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A CASE OF STEMI MASKED BY BILATERAL CERVICAL SPONDYLOSIS IN THE MEDICAL AND SURGICAL EMERGENCY DEPARTMENT OF THE MOHAMMED V MILITARY TRAINING HOSPITAL IN RABAT

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AUTHOR AND AFFILIATION

Mahamadou COULIBALY[1*], Cheick Ibrahim DIABATE[1], Cédric NIYONGABO[1,] Mounir LEKHLITH[1], Tahir NEBHANI[1], Rachid SIRBOU[1], Naoufal CHOUAIB[1], Ahmed BELKOUCH[1], Lahcen BELYAMANI[1], Saïd JIDANE[1]

[1] Department of Medical and Surgical Emergencies, Mohammed V Military Teaching Hospital, Mohammed V University, Rabat, Morocco.

Corresponding author: Mahamadou COULIBALY

ABSTRACT

Chronic inflammatory diseases can promote atherosclerosis, with a risk of atherothrombosis. Acute coronary syndrome is a cardiovascular emergency whose prognosis is closely linked to the speed of treatment. Therefore, in any patient with an inflammatory disease presenting with chest pain, it is imperative to rule out myocardial infarction as a priority. In addition to controlling traditional risk factors, prevention requires optimal control of the inflammatory disease activity

KEYWORDS

acute coronary syndrome, chronic inflammatory disease, angioplasty, emergency department

MAIN ARTICLE

INTRODUCTION:

Myocardial infarction with inferior ST-segment elevation (STEMI) is caused by occlusion of the right coronary artery or the left circumflex artery (LCX), particularly when it involves the right ventricle, and can lead to significant haemodynamic complications associated with an increased risk of death, shock and arrhythmias (1).

Significant changes in the electrocardiogram (ECG) and their relationship to the artery responsible for the infarction were recognised in the 1980s, and several ECG criteria have been proposed to identify inferior STEMI (2, 3).

Syncope is a transient disturbance of consciousness caused by insufficient cerebral perfusion, with a sudden onset but complete recovery, and inferior STEMI is a major cause of syncope (4). The cervical spine consists of 7 vertebrae that support the head and its movements, protect the spinal cord and supply the brain with blood. The cervical spine is particularly vulnerable to injury due to its heavy reliance on ligamentous structures for stability. Traumatic centromedullary syndrome is the most common type of spinal cord injury. It presents as incomplete tetraplegia and sensory dissociation. It is primarily caused by cervical hyperextension trauma in patients over 50 years of age with a narrow spinal canal (5, 6).

We report a case of STEMI masked by bilateral cervicodiscarthrosis; the aim of this study is to highlight the need, when assessing any patient presenting to A&E with chest pain and being monitored for chronic inflammatory diseases, to consider acute coronary syndrome as the primary diagnosis, which requires a multidisciplinary approach.

Clinical observation of the patient:

This is a 77-year-old patient who has been managed for hypertension for 10 years and for cervical discarthrosis for 15 years. He was admitted to the A&E department of the Mohammed V Military Teaching Hospital in Rabat and subsequently transferred to the Cardiology Intensive Care Unit for prolonged retrosternal chest pain lasting more than 10 hours, occurring at rest and radiating to the left arm, associated with progressive dyspnoea (NYHA class II-III).

On admission: Clinical examination revealed a patient in good general condition, well-coloured, classified as WHO stage 1, glucose 1.02 g/l, haemodynamically stable, tachycardic with a heart rate of 112 bpm and blood pressure 171/97 (121) mmHg, respiratory status stable,

Tachypnoeic with a respiratory rate of 32 bpm and SpO_2: 97% on room air, neurologically stable, conscious with a GCS of 15/15, fully oriented in time and space.

Further examination:

The electrocardiogram (ECG) showed tachycardia, ST-segment elevation in the anterior leads and first-degree atrioventricular block, justifying his admission to the defibrillation room

Action to be taken:

- Preparation,

- Multimodal monitoring,

- Peripheral venous access,

- Heparin therapy at therapeutic dose, dual antiplatelet therapy, statin,

- Beta-blocker, ACE inhibitor,

- Pain relief and gastric protection,

- Transfer to the Cardiology Intensive Care Unit (CICU) in the catheterisation laboratory,

- Coronary angiography revealed a single-vessel lesion with a thrombotic occlusion of the proximal interventricular artery (IVA),

- Treatment by IVA angioplasty with the placement of two drug-eluting stents resulted in a TIMI

3 flow.

DISCUSSION:

According to epidemiological statistics, syncope accounts for 1–3% of hospital A&E admissions. Clinically, syncope is divided into four types, including reflex syncope, orthostatic hypotension-induced syncope and cardiogenic syncope (4). Of these, cardiogenic syncope is the most dangerous, primarily due to various arrhythmias and organic cardiovascular diseases. An increasing number of publications indicate that patients with inferior ST-segment elevation myocardial infarction or aortic stenosis may trigger or induce reflex syncope (7). In clinical practice, doctors must quickly and accurately identify the cause of syncope and perform risk

stratification based on the patient's clinical characteristics and additional investigations, in order to optimise the management of syncope.

Percutaneous transluminal coronary angioplasty (PTCA) is the most effective treatment for patients presenting with inferior ST-segment elevation myocardial infarction (STEMI) (8). Approximately 20% of patients with inferior STEMI undergoing PTCA are at high risk of major bleeding, a stronger predictor of mortality than perioperative myocardial infarction (9).

The prevalence and incidence of cardiovascular diseases in inflammatory rheumatic conditions are 30% higher than in the general population. » National and European guidelines aim to improve this assessment and the implementation of preventive measures (10). This requires a multidisciplinary approach including effective control of inflammation, careful monitoring of traditional cardiovascular risk factors, as well as lifestyle changes such as smoking cessation, regular exercise and a healthy diet (11). Immune-mediated systemic diseases encompass conditions in which autoimmunity and autoinflammation develop, with a continuum ranging from those dominated by autoinflammation (e.g. chronic inflammatory bowel diseases, Horton's disease) and those where autoimmunity predominates (such as rheumatoid arthritis or systemic lupus erythematosus) **(12).**

Since the role of inflammation in the pathophysiology of atherosclerosis was established, cardiovascular risk has been the subject of numerous studies in these conditions, highlighting that atherosclerosis and related cardiovascular diseases are increased in several of them **(13, 14).**

In these conditions, the prevalence and incidence of cardiovascular disease are 30% higher than in the general population, and as much as 50% higher in patients with another associated autoimmune disease **(15).**

In systemic lupus erythematosus (SLE), the risk of myocardial infarction or ischaemic stroke was twice as high as in the general population in a Danish cohort study **(16)**. The evidence is less clear for inflammatory bowel disease (IBD). A 2017 meta-analysis (17).

Cardiovascular mortality is increased in RA, where it is the leading cause of death, and in ankylosing spondylitis (18). Excess mortality is also observed in SLE compared with the general population, and is more pronounced in individuals under 50 years of age **(19).** However, no excess cardiovascular mortality has been demonstrated in IBD **(18).**

Pathophysiological studies, the vast majority of which have been conducted in patients with rheumatoid arthritis, have demonstrated changes in atherosclerotic plaques, with a marked tendency towards instability. Furthermore, as inflammation leads to a state of hypercoagulability, the risk of an ischaemic event following plaque rupture is increased (20). Individual assessment of cardiovascular risk in these patients is complex, as the assessment tools used in the general population have not been validated and, in particular, do not allow for the degree of disease activity to be taken into account. For inflammatory rheumatic diseases, the European League Against Rheumatism (EULAR) has recommended that, for patients with RA, the risk obtained using standard estimation algorithms such as the Systemic Coronary Risk Estimation (SCORE) should be multiplied by 1.5, unless RA is considered an independent risk factor within the algorithm (such as QRISK® 3) **(21).**

The European Society of Cardiology also recommends multiplying the risk by 1.5 in patients with RA and considering the same adjustment in patients with other autoimmune diseases if the disease is severe and/or active **(22).** The difficulties in assessing risk using standard tools have led to the consideration of screening for asymptomatic atherosclerosis, particularly via carotid Doppler. This strategy increases sensitivity by classifying more patients as high-risk, but the benefit in terms of cardiovascular morbidity has not been demonstrated **(20)** and no cost-effectiveness studies have been conducted.

Despite increased awareness of the heightened risk for these patients, management of risk factors remains inadequate (23). The European guidelines for inflammatory rheumatic diseases recommend cardiovascular risk assessment at least every 5 years and at each change in background treatment **(21),** whilst the French guidelines of the National Protocol for Diagnosis and Care (, PNDS) for SLE recommend annual assessment to implement preventive measures. Lifestyle changes, including smoking cessation, dietary measures and combating a sedentary lifestyle, are necessary to the same extent as in the general population. Control of high blood pressure must be optimised. Statins, whose efficacy is similar to that observed in the general population, should be used in the same manner **(21).**

In addition to managing traditional risk factors, prevention requires optimal control of disease activity, which must be achieved as early as possible in the management process **(18, 21).**

The question of the impact of specific treatments on cardiovascular risk is therefore paramount. Nonsteroidal anti-inflammatory drugs and high-dose corticosteroids may be associated with an increased cardiovascular risk; their use should therefore be limited to the shortest possible

duration. The risks associated with low-dose corticosteroid therapy (less than 7.5 mg/day), however, are a matter of debate. Studies on the cardiovascular impact of disease-modifying antirheumatic drugs (DMARDs) are mainly available for rheumatoid arthritis (RA). They have shown a reduction in cardiovascular risk in patients on methotrexate compared with those not receiving it (24). With regard to biologics, anti-TNF-alpha agents are associated with a greater reduction in cardiovascular risk than conventional disease-modifying antirheumatic drugs such as methotrexate (24). More limited data suggest a benefit from other biologics, such as tocilizumab (a monoclonal antibody targeting the interleukin-6 pathway) or rituximab (an antiCD20 monoclonal antibody targeting B lymphocytes) **(25).**

With regard to SLE, long-term treatment with hydroxychloroquine, recommended for all patients barring very rare contraindications, may play a protective role through its efficacy in controlling the disease and improving the lipid profile. However, studies evaluating its benefit in preventing cardiovascular events are not consistent **(26).**

In recent years, a new class of targeted therapies, Janus kinase (JAK) inhibitors, has become established in the treatment of several of these diseases. One or more molecules from this family are authorised for marketing in RA, psoriatic arthritis, ankylosing spondylitis and ulcerative colitis. Whilst venous thromboembolic complications have been reported with certain molecules, the risk of cardiovascular events was not described as increased **(27).**

In this specific case, our 77-year-old male patient presented with a sensation of chest tightness. He was being treated for a chronic inflammatory condition for which he was taking daily analgesics and antiinflammatory drugs, which were failing to relieve his pain as usual, hence the visit to A&E and further investigations, which ultimately led to the diagnosis of STEMI. Consequently, we concluded that he was most likely suffering from cardiogenic shock associated with his pain.

We performed a coronary angiography, which revealed a single-vessel lesion with a thrombotic occlusion of the proximal interventricular artery (IVA), and treatment via IVA angioplasty with the placement of two drug-eluting stents successfully established a TIMI 3 flow.

CONCLUSION:

Acute coronary syndrome is a cardiovascular emergency, and its prognosis depends on the speed of treatment. In any patient with inflammatory disease presenting with chest pain, myocardial infarction must be ruled out.

Cardiovascular diseases are a major concern in terms of morbidity and even mortality for patients with chronic inflammatory diseases mediated by the immune system.

Awareness and involvement of all clinicians managing these patients is essential, as prevention requires optimal management of both the inflammatory disease and traditional cardiovascular risk factors.

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