Case study

Poorly Tolerated Ventricular Tachycardia Allowing the Discovery of a Post-infarction Aneurysm (Clinical Case).

ABSTRACT:

Leftventricularpseudoaneurysms are rare. They usually form following a rupture of the myocardium contained by pericardial adhesions. Unlike true aneurysms, false aneurysms have a narrow neck and lack myocardial elements. They can be spontaneous or acquired.

We report the case of a 60-year-old patient, an active alcoholic and tobacco user, consulted for palpitations evolving for 5 hours associated with NYHA stage II dyspnoea. In whom the initial examination found a hemodynamicallyunstable patient with a BP at 97/65 mmgH, a tachycardiaat 160 bpm, a systolicmurmur along the left edge of the sternum radiating towards the tip and the base, with crackles at the bases. On the ECG, we note a ventricular tachycardia reduced by an external electric shock at 200 days. The post-reduction ECG shows regular sinus rhythmwith Q waves of infero-basal necrosis. Transthoracicultrasoundrevealed an undilatedleftventriclewithhypokinesia of the inferior, infero-septal and infero-lateralwallwith an aneurysmdevelopedat the expense of itsinfero-basal wall, 30% EF associatedwith mitral insufficiency minimal. Objective biological evaluation of cardiac enzymes Mildly elevated, the rest of the evaluation was unremarkable. The coronarography shows a tight stenosis of the middle and distal circumflexartery, revascularized by the placement of 2 stents. The patient was put on dual antiplatelet beta-blocker and ACE inhibitor therapy in addition to amiodarone to maintain sinus rhythm.

Left ventricular aneurysm is a classic complication after myocardial infarction, potentially causing congestive heart failure, thromboembolic event of parietal rupture, or sometimes ventricular arrhythmia.

KEYWORDS: ventricular tachycardia; myocardial infarction; Aneurysm.

Introduction:

Leftventricularpseudoaneurysms are rare. They usually form following a rupture of the myocardium contained by pericardial adhesions. Unlike true aneurysms, false aneurysms have a narrow neck and lack myocardial elements. They can be spontaneous or acquired.

We report a case of a large left ventricular pseudoaneurysm discovered following an episode of Ventricular tachycardia. The most common etiology of such a condition is myocardial infarction. However, other rare causes of the traumatic, iatrogenic, or infectious type exist.

Case Report:

A 60-year-old patient, a smoker at 10 PA and occasional alcoholic, consulted for palpitations evolving for 5 hours associated with NYHA stage III dyspnoea. The initial examination found an unstable patient HD with a BP at 87/55 mmgh, a tachycardia at 160 bpm, and a systolic murmur along the left edge of the sternum radiating to the tip and base, with crackles at the bases.

On the ECG,(figure1) ventricular tachycardia is noted, reduced by an external electric shock at 200 days.

The post-reduction ECG shows a regular sinus rhythm with Q waves of infero-basal necrosis. Transthoracic ultrasound (Figure2) revealed a dilated LV seat of hypokinesia of the inferior, infero-septal, and inferolateral wall with an aneurysm developed at the expense of its infero-basal wall with EF at 30% and minimal mitral insufficiency.

Objective biological assessment of cardiac enzymes slightlyelevatedbeforeextern electric shock, the rest of the assessment was unremarkable.

Comment [D1]: Which ones?

Coronary angiography(figure 3) shows tight stenosis of the middle and distal CX revascularized by the placement of 2 stents.

The patient was put on double antiplatelet therapy of beta blockers and converting enzyme inhibitor in addition to amiodarone to maintain sinus rhythm.

The patient was referred to a cardiac surgery center for closure of the defect with a patch of bovine pericardium

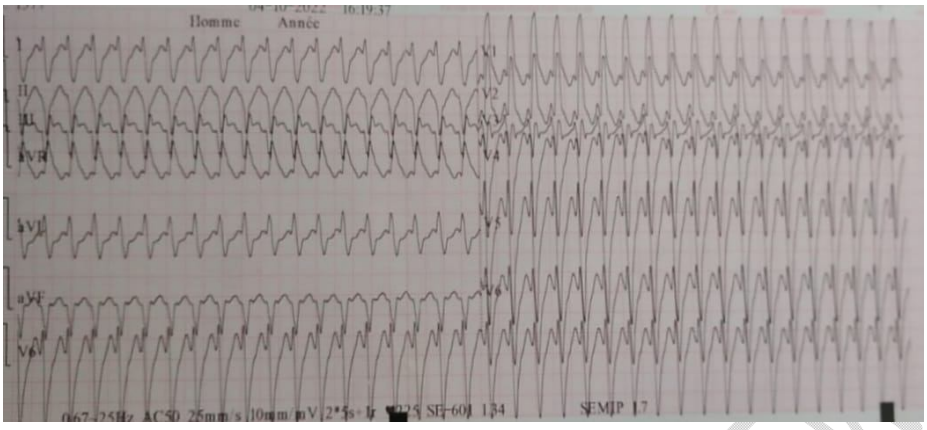

Figure 1: ECG showing ventricular tachycardia

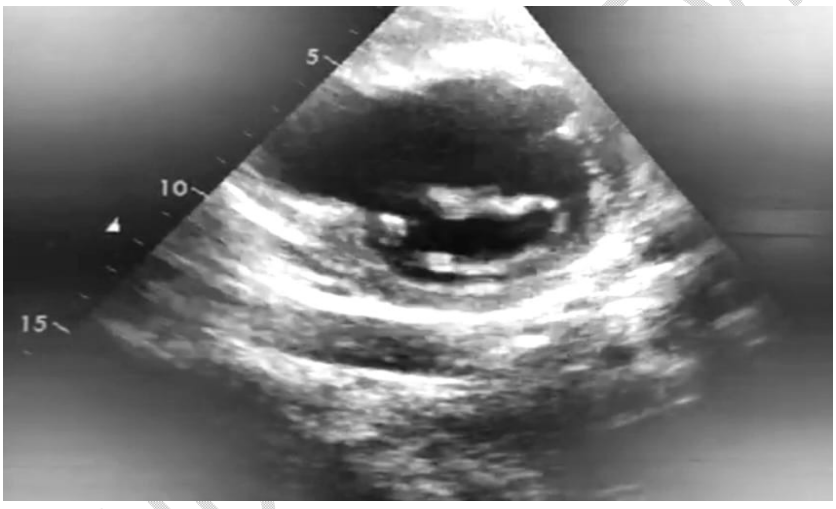

Figure 2: TTE showing ventricular aneurysm

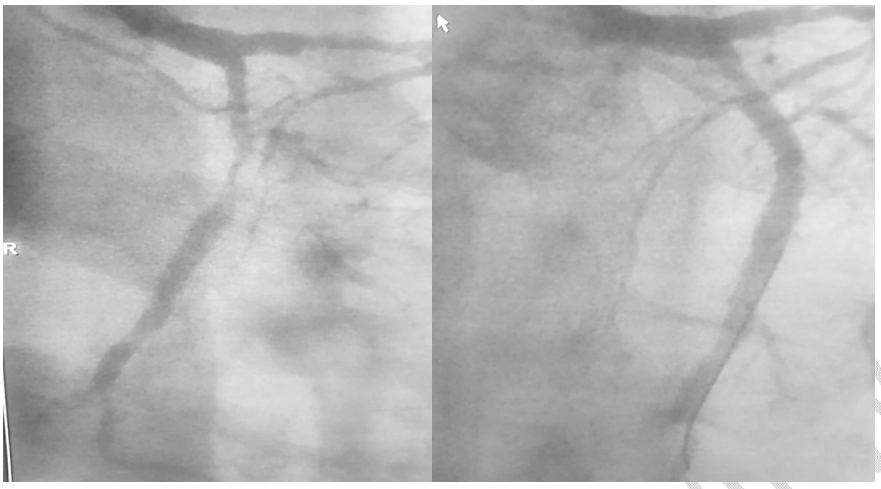

Figure 3: Coronary angiography showing tight stenosis of the middle and distal CX revascularized by the placement of 2 stents

Discussion:

A left ventricular pseudoaneurysm or “false aneurysm” is a paracardiac blood cavity that forms when a ruptured myocardium is contained by adherent pericardium or scar tissue. Contrary to the trueaneurysmwhosewallretains all itselements, the pseudoaneurysmcontainsneitherendocardiumnormyocardium(1). Its preferential location is located at the level of the posterior or inferior wall, more rarely at the level of the lateral or anterior wall

Patients often present with symptoms of chest pain, dyspnea, or heart failure. If the ruptured myocardium is not fully contained or if the pseudoaneurysm in turn ruptures, then the patient may experience tamponade, cardiogenic shock, or sudden death. Embolic phenomena or ventricular tachycardia-type arrhythmias as in the case of our patient are rarer. In 10% of cases, patients remain completely asymptomatic(2).

Ventricular tachycardia is related to the presence of an intraventricular reentry pathway. A ventricular extrasystole can thus penetrate the reentry circuit causing sustained ventricular tachycardia this pathway is often secondary to a scar from a myocardial infarction as in the case of our patient

Diagnosis of ventricular pseudoaneurysm is not easy. This rare condition is often overlooked by clinicians even though it can greatly affect the patient's vital prognosis (3).

Indeed, as our case illustrates, the clinical pictureisoftenatypical and the primarycardiologicalassessment by ECG and transthoracic echocardiography is often misleading by its lack of sensitivity and specificity with respect to such a condition (2).

The main etiology of left ventricular pseudoaneurysms is ischemic in nature, which weakens the myocardial wall which eventually ruptures. The pseudoaneurysm is then contained by the pericardium. It complicates less than 0.1% of myocardial infarctions and its mortality is 50% in the absence of surgical treatment. It can also be the consequence of cardiac surgery (33%), an invasive procedure (pericardial or pleural drainage) (3%), thoracic trauma (7%), infection (5%) or combined processes. Non-coronary etiologies are more often found in young subjects (4).

In our case, the pseudoaneurysm is a complication that occurred following a myocardial infarction that had not been objectified before, since the patient has never felt anginal chest pain and he consults after having developed a rhythm disorder with a type of poorly none tolerated TV. The ischemia is retained in front of the ECG which shows infero-basal IDM sequelae and in front of the coronary angiography since the patient was revascularized by placement of 2 active stents at the level of the circumflex.

Currently, the review of the literature reveals that angiography, and more precisely ventriculography, allows a definitive diagnosis in 85% of cases with only 2% of false negatives. However, it remains an invasive technique (5).

Transthoracic ultrasound is a less invasive, less expensive and readily available technique. The weak points lie in its operator-dependent character and in the conditions of realization which are not always optimal. It is generally used in first intention but is less sensitive in the detection of pseudo aneurysms (6).

Computed tomography with 3D reconstruction represents a reliable imaging technique for diagnosis. However, it sometimes lacks precision in terms of tissue definition. Magnetic resonance, when available and in the absence of contraindications, is of considerable help in the diagnosis. Delayed enhancement after gadolinium intake is a specific marker of myocardial fibrosis, it helps to differentiate between true and false aneurysms(7).

The surgical indication remains formal in the event of diagnosis of a false aneurysm because the risk of rupture is greater than in the event of a true aneurysm (8).

Several surgical options exist, the most commonly used consists of closing the defect with a patch of bovine pericardium. The intervention is done by median sternotomy, under extracorporeal circulation. The post-operativefollow-up isoftenfavourable(9,10).

Untreated pseudoaneurysms can cause complications such as rupture, tamponade, occurrence of thromboembolic phenomena, and mass syndrome with compression of neighboring structures, infection, arrhythmia or heart failure.

Conclusion:

The left ventricular aneurysm is a classic complication after myocardial infarction, potentially causing congestive heart failure, and thromboembolic event of parietal rupture, or sometimes ventricular arrhythmia.

DECLARATIONS:

- **Ethics approval and consent to participate :** IT is not applicable
- **CONSENT FOR PUBLICATION:**

In accordance with international and academic standards, written consent for publication was obtained from the patient and retained by the authors.

- **AVAILABILITY OF DATA AND MATERIALS :**

The datasets supporting the finding of this article are included in the article.

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