

CASE REPORT

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## The Liver and Right Atrium—Hepatic Cyst as a Cause of Arrhythmia

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**Abstract:** Simple hepatic cysts are a relatively common radiological finding. These cysts may be classified as parasitic and non-parasitic. They are usually asymptomatic, but may cause symptoms due to local compression. These compressive complications include: portal hypertension, edema due to caval compression, extrinsic gastric compression and duodenal compression with obstruction. However, no reports in the literature exist describing atrial compression by hepatic cysts. In this case report a simple hepatic cyst causing slight right atrial compression is described. This slight compression is the cause of atrial premature beats. It is proposed that simple hepatic cysts may be the cause of atrial premature beats.

**Keywords:** hepatic cyst, atrium, atrial premature beats

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## Introduction

Simple hepatic cysts is a frequent finding and occur in approximately 2.5% of the population.<sup>1</sup> They are usually benign, asymptomatic and require no treatment.<sup>2</sup>

Although usually asymptomatic they may cause symptoms due to local compression, such as: abdominal discomfort or pain, dyspnoea, early satiety, swelling of the lower limbs due to caval compression, portal hypertension or jaundice.<sup>1</sup>

This report describes the occurrence of atrial arrhythmia due to right atrial compression by a simple hepatic cyst in a 71-year old man.

## Case Report

A case report is presented where it is postulated that a simple hepatic cyst, located just beneath the right atrium is responsible for symptomatic palpitations due to frequent atrial premature beats, induced by slight right atrial compression.

A 71-year old, Caucasian male presented with the clinical problem of symptomatic palpitations for a period of two years. He was not using any medication, never smoked, and never had any previous surgery. The clinical examination did not reveal any abnormalities. The electrocardiogram was normal, however Holter monitoring revealed frequent atrial premature beats (see Fig. 1 and 2).

The transthoracic echocardiogram did not reveal any pathological findings, however the subcostal view demonstrated a large, simple hepatic cyst, measuring 4.49 cm in diameter with occasional slight compression of the right atrium (see Fig. 3, 4 and 5).

All electrolytes and the thyroid function tests were within normal limits. The patient did not have any obstructive respiratory disease, a common cause of atrial premature beats.

## Discussion

True hepatic cysts can be classified as parasitic or non-parasitic.<sup>3</sup> The former is almost exclusively the result of hydatidosis<sup>3</sup>, caused by the cestode *Echinococcus*<sup>4</sup>. *Echinococcus* is classified into two species: *E. granulosus*, the most common which causes chronic disease and *E. multilocularis*, which

causes a more progressive and multifocal infection.<sup>4</sup> The liver is the main site of infection with the right lobe most frequently affected.<sup>4</sup> Non-parasitic cysts are the result of congenital anomalies which affect the intra- and extrahepatic biliary ducts, leading to varying degrees of cystic dilatations.<sup>3</sup> These may be solitary or polycystic.<sup>1</sup> According to Henson et al<sup>1</sup> non-parasitic and non-congenital cysts may be classified as neoplastic, inflammatory and traumatic cysts.

Although usually asymptomatic, hepatic cysts may cause clinical symptoms due to local compression, such as abdominal discomfort or pain, dyspnoea, early satiety, swelling of the lower limbs due to caval compression, portal hypertension or jaundice.<sup>1</sup> Liver function enzymes will only be abnormal if biliary compression is present<sup>3</sup> and cyst infection may occur if a communication is present between the biliary tree and the cyst.<sup>3,5</sup> These cysts may also cause extrinsic gastric compression and mimic the symptoms and endoscopic findings of gastric submucosal tumors.<sup>6,7</sup> A case of extrinsic duodenal compression with obstruction due to a hepatic cyst have also been described.<sup>8</sup>

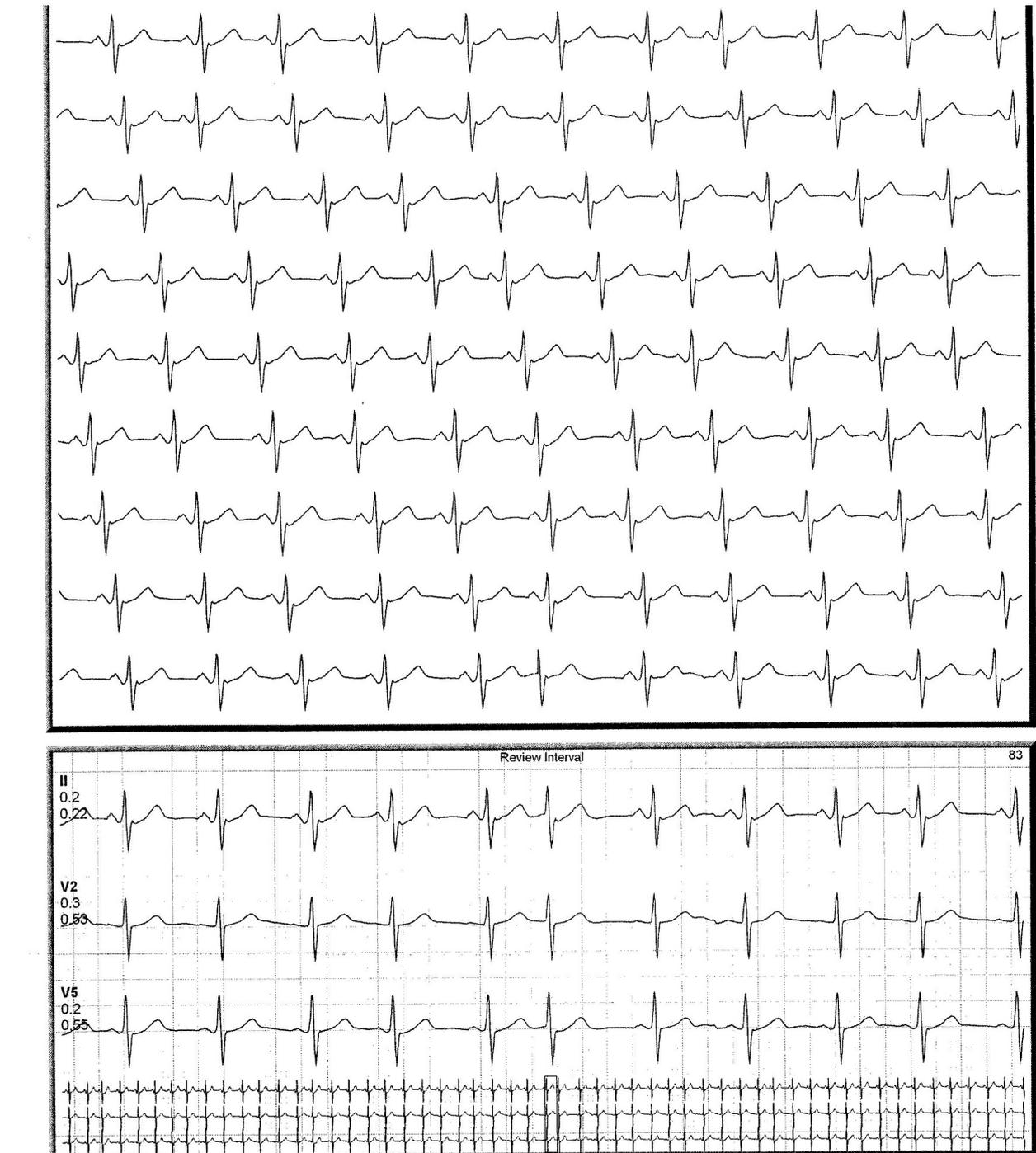
In this case report a subcapsular, simple hepatic cyst is shown in the left lobe of the liver. Other case reports have shown cysts such as this to lead to gastric compression, mimicking the endoscopic appearance of submucosal tumors and duodenal compression, leading to intestinal obstruction. Figures 3, 4 and 5 clearly show that the cyst is causing slight right atrial compression.

Thus, a new complication of simple hepatic cysts is proposed—atrial premature beats due to right atrial compression.

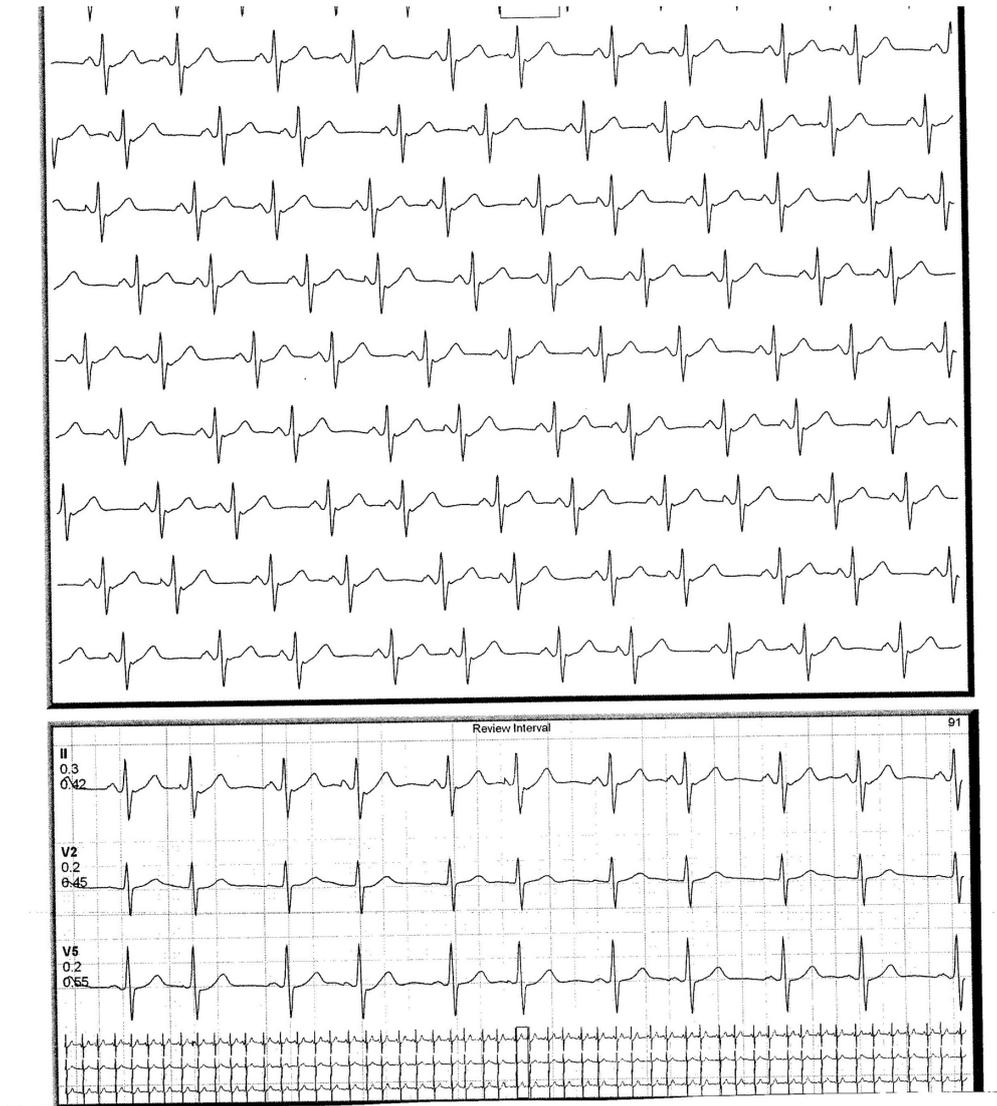
## Disclosure

This manuscript has been read and approved by the author. This paper is unique and is not under consideration by any other publication and has not been published elsewhere. The author and peer reviewers of this paper report no conflicts of interest. The author confirms that they have permission to reproduce any copyrighted material.

Written consent was obtained from the patient for publication of this study.



**Figure 1.** Electrocardiogram.  
**Note:** Electrocardiographic image, demonstrating atrial premature beats.



**Figure 2.** Electrocardiogram.  
**Note:** Another electrocardiographic image, demonstrating atrial premature beats.



**Figure 3.** Subcostal echocardiographic image to demonstrate the hepatic cyst touching the right atrium.  
**Note:** Subcostal echocardiographic image to demonstrate the hepatic cyst touching the right atrium.



**Figure 4.** Subcostal echocardiographic image to demonstrate the hepatic cyst touching the right atrium.  
**Note:** Subcostal echocardiographic image to demonstrate the hepatic cyst touching the right atrium.



**Figure 5.** Subcostal image.

**Note:** Echocardiographic image, demonstrating slight right atrial compression by a simple hepatic cyst.

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