



**University of
Zurich** ^{UZH}

**Zurich Open Repository and
Archive**

University of Zurich
University Library
Strickhofstrasse 39
CH-8057 Zurich
www.zora.uzh.ch

Year: 2009

Complete atrioventricular block in a patient with acute cholecystitis: a case of cardio-biliary reflex?

Franzen, D ; Jung, S ; Fatio, R ; Brunckhorst, C

DOI: <https://doi.org/10.1097/MEJ.0b013e32832baed8>

Posted at the Zurich Open Repository and Archive, University of Zurich

ZORA URL: <https://doi.org/10.5167/uzh-32569>

Journal Article

Accepted Version

Originally published at:

Franzen, D; Jung, S; Fatio, R; Brunckhorst, C (2009). Complete atrioventricular block in a patient with acute cholecystitis: a case of cardio-biliary reflex? *European Journal of Emergency Medicine*, 16(6):346-347.

DOI: <https://doi.org/10.1097/MEJ.0b013e32832baed8>

Complete AV block in a patient with acute cholecystitis. A Case of cardio-biliary reflex?

Running head: Cardiac manifestation of acute cholecystitis

Daniel Franzen ¹, M.D. , Sophie Jung ², M.D., Renata Fatio ², M.D., Corinna B. Brunckhorst ³, M.D.

¹ Medical Intensive Care Unit, Department of Internal Medicine, University Hospital of Zurich, 8091 Zurich, Switzerland

² Department of Internal Medicine, Hospital of Zollikerberg, 8125 Zollikerberg, Zurich, Switzerland

³ Division of Cardiology, Department of Internal Medicine, University Hospital of Zurich, 8091 Zurich, Switzerland

Correspondence:

Daniel Franzen, M.D.

Medical Intensive Care Unit

Department of Internal Medicine

University Hospital of Zurich

Rämistrasse 100

8091 Zurich

Switzerland

Tel +41 44 255 11 11

Fax +41 44 255 31 81

Email: daniel.franzen@usz.ch

Case report

We present a 48-year old male, otherwise healthy patient, who suffered from severe upper abdominal pain because of acute cholecystitis. Since the patient experienced two episodes of syncope while awaiting cholecystectomy, he was put on telemetric ECG surveillance, which revealed a single episode complete atrioventricular (AV) block without escape rhythm for 9 seconds (*figure*). However, the laparoscopic cholecystectomy was performed as scheduled revealing a severely inflamed gallbladder with ulceration. The procedure was uneventful as well as postoperative surveillance on the ICU. Postoperatively, there were no more abnormalities in the ECG, especially no recurrence of bradyarrhythmias. The patient recovered quickly and completely from surgery. Echocardiography, 48-hour ECG, exercise ECG, carotid sinus massage, coronary angiography, and electrophysiological testing post surgery were entirely unremarkable. Thus, the patient was discharged in good health without a cardiac pacemaker. During the following year, no more episodes of discomfort were reported, and monthly cardiologic check-ups revealed no abnormalities.

Discussion

Electrocardiographic changes in patients with acute gallbladder disease are known since 1971, when O'Reilly and Krauthammer first described reflex bradycardia in two patients with cholecystitis [1]. Other ECG abnormalities, like unspecific ST-T wave changes and right bundle branch block in association with acute cholecystitis even in absence of heart disease were mentioned in the literature [2]. The reason of these changes is thought to be a vagally mediated cardio-biliary reflex [2]. Recently, AV nodal block due to vagotonic reflexes was described in five patients in a case series of twenty patients with paroxysmal AV block [3]. According to this, vagally mediated

AV blocks were observed in different circumstances: during left vagus nerve stimulation for epilepsy, or induced by carotid sinus pressure, by gastric dilatation, and by deep inspiration. The authors of the latter presumed a syndrome reflecting hyperresponsiveness of the AV node to vagotonic reflexes producing recurrent syncope [4]. Our previously healthy patient experienced three episodes of syncope. The third one was electrocardiographically documented, revealing a second degree heart block followed by a complete AV block for nine seconds while awaiting cholecystectomy for acute cholecystitis. Cardiac pacemaker implantation was not performed, as, postoperatively, there was no recurrence of arrhythmias or symptoms, and cardiac examination including electrophysiologic testing was unremarkable. There is only one case report describing a neurally mediated syncope and complete AV block due to chronic cholecystitis [5]. Analogous to our patient, the arrhythmia completely resolved after removal of the gallbladder. But, the patient died on the first postoperative day due to massive upper gastrointestinal bleeding [5]. Our patient completely recovered and is in good health 12 months postoperatively without recurrence of syncope. After ruling out any cardiac disease thoroughly and according to the fact, that the arrhythmia disappeared after removal of the gallbladder, our case likely represents a correlation between cholecystitis and AV block, even though causality is not definitively proven. At least, there is a strong suspicion for the presence of a cardio-biliary reflex. As acute cholecystitis is a treatable cause of newly diagnosed AV block, immediate cholecystectomy should not be deferred.

References

1. O'Reilly MV, Krauthammer MJ. „Cope's sign“ and reflex bradycardia in two patients with cholecystitis. *BMJ* 1971;2:146.
2. Krasna MJ, Flancbaum L. Electrocardiographic changes in cardiac patients with acute gallbladder disease. *Am Surg* 1986;52:541-3.
3. Shohat-Zabarski R, Iakobishvili Z, Kusniec J, Mazur A, Strasberg B. Paroxysmal atrioventricular block: clinical experience with 20 patients. *Int J Cardiol* 2004;97:399-405.
4. Strasberg B, Lam W, Swiryn S, Bauernfeind R, Scagiotti D, Palileo E, Rosen K. Symptomatic spontaneous paroxysmal AV nodal block due to localized hyperresponsiveness of the AV node to vagotonic reflexes. *Am Heart J* 1982;103:795-801.
5. Vloka ME, Tamis JE, Steinberg JS. Neurally mediated syncope in 2 patients with extracardiac disease. *Arch Intern Med* 1999;159:625-7.

Figure legends

Telemetric ECG revealing transition from second degree AV block to third degree AV block without escape rhythm.