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RESEARCH ARTICLE

ACUTE CORONARY SYNDROME IN A YOUNG FEMALE: A RARE OCCURRENCE WITH CABERGOLINE

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Abstract

Spontaneous coronary artery dissection (SCAD) is a rare but increasingly recognized cause of acute coronary syndrome. Here, we describe SCAD in a 25-year-old female on long-term cabergoline therapy with no other cardiac risk factors. Cabergoline-induced SCAD should be considered in patients presenting with an acute coronary syndrome who are treated with this medication.

Introduction:-

Spontaneous coronary artery dissection(SCAD) is a rare cause of acute coronary syndrome that should be considered during the evaluation of young female patients who presented with chest pain. [1] Spontaneous coronary artery dissection has occurred in the presence of atherosclerotic plaque rupture or coronary vasospasm, during pregnancy or intense exercise, and in users of cocaine and mephamphetamine [2-6].

Prolactinomas are the most common type of pituitary adenomas. These are typically treated medically with dopamine agonists like bromocriptine and cabergoline. Cabergoline is a long –acting dopamine agonist used as first-line therapy for prolactinomas. Bromocriptine has been associated with acute myocardial infarction and spontaneous coronary artery dissection when used in the post-partum period for lactation suppression [7]. Whereas cabergoline has caused digital vasospasm [8], spontaneous coronary artery dissection associated with cabergoline therapy has been described only in a few case reports in literature(bmj 21,1,2,3). Herein,we present a case of female patient who presented with severe chest pain while undergoing cabergoline therapy and diagnosed as having acute coronary syndrome caused by spontaneous coronary artery dissection during evaluation. Our case merits attention towards apparent relationship between cabergoline therapy and spontaneous coronary artery dissection.

Case Report:

A 25 – year-old female presented to a rural emergency department with sudden onset severe retrosternal chest pain since last one hour. The pain radiated both arms and associated with perspiration. It improved with sublingual nitroglycerine given at emergency department. Her vitals were normal at time of presentation. She was recently diagnosed as having Prolactinoma and started cabergoline therapy. According to patient she developed severe retrosternal chest pain 3 hours after taking first dose of cabergoline.She had no cardiac risk factors and not having any family history of cardiac illness. Her initial electrocardiogram(ECG) showing ST segment elevation in anterior leads [Figure 1]. So, her initial provisional diagnosis acute anterior wall myocardial infarction was made, and she was treated with aspirin,clopidogrel and subcutaneous enoxaparin. She was transferred to a percutaneous coronary intervention-capable center and underwent coronary angiography, which demonstrated SCAD in proximal to mid left anterior descending (LAD) coronary artery(non-flow limiting) [Figure 2]. Once SCAD was identified, a search for possible etiologies of SCAD was carried out. Certain conditions have a predisposition for SCAD including

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fibromuscular dysplasia, multiple previous pregnancies, connective tissue disorders, systemic inflammation,hormonal therapies, severe stress and cocaine use. After evaluation other etiologies were ruled out. Given the lack of any other risk factors and the negative testing for other causes, cabergoline was deemed to be a potential cause. Our patient was treated medically and discharged in stable condition on sixth day on aspirin,clopidogrel,metoprolol and Ramipril.Due to previously reported association between SCAD and cabergoline as well as lack of other risk factors, the patient's cabergoline therapy was discontinued in consultation with her endocrinologist.

Discussion:-

Acute coronary syndromes are rare in young women, and spontaneous coronary artery dissection is an uncommon cause of acute coronary syndrome or sudden cardiac death in these patientpopulation [9]. It is identified in 0.2% to 1.1% of coronary angiographies performed for acute coronary syndrome[10]. Spontaneous coronary artery dissection predominately affects young females with some experiencing the condition in a life -threatening manner than others. Although it is a rare disease, it can be underdiagnosed because of the perception that coronary artery disease does not affect young patients. The cause of spontaneous coronary artery dissection could be multifactorial, including underlyingarteriopathies,genetic factors,hormonalinfluences,or systemic inflammatory diseases.[11]Treatment for SCAD is largely conservative as percutaneous coronary intervention has a high failure rate due to dissection progression [12] Medications such as aspirin,clopidogrel, angiotensin-converting enzyme inhibitors and beta-blockers are often employed alongside blood pressure control and cardiac rehabilitation, though their exact benefit is unknown. [12] In refractory cases, both percutaneous coronary intervention and coronary artery bypass grafting can be considered- for example, ongoing ischemia, hemodynamic instability, extensive dissection or left main dissection. Percutaneous coronary intervention has been associated with increased complications and technical failures, while coronary artery bypass grafting has been associated with graft failures,and as such, medical management is the preferred first line therapy. [13-14] In this case of SCAD, with no obvious risk factors identified, an exhaustive search was conducted for other causes given the age,gender and angiographic characteristics of this patient. The only relevant uncovered fact in her history was her use of cabergoline therapy- a dopamine agonist used in the context of hyperpolactinemia given its ability to inhibit prolactin production. In our case, cabergoline was being used for a prolactinoma.Since cabergoline is an ergot derivative and given that ergot alkaloids induce vasospasm in the coronary arteries, a potential association between cabergoline and coronary artery vasospasm has pathophysiological grounding to cause SCAD. [15]To the best of our knowledge, this is the fourth worldwide case report of SCAD thought to be associated with cabergoline therapy in a young female with no other cardiac risk factors.

Conclusion:-

SCAD commonly occurs in young females without cardiac risk factors. Although there are multiple factors that could cause SCAD, the use of cabergoline for the treatment of hyperprolactinemia could be related to its incidence. In this context, our case report supports a possible association between cabergoline therapy and SCAD that merits attention from primary care physicians.

Figure Legends:

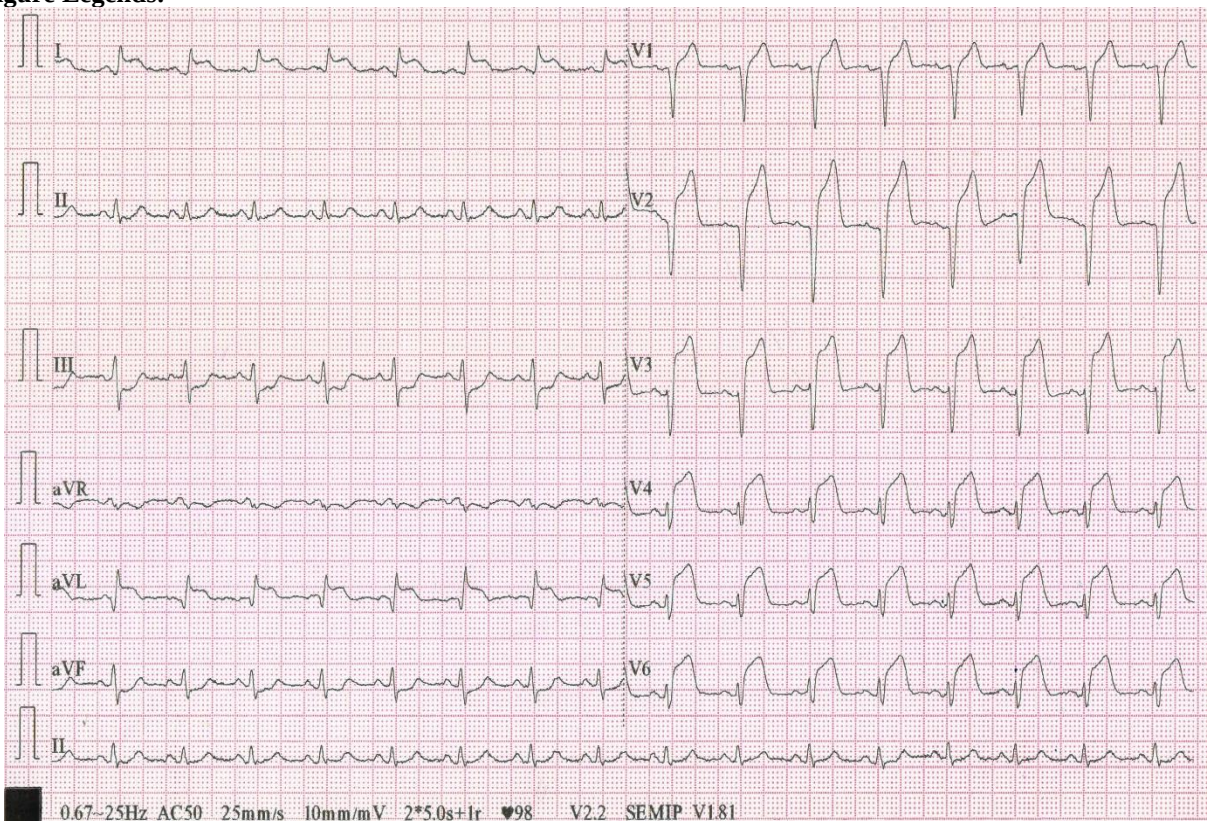

Figure 1:- ECG at presentation in emergency department showing extensive anterior wall myocardial infarction.

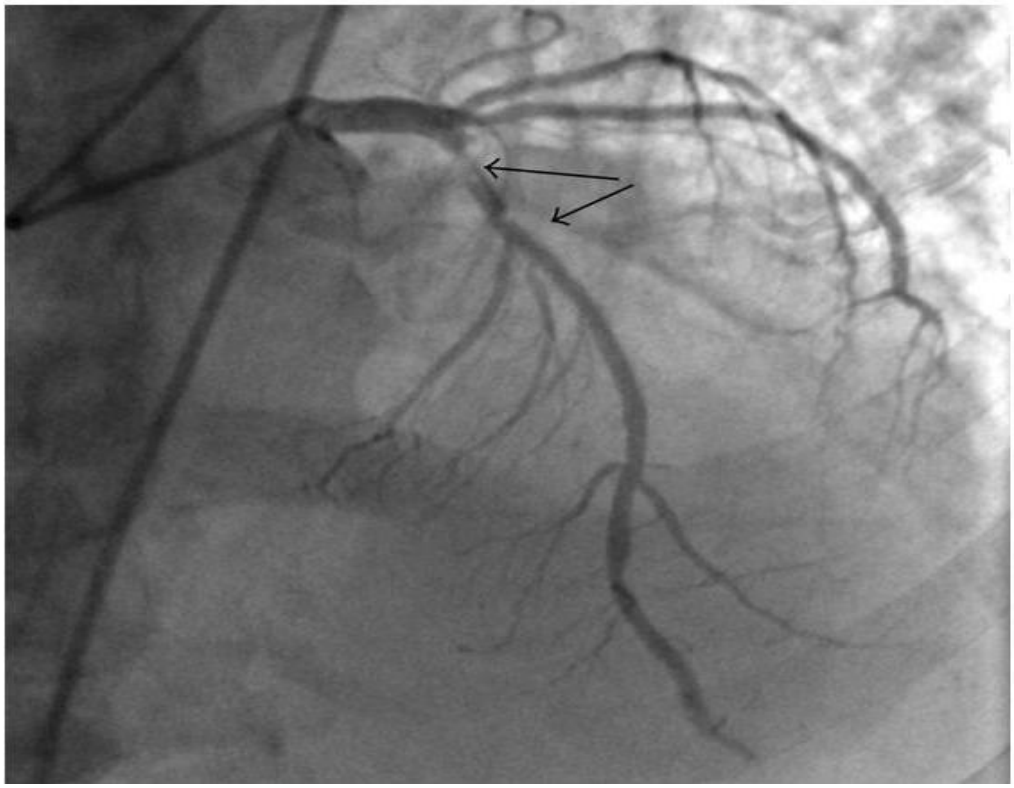

Figure 2:- Coronary angiogram showing proximal to mid LAD dissection (Non-flow limiting).

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