# Brain Freeze? Heart Freeze? A Case of Deglutition Syncope Induced Tachyarrhythmia

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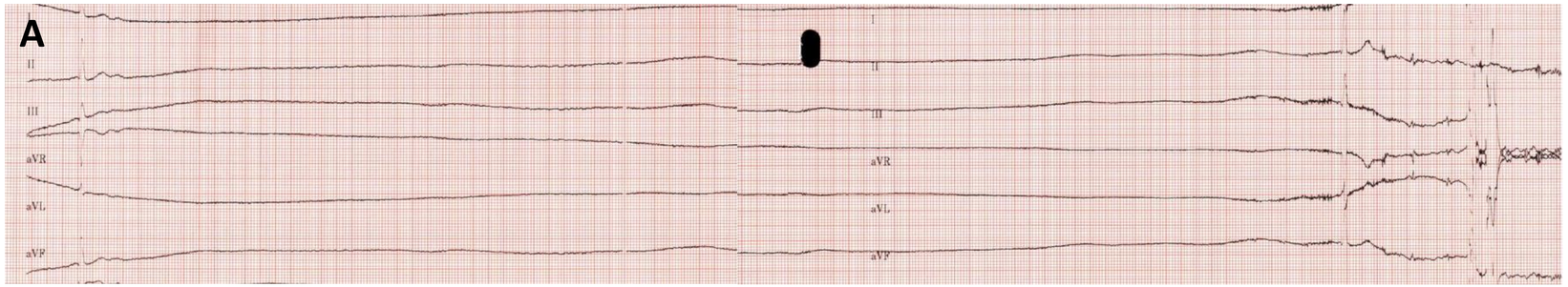
## Introduction

Deglutition syncope (DS), otherwise known as swallowing syncope, is a rare condition that can precipitate true syncope. Typically causing cardiac inhibition and bradyarrhythmia's, it is even more rare for it to result in tachyarrhythmias. This is the first documented case of a 36-year-old male presenting with deglutition syncope induced asystole with subsequent atrial fibrillation (AF) with rapid ventricular response (RVR), with a history of inherited titin (TTN) mutation cardiomyopathy.

## Case Presentation

This 36-year-old with a past medical history significant of TTN mutation cardiomyopathy, supraventricular tachycardia on metoprolol presented to the heart failure clinic following 2 weeks of mobile cardiac outpatient telemetry for palpitations. He stated a few days ago, he experienced a "brain freeze" after drinking a Slurpee, resulting in severe dizziness and fainting. Once conscious, he noted on his Apple watch he was in atrial fibrillation (AF). In the clinic, the patient brought another Slurpee and requested to try and replicate the event. After continuous telemetry was set, he rapidly drank the frozen beverage and fainted. Telemetry showed asystole lasting approximately 17 seconds followed by AF with RVR with heart rate as high as 130 beats per minute. He returned to sinus rhythm shortly after. After regaining consciousness, he was monitored for 30 minutes and was told to avoid icy beverages as he was discharged home.




**Rhythm strip post "brain freeze." A:** Asystole for 17 seconds. **B:** Atrial fibrillation for 2 minutes before normal sinus rhythm

## Discussion

The exact mechanism of DS is unknown, however there is debate whether the cause is from a severe vagal reflex or external compression of the left atrium from passing food boluses in the esophagus. Although there are esophageal conditions linked with food ingestion associated with DS such as hiatal hernia and esophageal strictures, cardiac risk factors are somewhat unclear [1]. One review showed 33% of DS cases had underlying ischemic cardiomyopathy and sick sinus node syndrome. However, there were no findings of nonischemic cardiomyopathy associated with DS [2]. The patient experienced a likely severe form of vagal vasodepressor syncope with referred pain from his glossopharyngeal nerve eliciting his “brain freeze” after drinking an icy cold beverage. Through vagal mediated reflexes, cardiac inhibition and bradyarrhythmia is typically seen as a result. And although this case demonstrated a 17 second asystole secondary to vagal response, it remains unclear of his AF with RVR episodes before returning to sinus rhythm. There is one case of DS associated with paroxysmal AF, but the link is unclear [3].

## Conclusion

DS remains a rare condition as a cause of true syncope. Additional studies are needed to understand the mechanisms of DS and potential risk factors that may predispose patients to DS. Until further elucidated, avoidance of deglutition triggers should be advised to all patients affected by DS.

## References

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