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RESEARCH ARTICLE

A RARE CASE OF DE NOVO ISCHEMIC LEFT BUNDLE BRANCH BLOCK RELATED TO A RIGHT CORONARY LESION

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Abstract

Introduction: ischemic left bundle branch block (LBBB) is left coronary occlusion. We report an atypical case of de novo ischemic LBBB in relation to a tight right coronary lesion.
Material and methods: Mr H, 53 years old with no modifiable risk factors, consulted for a typical angina pain evolving since 4 hours. The per-critical ECG showed a complete de novo LBBB with criteria of acute coronary ischemia. Coronary angiography showed a tight lesion of the right coronary artery that was stented with a good evolution marked by the regression of symptoms and signs of LBBB ischemia.
Discussion: Ischemic LBBB is a coronary emergency requiring urgent coronary reperfusion. The diagnosis is facilitated by the commonly used Sgarbossa and Smith criteria. An occlusion of the anterior interventricular artery is most often incriminated. There is no evidence of a relationship with a right coronary lesion. The literature is poor in the description of the culprit lesions in ischemic LBBB.

Introduction:-

Acute ST-segment elevation coronary syndrome consists of several entities. Among these, ischemic left bundle branch block is described as de novo or modification of an old one.

The determination of their ischemic origin on an electrocardiogram is facilitated by several criteria including those established by Sgarbossa.

These criteria have a low sensitivity of 30% but a high specificity close to 100%, especially for the concordance criteria.

From the coronarographic viewpoint, it has long been described as corresponding in the vast majority of cases to a lesion of the left coronary and particularly of the IVA.

In this case, we report a rare case of acute ischemic LBBB related to a tight lesion of the proximal segment of the right coronary artery.

Observation:-

We report the case of a 58-year-old man, with age and especially recent emotional stress as his only risk factors. He came to the emergency room with typical angina pain evolving for 4 hours, associated with sweating and nausea.

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On examination, he was hemodynamically stable with BP: 14/8 and Fc: 75bpm, with no signs of right or left heart failure and no other vital distress.

The per-critical ECG showed a regular sinus rhythm with a complete LBBB with clear signs of acute ischemia according to Sgarbossa criteria: a concordant 2-mm ST elevation at V3, a concordant positive and wide T wave from V4 to V6, and an increase of the mismatch > 8 mm at V1 and V2.

The first point ultrasensitive troponin dosage came back positive.

Cardiac Doppler echo showed basal and medial hypokinesia of the inferior wall and preserved LVEF.

The diagnosis of STEMI was made on clinical and electrical criteria. The patient received a loading dose of antithrombotics.

Due to the persistence of pain, he was transferred to the catheterization room as an emergency.

Coronary angiography showed a dominant right coronary artery with a tight lesion of the upper genus of this artery and a left coronary vessel with good size, free of stenosis. We witnessed the occurrence of an accelerated idioventricular rhythm (RIVA) spontaneously resolved at the time of revascularization. The patient underwent a dilatation with the placement of an active stent with a good result.

The evolution was favorable with resolution of pain and ECG persistence of typical complete LBBB but disappearance of signs in favor of an acute Sgarbossa ischemia.

Discussion:-

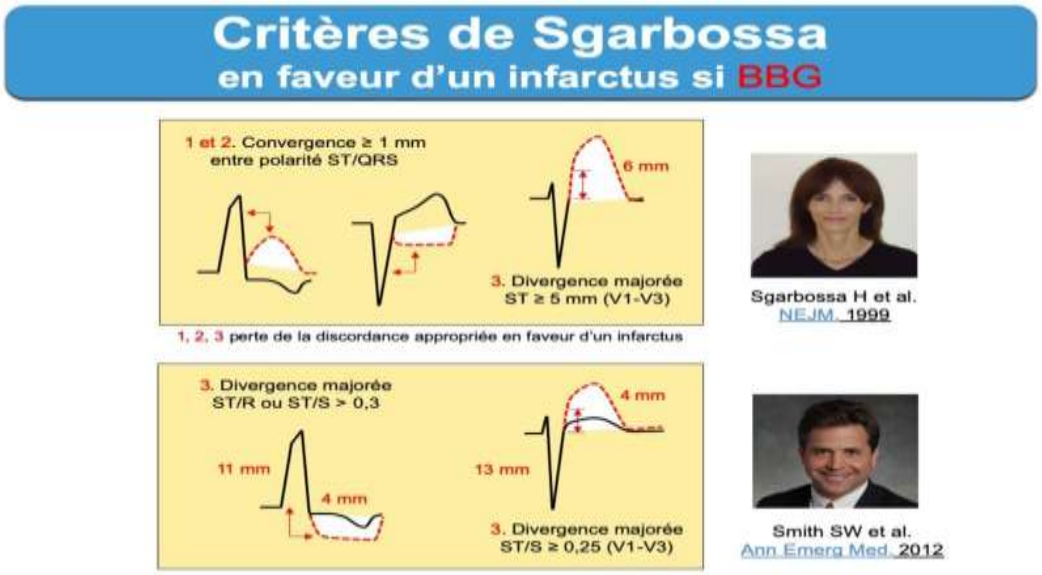
Acute coronary syndromes have a heterogeneous clinical presentation and are responsible for an in-hospital mortality of 6% to 12% [1]. This risk has been decreased for decades due to the advent of early coronary angioplasty.

Since the 2012 ESC recommendations, the management of de novo painful LBBB or old LBBB with specific modifications, follows that of acute ST-segment elevation coronary syndrome with an indication for early myocardial reperfusion [2]. Indeed, left or right intracardiac conductive disorders of acute ischemic origin are considered as alarm signals alerting the practitioner to initiate an immediate therapeutic approach to improve the prognosis of these patients [3]

In literature, it is described that the prevalence of ischemic LBBB is higher in elderly subjects, often women, patients with multiple CVD, numerous cardiac complications, impaired LVEF with higher risk of heart failure and cardiac arrest. [6], [7], [8].

Our observation reports an atypical case not only in epidemiological characteristics but also in clinical and angiographic presentation.

The diagnosis of STEMI in the emergency room is a real challenge in the presence of a LBBB on the ECG [4]. The clinical context and certain algorithms serve as guidance. Ischemic LBBB is evoked in the presence of ST-segment atypia abnormal for a left block. These atypia are called Sgarbossa and modified SMITH criteria and are based on the failure to meet the concordance rule that applies in case of wide QRS. These criteria have a high specificity but a low sensitivity and their absence does not exclude the diagnosis of infarction [10] [11].



Ischemic LBBB defined according to the SGARBOSSA and SMITH criteria is significantly associated with coronary injury [8]. In the series by AL-DAYDAMONY. M et al, it is demonstrated that the presence of ischemic LBBB is significantly predictive of coronary obstructive lesion and associated with more severe lesions according to the Gensini score [7]. It was described that a stenosis of the left coronary artery and mainly the IVA is found predominantly in patients with ischemic LBBB in the setting of STEMI [5]. In the study of P.WIDIMSKY et al, 73% of patients admitted with ischemic LBBB underwent primary angioplasty. The intervention showed a coronary occlusion with a TIMI 0 flow in 40% of the cases, and an injury of the right coronary artery was found in 25.8% of the cases with ischemic LBBB [9]. This explains that our case is not exceptional and that there is a non-negligible proportion of ischemic LBBB due to a right coronary lesion.The attribution of ischemic LBBB to right coronary injury is rarely described in the literature. However, the few studies reporting these data describe a significant percentage of this relationship between ischemic LBBB and right coronary injury.

Larger, multicenter trials to better describe this point would be of great benefit.

Conclusion:-

A right coronary lesion at the source of a LBBB has rarely been described in the literature giving rise to the originality of these types of situations.

The undeniable importance of the clinic is once again demonstrated through this observation. A good descriptive analysis of the electrocardiogram and coronary angiography are the basis of an adapted management.

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