchicine therapy and was associated with concomitant resolution of the pericardial friction rub.

Discussion

This is the first documented case of a patient demonstrating objective self-awareness of a pericardial rub resulting from acute pericarditis associated with post-pericardiotomy syndrome. Tinnitus refers to the perception of an auditory sensation that can be subjective or objective, depending on whether it is heard only by the individual or can also be heard by an observer. While objective tinnitus caused by cardiovascular conditions has been previously reported, no cases have attributed the pericardial friction rub as the underlying cause. Therefore, we suggest using the term pericardial rub tinnitus to describe this unique phenomenon.

Keywords

Friction • Post-pericardiotomy • Dressler's • Case report

ESC curriculum

2.3 Cardiac magnetic resonance • 6.6 Pericardial disease

Learning points

- To bring attention to a unique case of self-perceived pericardial friction rub.
- To be aware of the subsets of tinnitus secondary to cardiovascular aetiologies and their categorization.

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Introduction

Pericarditis is a prevalent pericardial disorder that commonly presents with chest pain, dyspnoea, fatigue, and fever.^{1–4} A pericardial friction rub is a common finding in these patients. Although patients' self-awareness of cardiac murmurs and vascular bruits, commonly described as tinnitus, has been well documented, there are no reports of patients being self-aware of their pericardial friction rub.^{5–9} We report a case of a patient with acute pericarditis who complained of a continuous 'sandpaper-scratching' sound in his ears, which he later identified as a sound similar to the pericardial rub recorded on an electronic stethoscope. This symptom resolved with colchicine therapy and was associated with the concomitant resolution of the pericardial friction rub. This novel symptom of pericarditis is described herein, and the term 'pericardial rub tinnitus' is proposed to describe this phenomenon.

Summary figure

| Time | Events |
|--------------------|--|
| 2 months prior | Coronary artery bypass grafting for multivessel disease. |
| Index presentation | Patient presented to the emergency department with objective self-awareness of a pericardial friction rub secondary to acute pericarditis. Sound recorded on electronic stethoscope and confirmed with patient. Started on colchicine therapy. |
| Day 2 | Remained on colchicine therapy. Patient noted resolution of self-perceived sound. Pericardial friction rub decreased in intensity. |
| Day 3 | Discharged home with colchicine therapy and close outpatient follow-up. |
| 2 weeks | Patient returned to our cardiology clinic. He noted complete resolution of self-perceived sound since his hospitalization. No pericardial friction rub was appreciated on auscultation. |

Case presentation

A 51-year-old male presented at the hospital with a 1-week history of a progressively worsening self-perceived sound in both ears. The sound was described as intermittent, rhythmic, and 'sandpaper-scratching'. It was more pronounced when the patient was in the left lateral decubitus position and was not associated with chest pain, fever, or dyspnoea. The sound was not audible to observers in the room. The patient denied a recent history of viral illness. Two months prior, the patient had undergone elective three-vessel coronary artery bypass grafting (CABG) for multivessel disease after having high-risk findings on stress testing and angina refractory to medical therapy. The patient also had a history of ischaemic cardiomyopathy with mildly reduced ejection fraction.

On examination, the patient was afebrile and haemodynamically stable, showing no signs of acute distress. Pharyngeal and bilateral ear examination revealed no abnormalities. Bilateral carotid auscultation did not reveal any bruits. During cardiovascular examination, there was no jugular venous distention, and the patient had a regular rhythm.

A pericardial friction rub was heard best at the left sternal border in the second and fifth intercostal spaces, which was recorded with an electronic stethoscope (Eko Devices Inc., Oakland, CA, USA) and included in [Supplementary material online, Video S1](#). The patient confirmed that the sound heard on the recording was the same sound he was perceiving.

Electrolytes and blood urea nitrogen were within normal limits. The white blood cell count was 4.6 K/ μ L (normal: 4–11 K/ μ L), and the creatinine level was 1.6 mg/dL (normal: 0.60–1.50 mg/dL), which was his baseline. The erythrocyte sedimentation rate was 36 mm/h (normal: 0–20 mm/h), and C-reactive protein was <3.0 mg/L (normal: <4.9 mg/L). A high-sensitivity troponin level was initially drawn in the emergency department prior to initial evaluation. Given baseline elevation at 77 ng/L (normal: < 20 ng/L), repeat levels were obtained: 84 and 95 ng/L. The electrocardiogram ([Figure 1](#)) showed non-specific ST segment abnormalities and poor R-wave progression, without classic pericarditis findings. The transthoracic echocardiogram (TTE) revealed an anterior small pericardial effusion adjacent to the right ventricle. Cardiac magnetic resonance imaging ([Figure 2A and B](#)) identified pericardial thickening, late gadolinium enhancement of the pericardium, and a trivial loculated pericardial effusion.

He was diagnosed with acute pericarditis secondary to post-pericardiotomy syndrome due to the presence of a pericardial friction rub, pericardial effusion, and recent CABG, according to the European Society of Cardiology (ESC) criteria.⁴ Treatment with colchicine 0.6 mg twice a day was initiated, and non-steroidal anti-inflammatory drugs were avoided due to his impaired renal function. Within 12 h, his symptoms had resolved, and the pericardial rub on auscultation had improved, as recorded in [Supplementary material online, Video S2](#). Pulsatile tinnitus of vascular aetiology was considered given his known history of atherosclerotic disease. However, this was unlikely given the clinical context, including bilateral tinnitus and the absence of carotid bruits. Additionally, the patient confirmed that the perceived sound was the same as the electronic stethoscope recording. He was discharged on the third day of hospitalization with a 3-month supply of colchicine. Two weeks after hospitalization, the patient returned to our cardiology clinic and confirmed complete resolution of his symptoms. During auscultation, there was no pericardial friction rub.

Discussion

Acute pericarditis is a condition that can be caused by various factors, such as autoimmune and infectious causes.⁴ A specific type of autoimmune inflammatory pericarditis, post-pericardiotomy syndrome, affects a significant proportion of patients who undergo cardiac surgery.¹⁰ The most common symptom of acute pericarditis is chest pain. However, it can also present with atypical symptoms, as we described in our case presentation.

Tinnitus is a prevalent condition that refers to the perception of auditory sensations.^{5,6} It can be subjective or objective and may present as pulsatile, rhythmic, intermittent, or constant. The causes of tinnitus are diverse and include neurological disorders, ototoxic medications, and cardiovascular issues. In the case of objective tinnitus, there are actual physical sources of sound contributing to the condition.^{11–13} Objective tinnitus can be classified into two major categories: pulsatile and non-pulsatile tinnitus. Pulsatile tinnitus, which corresponds to the rhythmic pulsations of blood flow, is often associated with cardiovascular causes. These causes may include arterial bruits, carotid stenosis, arteriovenous shunts, vascular anomalies, valvular heart disease, conditions leading to high cardiac output, or any other condition causing turbulent blood flow.^{5,6,11–13} However, to the best of our knowledge, a pericardial friction rub has not been previously reported as a cause of tinnitus.

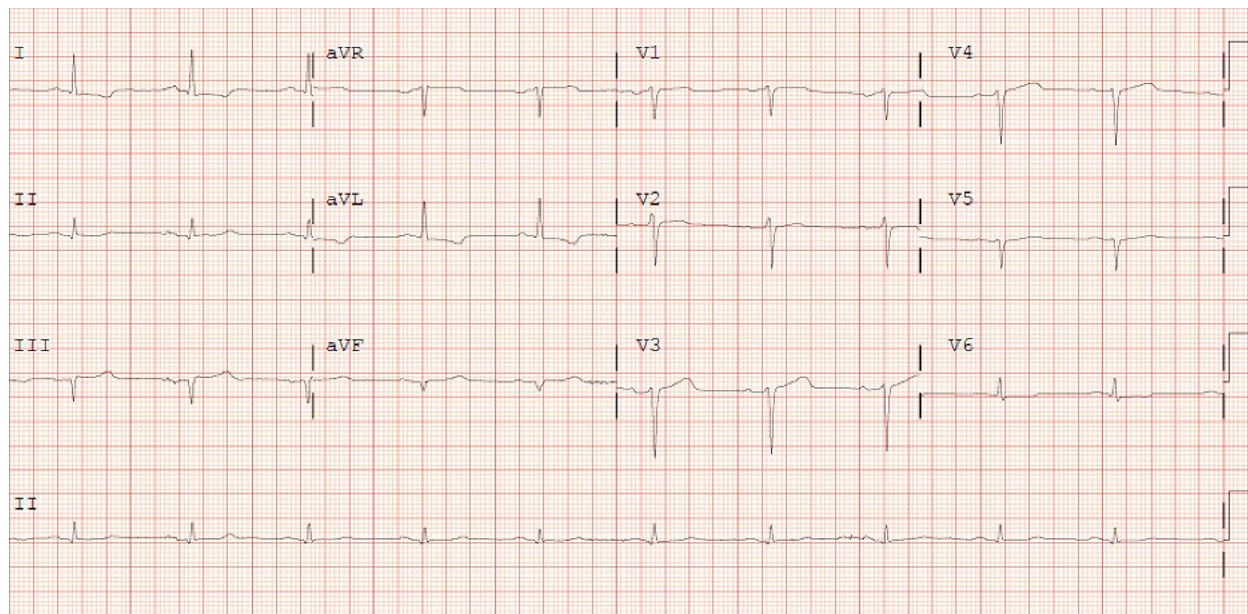


Figure 1 Twelve-lead electrocardiogram on the first day of hospitalization. Q waves present in the inferior leads (leads II, III, and aVF). Non-specific ST segment and T-wave abnormalities are present. Poor R-wave progression in the precordial leads.

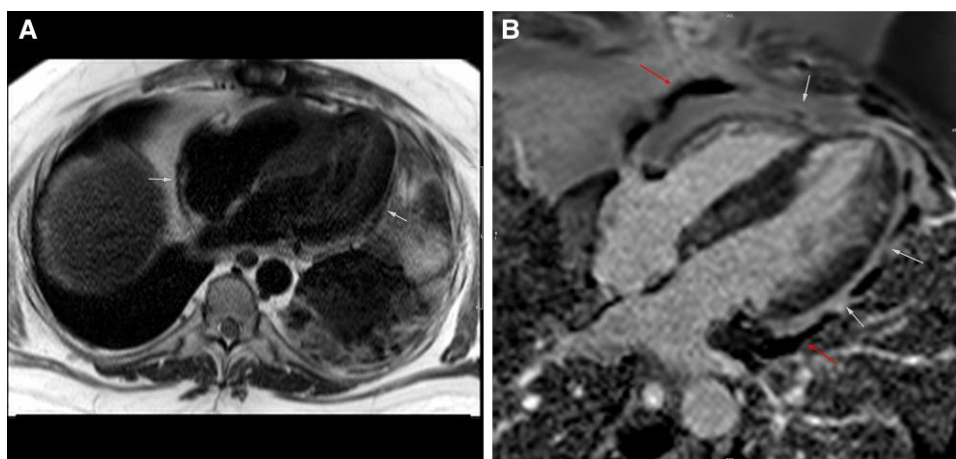


Figure 2 (A) Axial view of cardiac magnetic resonance. Black blood imaging showing pericardial thickening. White arrows = pericardial thickening. (B) Four-chamber view of cardiac magnetic resonance. Late gadolinium enhancement imaging showing pericardial enhancement and loculated pericardial effusion. White arrows = pericardial enhancement. Red arrows = pericardial effusion.

In this case report, we present the first instance of a patient's self-awareness of a pericardial friction rub as a rhythmic, 'sandpaper-scratching' sound that he perceived as tinnitus. The sound was audible to us only with a stethoscope, and we recorded it on an electronic stethoscope. The patient confirmed that the sound he was perceiving was similar to the rub we recorded. After the patient received pericarditis therapy, his symptoms rapidly improved, and the pericardial friction rub on auscultation resolved. Based on these findings, we suggest that this phenomenon be referred to as pericardial rub tinnitus, as it meets the definition and categories of tinnitus. Nonetheless, we

acknowledge that our case report has a limitation in that we did not assess for cerebrovascular disease, including vascular imaging.

In conclusion, we report the first case of objective self-awareness of a pericardial friction rub, which occurred secondary to acute pericarditis.

Patient perspective

The patient experienced a unique and distressing symptom of acute pericarditis from their own perspective. The patient described an

intermittent and bothersome ‘sandpaper-scratching’ sound in their ears, which we later connected to the pericardial friction rub heard on an electronic stethoscope. This auditory sensation, which we termed ‘pericardial rub tinnitus’, caused considerable discomfort and was a significant concern for the patient. Fortunately, with the initiation of colchicine therapy, the symptom resolved alongside the resolution of the pericardial friction rub, providing relief and improving the patient’s overall well-being. The patient was free of tinnitus on his follow-up visit.

Lead author biography



Ramzi Ibrahim is an Internal Medicine Resident at the University of Arizona in Tucson, AZ, USA. In addition to his daily clinical activities, he holds a keen interest in researching population health, epidemiology, and outcomes in cardiovascular disease.

Supplementary material

[Supplementary material](#) is available at *European Heart Journal – Case Reports* online.

Consent: In accordance with COPE guidelines, the patient gave verbal and written informed consent for publication of the case report.

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Data availability

No new data were generated or analysed in support of this research.

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