

# Unveiling the Intricacies of Allergy Induced Cardiac Manifestation - Kounis Syndrome

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**Abstract:** ***Introduction:** Kounis Syndrome, a rare condition characterized by allergy - induced cardiac manifestations, remains an intriguing medical phenomenon. This case sheds light on the complex interplay between allergies and cardiac complications, underlining the importance of recognizing and understanding this rare medical condition. **Methods:** A 37 - year - old man with hypertension and hyperlipidemia, who encountered an unusual allergic reaction after receiving ciprofloxacin injection. This patient exhibited ST segment elevations on the electrocardiogram (ECG), who underwent a thorough assessment of medical history, clinical symptoms, and laboratory investigations. A CAG was performed to assess cardiac involvement, to examine the coronary arteries. Troponin - I and tryptase levels were measured to aid in the diagnosis of Kounis Syndrome. **Results:** Following ciprofloxacin administration, the patient experienced a generalized erythematous macular rash, hypotension, tachycardia, and ST segment elevations in inferior leads (II, III, and aVF) on the ECG. Despite normal troponin - I levels, an elevated tryptase level pointed towards an allergic basis. Notably, CAG demonstrated normal coronary arteries, leading to the diagnosis of Kounis Syndrome triggered by the allergic reaction. **Conclusion:** This case highlights the importance of considering Kounis Syndrome when allergy - induced symptoms and ST segment elevations on ECG are present. Swift recognition and appropriate management are crucial to prevent severe cardiac complications. Healthcare providers should remain vigilant for rare conditions like Kounis Syndrome, particularly when standard cardiac events are ruled out. Early intervention with suitable treatments can lead to successful resolution and improved patient outcomes.*

**Keywords:** Kounis Syndrome, allergic reaction, ciprofloxacin, electrocardiogram, coronary angiography, troponin - I, tryptase, ST segment elevations.

## 1. Introduction

In the vast landscape of medicine, there exist captivating mysteries that challenge the boundaries of conventional understanding. One such enigma is Kounis Syndrome, an uncommon yet intriguing condition that unites the realms of allergies and cardiac manifestations. Imagine a world where an allergic reaction, typically associated with skin rashes and respiratory distress, can unexpectedly unleash a cascade of events that affect the heart. It is a medical tale that beckons our curiosity, drawing us into the realm of unusual and thought - provoking medical anomalies.

In this article, we embark on a journey to unravel the secrets of Kounis Syndrome, exploring the captivating case of a 37 - year - old man with known hypertension and hyperlipidemia. Follow us as we navigate through the twists and turns of this puzzling medical narrative, where seemingly unrelated symptoms converged to reveal an unexpected alliance between allergies and cardiac health. The case study unravels the complexities involved in diagnosing and managing this rare condition, highlighting the significance of prompt recognition and targeted intervention.

Prepare to be captivated by the fascinating world of Kounis Syndrome, as we delve into the uncharted territories where allergies and the heart intertwine. Here we decipher the intricate medical puzzle, where medical expertise and unwavering determination come together to shed light on

this remarkable and rare syndrome. Brace yourself for a thought - provoking exploration of medicine's mysterious frontiers - welcome to the captivating world of Kounis Syndrome.

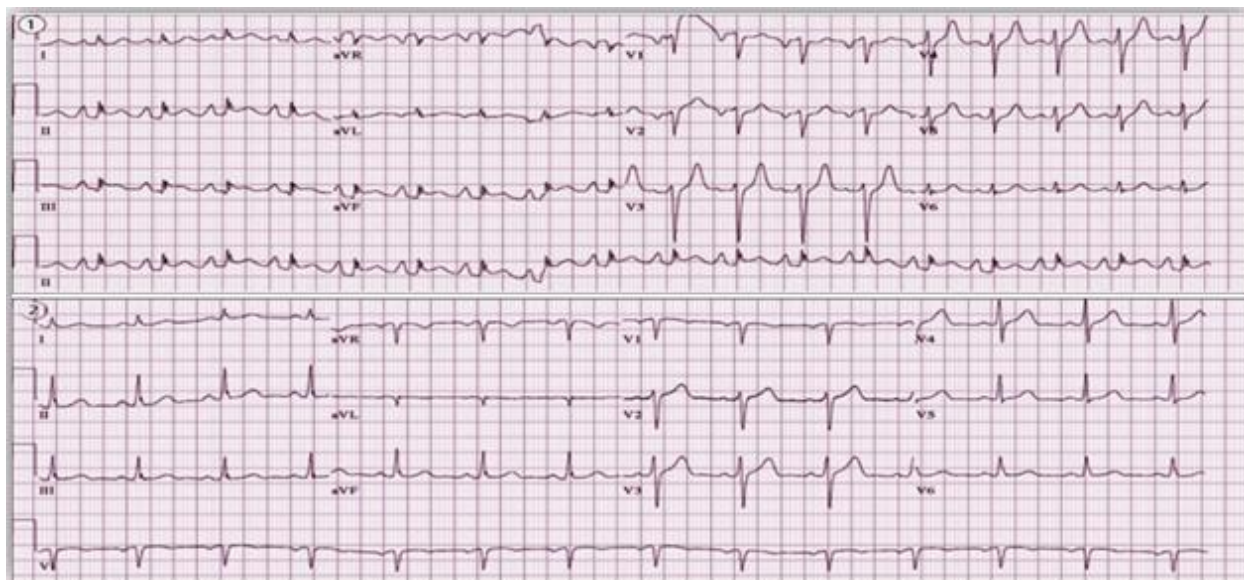
## 2. Case History

A 37 - year - old man with a medical history of hypertension and hyperlipidemia presented to an outside hospital with complaints of nine episodes of loose stools and fever. Upon assessment, he was found to be in a state of moderate dehydration. To address his condition, he was promptly given intravenous fluids and administered Inj. ciprofloxacin 200mg intravenously, with suspected acute gastroenteritis as the primary concern. Shortly after receiving the ciprofloxacin, the patient's condition took a dramatic turn. He developed a generalized erythematous macular rash, and his blood pressure dropped significantly, leading to hypotension. Tachycardia followed suit, adding to the complexity of the situation. Severe sweating, breathlessness, and lip swelling further raised alarms.

In light of the patient's sudden symptoms, an electrocardiogram (ECG) was performed, revealing ST segment elevations in inferior leads (II, III, and aVF). The possibility of cardiac involvement was considered, and the medical team promptly administered intravenous Pheniramine, Ranitidine, and Hydrocortisone 200mg to manage the allergic reaction. Subsequent ECGs taken 5 and 15 minutes later showed a normalization of the ST segments,

indicating a positive response to treatment. Given the ST segment elevations observed on the ECG, the patient was

referred and admitted to Sree Balaji Medical College and Hospital for further evaluation and management.



Blood investigations were conducted, and while most parameters were within normal limits, an elevated tryptase level of 97 ng/ml hinted at an allergic basis for the reaction. The troponin - I level was reported to be below 0.30 ng/mL, indicating no significant cardiac damage. A coronary angiography (CAG) was performed to assess the coronary arteries, which surprisingly revealed normal findings. Based on the constellation of symptoms and investigation results, the patient was diagnosed with Kounis Syndrome.

### 3. Discussion

Kounis Syndrome is a rare but crucially important condition in which an allergic or hypersensitivity reaction triggers acute coronary events. In this case, the patient's allergic reaction to ciprofloxacin led to the release of inflammatory mediators, causing vasospasm and coronary artery constriction. The resulting reduced blood flow to the heart manifested as ST segment elevations on the ECG, mimicking a heart attack.

The ischemia in allergic reaction is secondary to the release of inflammatory mediators, including histamine, platelet - activating factor, cytokines, tryptase and prostaglandins which leads to coronary vasospasm. The connection between anaphylaxis and Kounis Syndrome (KS) is well - documented. Anaphylaxis triggers systemic vasodilation and increased vascular permeability, leading to decreased venous return and potentially causing a decline in cardiac output. This sequence of events can result in coronary hypoperfusion and myocardial damage, which may manifest as electrocardiographic ST elevations, resembling primary myocardial damage secondary to mast cell activation. Consequently, differentiating between primary myocardial damage and global myocardial hypoperfusion can be challenging, posing an alternative potential explanation for allergic acute coronary syndrome.

### 4. Conclusion

The case of the 37 - year - old man with known hypertension and hyperlipidemia, who suffered from Kounis Syndrome following ciprofloxacin administration for acute gastroenteritis, highlights the significance of recognizing and understanding rare medical conditions. Through prompt recognition and appropriate management, the patient's acute generalized urticaria resolved, and he was discharged home in a stable condition. This case highlights the complexity of atypical medical presentations, emphasizing the significance of considering rare conditions like Kounis Syndrome in patients with allergic reactions and cardiac manifestations. Vigilance and a thorough understanding of such unique cases are crucial in ensuring timely intervention and improved patient outcomes.

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