International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2022): 7.942

Acute Coronary Syndrome - STEMI due to Kounis Syndrome in a Patient with Honey Bee Stings: A Case Report

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Abstract: ***This case report describes a 60 year old male who presented with acute coronary syndrome - STEMI due to Kounis syndrome following multiple honey bee stings. Initial treatment at a local hospital revealed ST elevations on the ECG, indicating acute inferolateral and right ventricular myocardial infarction. Further evaluation at our hospital showed 100% occlusion in the proximal RCA and 99% stenosis in the LAD. The patient underwent successful percutaneous coronary angioplasty with drugeluting stents. This case emphasizes the importance of considering Kounis syndrome in patients with allergic reactions presenting with chest pain to avoid misdiagnosis and ensure prompt treatment.***

Keywords: Acute coronary syndrome, Kounis syndrome, myocardial infarction, allergic reaction, honey bee sting

Purpose

This case report aims to highlight the occurrence of acute coronary syndrome - STEMI due to Kounis syndrome triggered by multiple honey bee stings, emphasizing the importance of recognizing this rare condition to avoid misdiagnosis and ensure prompt treatment.

Significance

This case report underscores the critical need for healthcare professionals to be aware of Kounis syndrome as a potential cause of acute coronary syndrome following severe allergic reactions, such as bee stings, to provide timely and accurate treatment.

1. Introduction

Acute Coronary Syndrome is a life-threatening cardiovascular event. Usually, ACS can be caused by various risk factors such as smoking, diabetes, obesity, lack of physical exercise, stress, etc. Sometimes in rare cases a severe allergic reaction can cause plaque erosion or rupture in inactive preexisting atheromatous disease. Kounis syndrome can cause such allergic reaction. Here, I describe a case of 60-year-old man who suffered an allergic reaction triggered by honey bee stings. he was diagnosed with Acute Coronary Syndrome - STEMI. This case report represents the clinical abnormalities of ACS - STEMI caused by Kounis Syndrome to avoid the misdiagnosis of this rare cardiovascular event.

2. Case Presentation

Chief complaints:
A 60-year-old Indian man initially presented to local hospital with history of multiple honeybee stings followed by which patient developed nausea, abdominal discomfort, chest heaviness and after initial treatment patient was referred to our hospital.

History of present illness:
patient was well before the honey bee sting. Patient had chest pain with perspiration on presentation which started within 30 minutes of honeybee stings. The patient also had nausea, abdominal discomfort and vomiting. The patient immediately went to local hospital and got treated but his symptoms did not improve so referred to our hospital.

History of past illness:
Patient had past history of retroperitoneal liposarcoma surgery 3 years back. No history of any cardiovascular events.

Personal and Family history:
No addiction and denied of any familial inherited diseases

Physical Examination:
On examination, patient temperature was 98 F and had a blood pressure of 90/60 mmhg, pulse of 90 bpm, RR of 20/ min, Spo2 - 98% on room air. His respiratory examination was normal, no crepitations or wheez, he did not have any cardiac murmur.

Laboratory examinations:
Blood reports showed elevated CKMB - 465 U/L (normal range 7 - 25 U/L), Random blood sugar was 166 mg/dl, serum sodium 145 mmol/L (Normal range - 137 - 145 mmol/L, serum potassium 3.8 mmol/L (normal range - 3.5 - 5.1 mmol/L), S. creatinine 1.7 mg/dl (normal range 0.6 - 1.3 mg/dl), hemoglobin - 14.7 gm% (normal range 13 - 17 gm%), wbc count - 18210/cmm (normal range - 4000 - 10000/cmm).

Imaging Examination:
An ECG on admission showed significant ST elevation in II, III, avf, rV4 and V4 - V6 with reciprocal ST - depression in lead I and avl. 2D Echo suggestive of inferior, posterior, anterolateral and septal wall hypokinetic LVEF 25% and RV dysfunction.
Coronary angiography showed RCA (right coronary artery) dominant 100% occluded from proximal segment (Approx lesion length>20 mm), LAD (left anterior descending artery)

99%stenosis in mid segment lesion length 20 mm. LMCA and LCX normal.

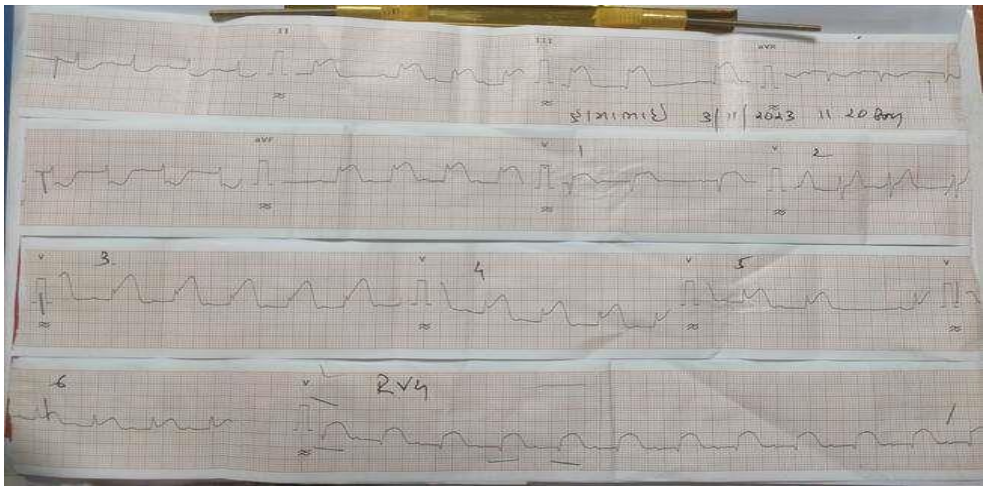

Figure 1: ECG with ST segment elevation in inferior, lateral and right leads

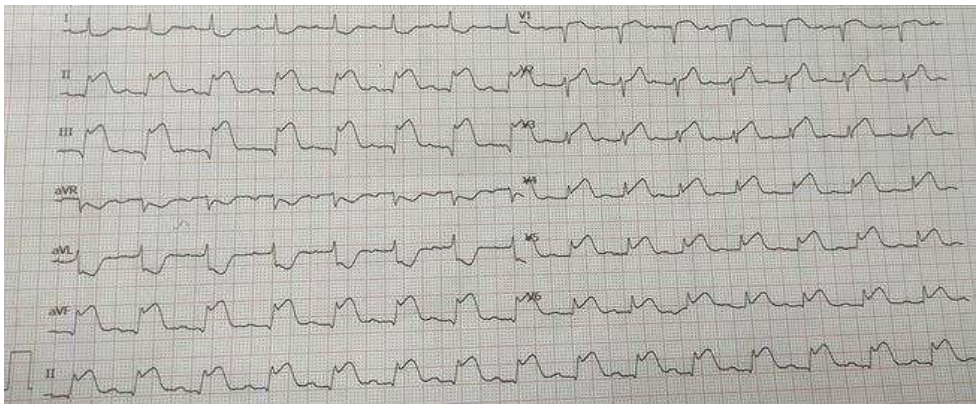

Figure 2: Repeat ECG with same ST segment elevation in inferior and lateral leads

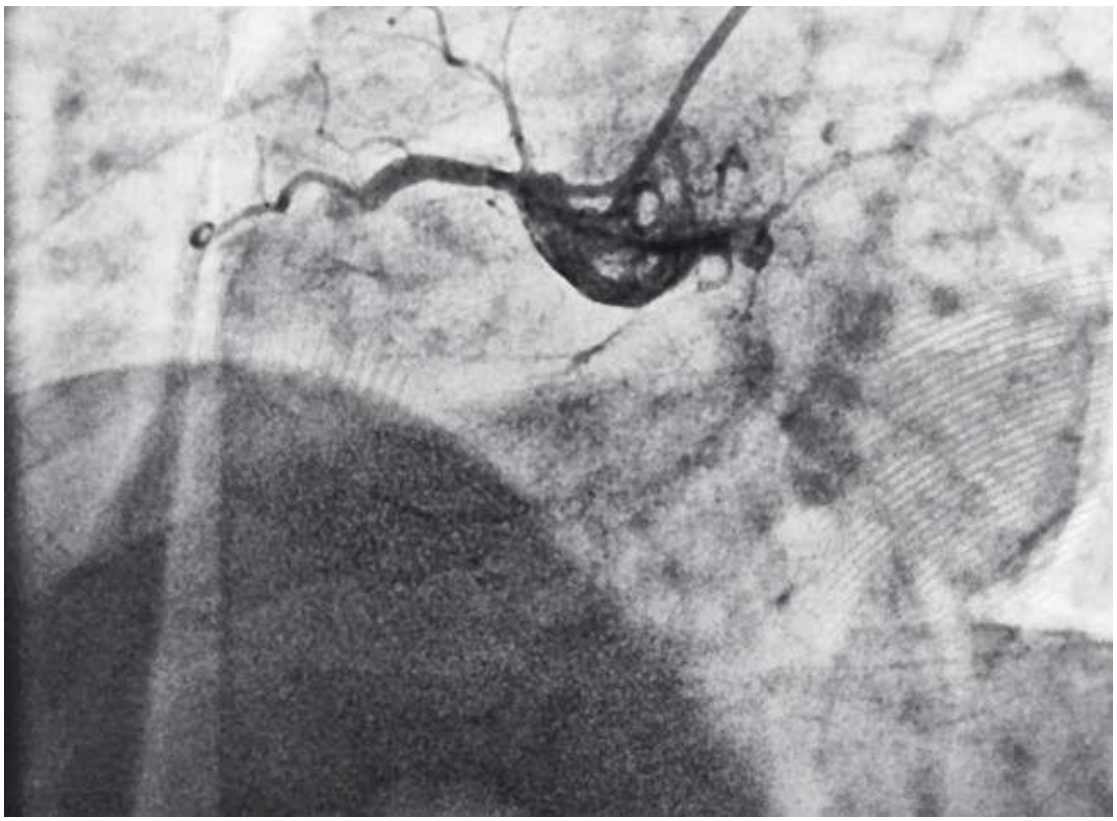

Figure 3: Coronary angiogram right anterior view: 100% occluded right coronary artery

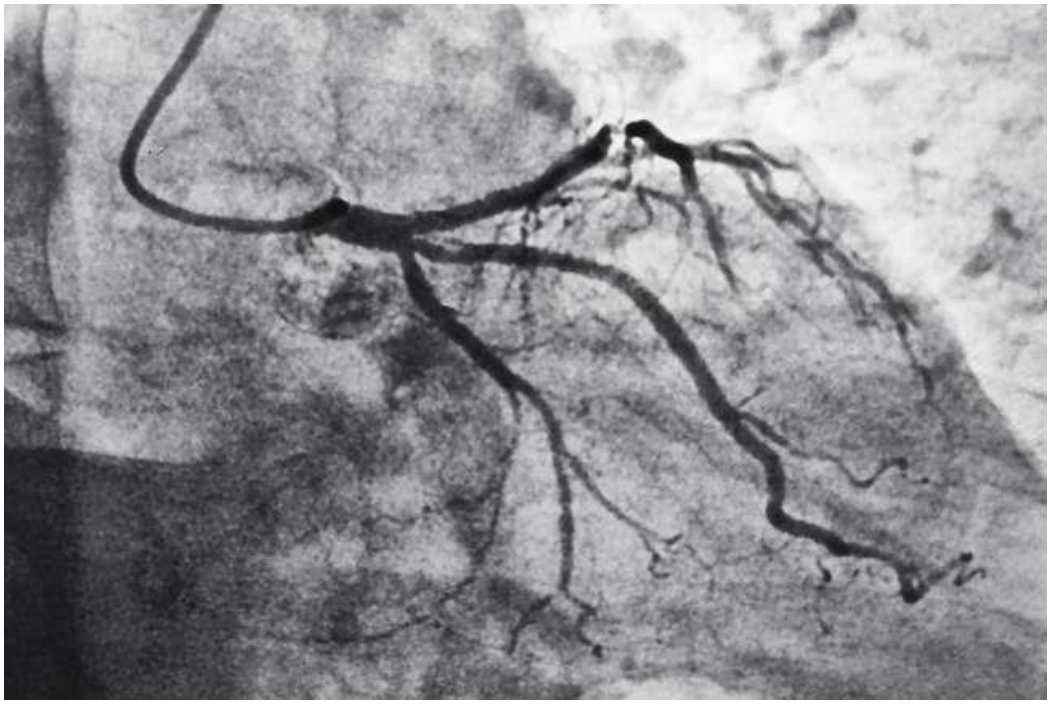

Figure 4: Coronary angiography left view: 99% stenosis in left anterior descending artery

Final diagnosis:
Based on ECG, echo and angiography reports diagnosis of acute coronary syndrome - STEMI due to Kounis syndrome was made.

Treatment:
Urgent Percutaneous coronary angioplasty with 2 DES (drug eluting stent) in RCA and LAD done. Post PTCA patient received inj heparin 4000IU iv 6 hourly, tab. Ecosprin 150mg BD, tab. Colpidogrel 75mg BD, tab. Atorvastatin 40mg OD, Tab. Torspec plus LS 10+25mg OD, tab. L - cin 500mg OD and tab. Pantoprazole 40 mg OD.

Final Outcome:
Post procedure, the Patient's ICCU stay was uneventful after 2 days of ICCU stay patient was shifted to general ward and discharged on next day with antiplatelets and statins.

3. Discussion

We report a new case of acute coronary syndrome caused by severe allergic reaction due to kounis syndrome due to multiple honey bee stings. The patient had no past history of coronary artery disease. to the best of my knowledge most of acute coronary syndrome results from coronary atherosclerotic plaque erosion or rupture followed by thrombus formation. Allergic reactions can also induce acute coronary syndrome, including coronary artery vasospastic angina, plaque rupture and drug - eluting coronary stent thrombosis. This phenomenon is called Kounis syndrome [1]. The prevalence of Kounis syndrome among patients hospitalized for allergic reactions in the United States was estimated to be 1.1% [4]. Abdelghany *et al* [2] established a categorization system for the syndrome as types I - III. In this case, Patient head 100% occlusion in right coronary artery and 99% stenosis in left anterior descending artery Along with elevated cardiac enzymes, ECG detected ST - segment elevation and 2D echo evidence of acute myocardial infarction, thus indicating type - II Kounis syndrome.

Hypersensitivity coronary disorder originally described in 1991 by Kounis as acute coronary syndrome associated with allergic reaction [5]. Also known as allergic angina [1], allergic myocardial infarction [1], or coronary hypersensitivity disorder, the vasospastic changes seen in Kounis syndrome do not always lead to infarction [5]. Induced by various conditions, drugs, environmental exposures, foods and coronary stents [3]. The most common recognised triggers are antibiotics (28%) and insect bites (23%) [3] [5].

In Pathophysiology of Kounis Syndrome the exact underlying mechanism is not fully understood, and there are two proposed mechanisms [5]. Allergic, hypersensitivity, anaphylactic and anaphylactoid reactions are associated with Kounis syndrome [3]. Ischaemia is thought to be due to release of inflammatory cytokines and inappropriate platelet activation through mast cell activation, which leads to coronary artery vasospasm and/or atheromatous plaque erosion or rupture [3]. Apart from coronary arteries, it affects the cerebral and mesenteric arteries. Other proposed mechanisms are that global myocardial hypoperfusion occurs as a result of systemic vasodilatation and decreased venous return in the context of anaphylaxis [3].

Table 1: Types of Kounis Syndrome [5]

Type	Cardiac history	Pathological changes
I	Normal coronary arteries No risk factors for IHD	Coronary artery **vasospasm**
II	Inactive preexisting atheromatous disease	Plaque erosion of rupture causes vasospasm or **infarction**
III	Previous coronary artery stenting	**Stent thrombosis** secondary to platelet activation

Vasospastic allergic angina, allergic myocardial infarction and stent thrombosis with occluding thrombus infiltrated by eosinophils and/or mast cells constitute are three variant of Kounis syndrome. [5]

Kounis Syndrome variants: Kounis describes three reported variants [1] in his 2013 paper - vasospastic allergic angina (type I), allergic myocardial infarction (type II) and stent thrombosis (type III) [1] [5].

Early Diagnosis and treatment requires attention to both cardiac and anaphylactic pathophysiology. Kounis syndrome can occur as a part of allergic rection to any substance or envenomation or stings [1]. Certain drugs (antibiotics, NSAIDS, analgesics, thrombolytics), Food (shellfish, mashroom, fruits and canned food) and preexisting allergic condition (bronchial asthma, stents, serum sickness, mastocytosis) can also cause Kounis syndrome [3]. Prompt Coronary angiography helps to differentiate between types of Kunis syndrome.

4. Conclusion

Honey bee stings can trigger severe allergic reactions leading to Kounis syndrome, which in turn can cause lifethreatening cardiac events. Prompt recognition, accurate diagnosis using coronary angiography, ECG, and cardiac biomarkers, and timely treatment are essential to prevent permanent myocardial damage or death.

Foot Notes

Informed written consent has been obtained from patient for publication of this report and any accompanying images.

References

[1] Kounis NG. Coronary hypersensitivity disorder: the Kounis syndrome. Clin Ther.2013; 35: 563–571. [PubMed] [Google Scholar]
[2] Abdelghany M, Shah S, Subedi R, Kozman H. New classification of Kounis Syndrome. Int J Cardiol.2017; 247: 14. [PubMed] [Google Scholar]
[3] Kounis NG. Kounis syndrome: an update on epidemiology, pathogenesis, diagnosis and therapeutic management. Clin Chem Lab Med.2016; 54: 1545–1559. [PubMed] [Google Scholar]
[4] Desai R, Parekh T, Patel U, Fong HK, Samani S, Patel C, Savani S, Doshi R, Kumar G, Sachdeva R. Epidemiology of acute coronary syndrome co - existent with allergic/hypersensitivity/anaphylactic reactions (Kounis syndrome) in the United States: A nationwide inpatient analysis. Int J Cardiol.2019; 292: 35–38. [PubMed] [Google Scholar]
[5] Robert Buttner and Mike Cadogan 2021, *life in the FASTLANE*, accessed 21 Apr, 2021, <https: //litfl. com>