



Case Report

Pseudo-Wellens' syndrome and intermittent left bundle branch block in acute cholecystitis

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ABSTRACT

We present a case of a 54-year-old male patient who was admitted to our Emergency Department (ED) with localized epigastric pain. Inflammation markers, ultrasound, and CT scan were inconsistent with an initial diagnosis of cholecystitis. However, there was additional evidence of cholelithiasis. The ECG showed new anterior biphasic T waves typical for a Wellens' type A ECG. Additionally, the patient had an intermittent left bundle branch block (LBBB). The diagnostic challenges in differentiating possible diagnoses will be described, to which in this case, were either acute cholecystitis or acute coronary syndrome (ACS). A laparoscopic study confirmed acute cholecystitis. Coronary angiography showed no pathological processes associated with ACS. ECG abnormalities were initially ongoing, but were no longer detectable during an 8 month follow up assessment.

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1. Introduction

In patients with epigastric pain ECGs are routinely recorded in the ED to rule out STEMI with atypical clinical presentation. Wellens' syndrome was first described in 1982 and can indicate a high-grade LAD stenosis [1].

It can be challenging in the ED if clinical findings, laboratory results, ECG, ultrasound and CT scan are not consistently leading to one diagnosis. In the presented case ECG findings were congruent with a Wellens' ECG and an intermittent LBBB. Clinical findings were suspicious of acute cholecystitis.

2. Case report

A 54-year-old male with no prior history of illnesses presented to our ED with non-radiating epigastric and referred right lower abdominal pain. After vomiting once, the right lower abdominal pain subsided. Epigastric pain was described as burning and stabbing and unaffected by exertion.

Due to the patient's clinical presentation, acute cholecystitis was suspected. The patient was afebrile (36.7 °C), the inflammation markers

were inconsistent with an acute inflammatory process (leucocytes 9.2 g/l, reference range: 4.5–11.0 g/l; CRP 41.9 mg/l, reference range: <5 mg/l).

The ECG displayed biphasic T waves in the anterior leads (Fig. 1):

These changes were diagnosed as a Wellens' type A ECG. The patient was then placed on the monitor due to the new ECG abnormalities. An intermittent LBBB was also discovered (Fig. 2):

The ECG changes described above were not pre-existing in the patient's ECG from 3 years prior (Fig. 3):

According to the Sgarbossa criteria [2] and Smith-modified Sgarbossa criteria [3] the LBBB-ECG did not reveal any signs of acute ischemia. There was no Wellens' ECG detectable during LBBB. Wellens' ECG can indicate high-grade LAD stenosis even in case of LBBB [4,5].

In Wellens' syndrome the patient is usually pain-free after an episode of chest pain at the time of recording of the typical Wellens' ECG.

The patient was still suffering from pain at the time when the ECG changes were detected. The high-sensitive troponin remained unelevated through repeated blood tests. In Wellens' syndrome troponin is usually mildly or not at all elevated [6]. Troponin elevations in acute cholecystitis have been described before [7–10]. A review on 65 patients with acute cholecystitis revealed troponin elevation in most of the severe cases [11]. The authors of the review conclude that measuring troponin can be helpful for diagnosing acute cholecystitis. However, in such a case that ACS is a differential diagnosis, positive troponin can be misleading.

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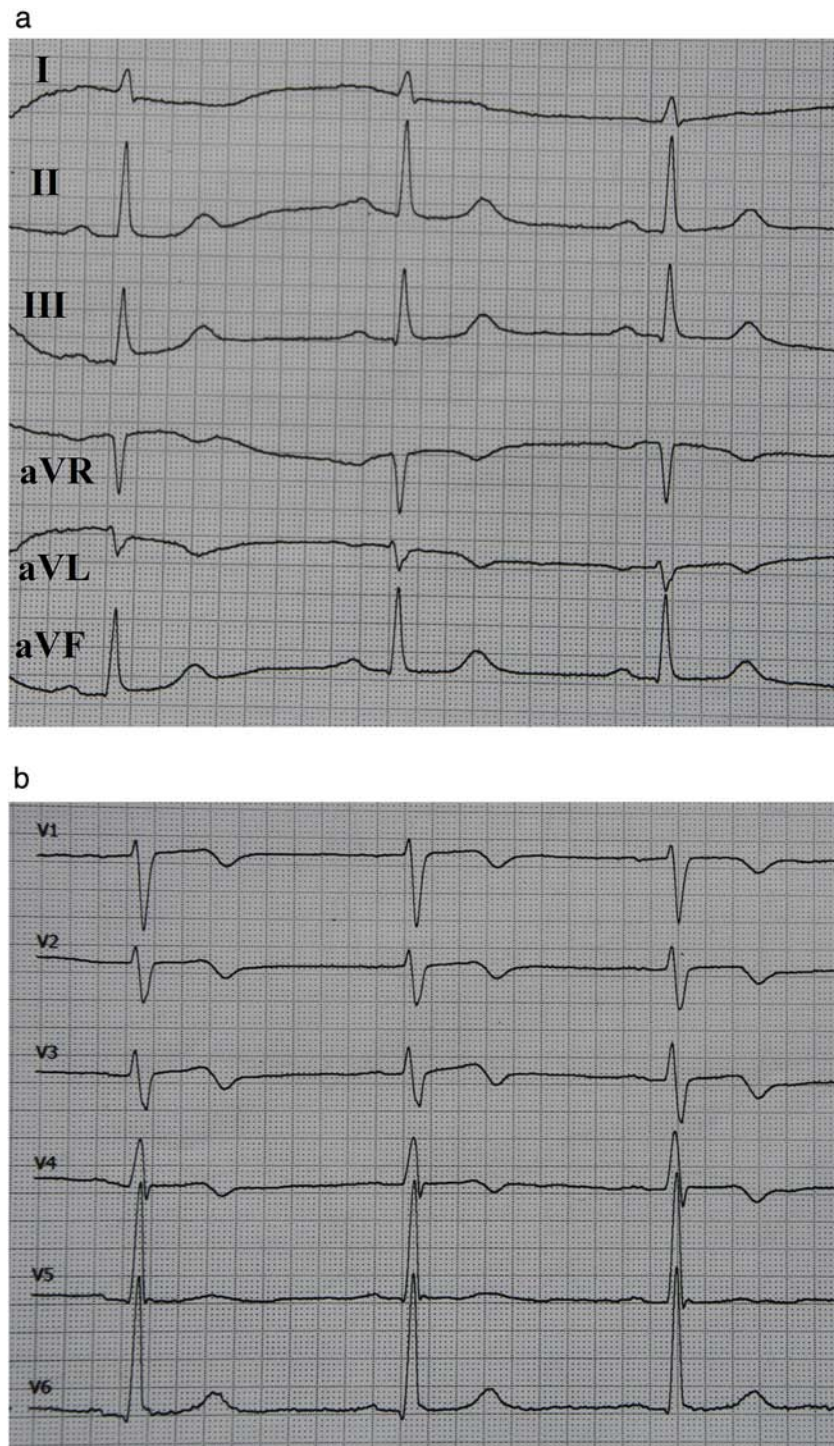


Fig. 1. a & b: ECG at admission in ED [50 mm/s].

Twenty hours after admission the inflammation markers had been risen [leucocytes 13.9 g/l CRP 176.6 mg/l]. A laparoscopic cholecystectomy was performed and acute cholecystitis was confirmed.

Four days after the cholecystectomy a coronary angiogram was performed. No coronary pathological processes were reported, although the described ECG abnormalities remained. The ECG changes were then classified conclusively as so called Pseudo-Wellens.

There are reports about Pseudo-Wellens' syndrome having no relation to a coronary disease as seen in cocaine [12–14] and marijuana

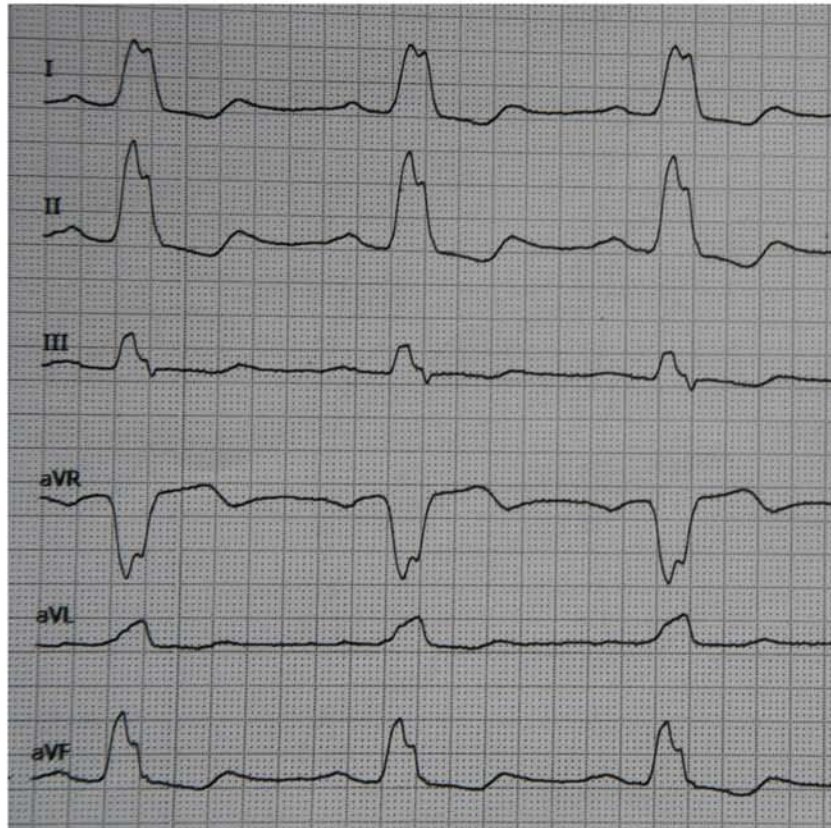
[15] substance abuse, but it has not yet been correlated to abdominal illnesses.

The recorded ECG during the patient's eight month follow up had returned to his baseline ECG from 3 years prior (Fig. 4):

3. Discussion

In cases of acute cholecystitis ECG abnormalities have been described before: An incomplete right bundle branch block with a

a



b

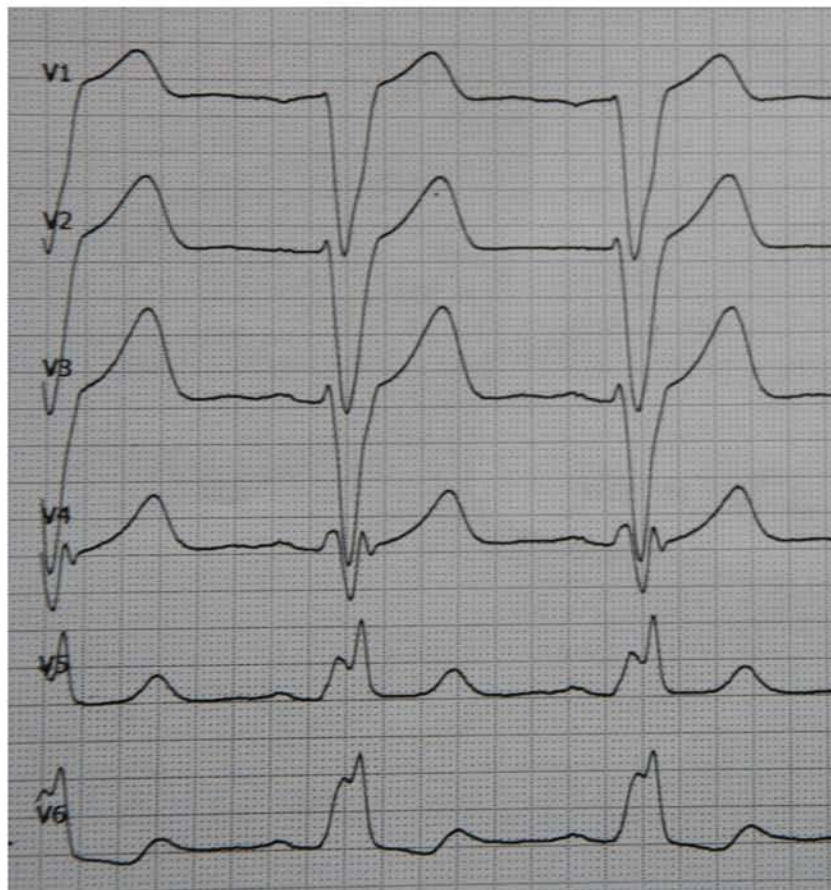


Fig. 2. a & b: ECG with LBBB [50 mm/s].

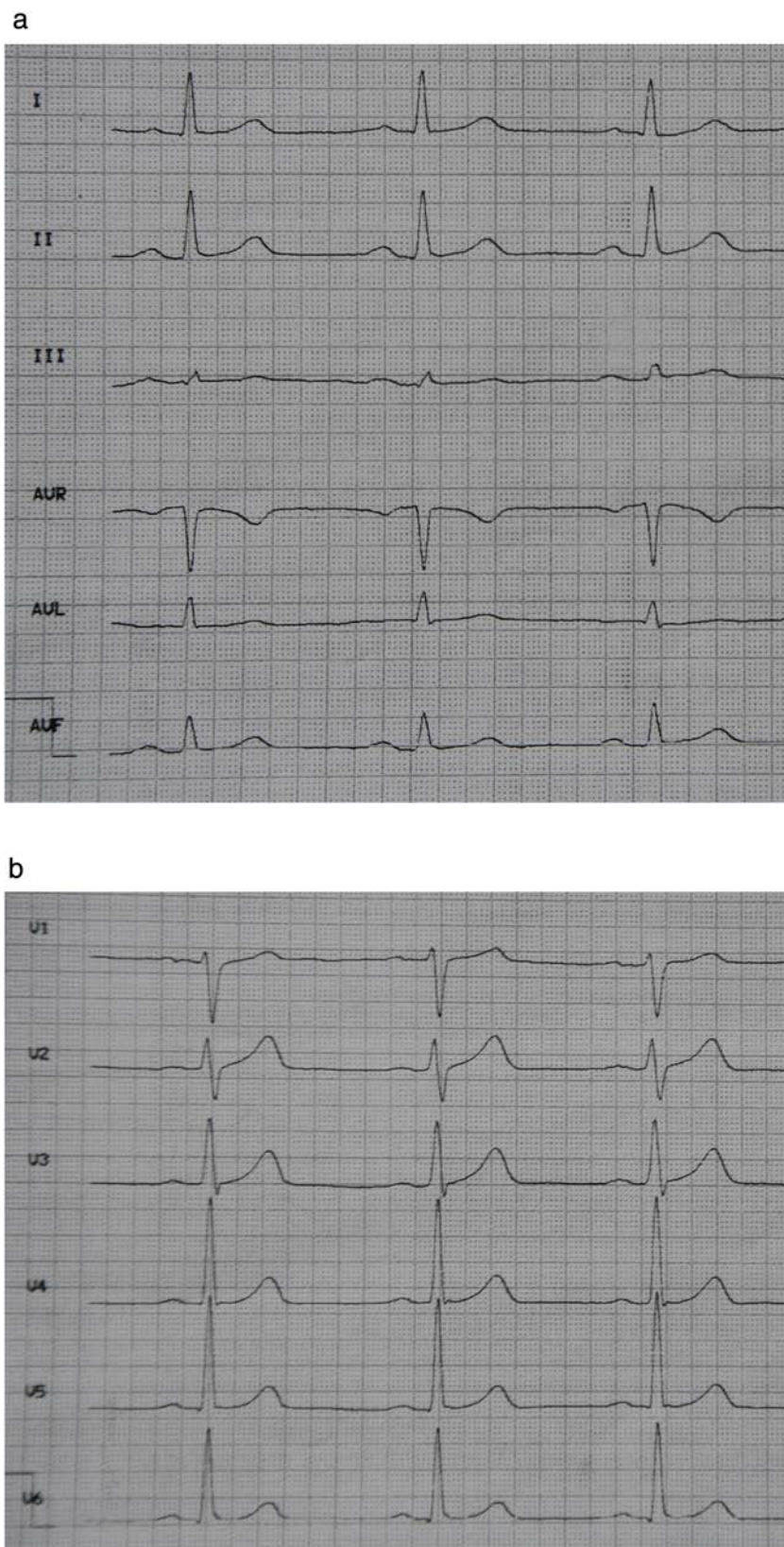


Fig. 3. a & b: baseline ECG 3 years prior admission [50 mm/s].

Brugada-like pattern [16], a trifascicular block [9] as well as inferolateral ST segment elevations [17] have been diagnosed.

To our knowledge there has not been a case of acute cholecystitis described before showing an intermittent LBBB and a Wellens' ECG pattern.

Epigastric pain is an unusual but possible feature in ACS [18], whereas vomiting even increases the likelihood of ACS [19]. At first inflammation markers in the blood were inconsistent only CRP being mildly elevated. CRP can be elevated in acute coronary syndrome [20]. Body temperature

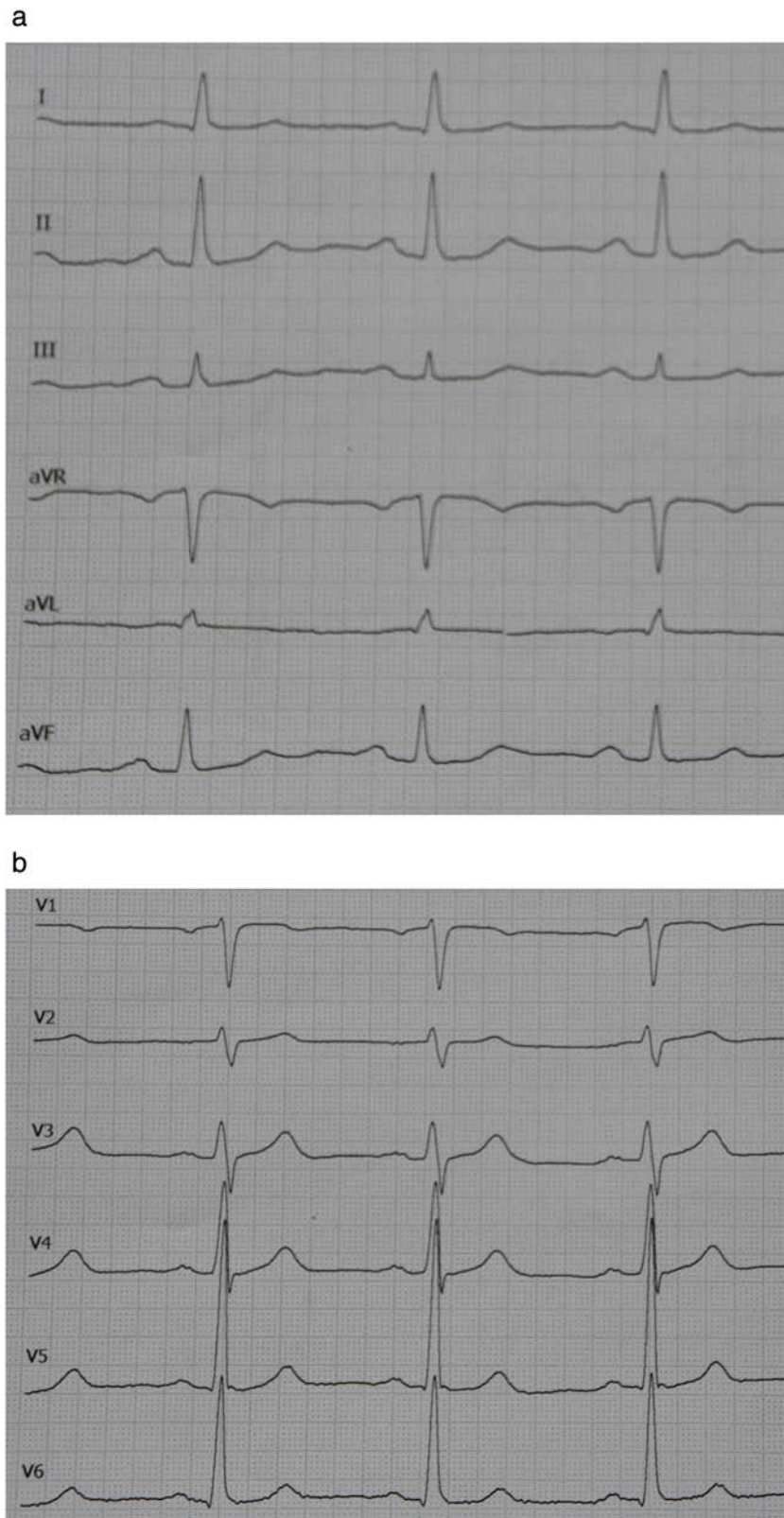


Fig. 4. a & b. follow up ECG eight months after incident [50 mm/s].

was normal and there was no clear evidence of an acute cholecystitis on ultrasound and CT scan. Wellens' ECG and intermittent LBBB were misleading to the differential diagnosis of a coronary ischemia.

Physicians working in the ED should be aware of the fact that ECG changes may occur in cases of acute cholecystitis.

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S. Grautoff, M. Balog and G. Winde declare that there are no competing interests.

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