Case Report

Swallowing-Induced Atrial Tachycardia Presenting with Syncope in an Elderly Woman: A Case Report and Management Challenge

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Citation: Hoang VT. Swallowing-Induced Atrial Tachycardia Presenting with Syncope in an Elderly Woman: A Case Report and Management Challenge. Res Heart Yield Transl Med 2026; 21(3):253-258.

https://doi.org/10.18502/rhythm.v21i3.22569

Highlights

- Syncope may indicate a high-risk phenotype of swallowing-induced atrial tachycardia.
- Medical therapy can be effective when ablation is not feasible.

Article info:

Received: 26 Apr. 2026
Revised: 10 May. 2026
Accepted: 31 May. 2026

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ABSTRACT

Background: Swallowing-induced atrial tachycardia is a rare condition with variable presentations; syncope is uncommon. Radiofrequency catheter ablation is considered definitive, but management should be individualized, and medical therapy may be appropriate when ablation is not feasible.

Case Presentation: A 78-year-old woman presented with syncope, dizziness, and lightheadedness during meals. Extensive evaluation-including electrocardiography, echocardiography, carotid Doppler ultrasound, chest computed tomography, and laboratory tests-was unremarkable. A 24-hour Holter monitor showed recurrent short runs of atrial tachycardia alternating with sinus rhythm. Episodes consistently occurred during meals and were absent outside eating periods. Continuous monitoring during food intake confirmed swallowing-triggered atrial tachycardia. Although catheter ablation was recommended given the high-risk presentation, the patient declined. Low-dose amiodarone was initiated because of her low baseline heart rate. After 4 weeks, symptoms resolved completely, and repeat Holter showed only a single brief episode. Therapy was switched to bisoprolol (2.5 mg daily) to minimize long-term toxicity. At 12-week follow-up, she remained asymptomatic without adverse effects.

Conclusions: Syncope is a rare manifestation of swallowing-induced tachyarrhythmia. Medical therapy may be an effective alternative, particularly when catheter ablation is unavailable or declined.

Keywords: Swallowing-Induced Atrial Tachycardia; Syncope; Medical Management; Amiodarone Therapy; Case Reports

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Introduction

Swallowing-induced atrial tachycardia (SIAT) is a rare form of supraventricular arrhythmia characterized by a reproducible temporal relationship between swallowing and the onset of atrial tachycardia. Fewer than 100 cases have been reported, with a clear predominance in middle-aged men, and most patients presenting with palpitations rather than syncope.[1] The underlying mechanisms are not fully understood but are thought to involve either mechanical stimulation of the left atrium by esophageal distension or autonomic reflex activation mediated via vagal pathways.[2]

Management strategies have evolved over time. While pharmacological therapy-including beta-blockers, calcium channel blockers, and antiarrhythmic agents-has been used with variable success, catheter ablation is increasingly considered the preferred and potentially definitive treatment in symptomatic or refractory cases.

To our knowledge, this is one of the few reported cases of SIAT presenting with syncope in an elderly woman, successfully managed without catheter ablation.

Case Presentation

A 78-year-old woman with no known past medical history was admitted in an otherwise stable condition. According to her daughter, over the preceding month, the patient had experienced recurrent episodes of dizziness occurring predominantly at the beginning of meals, particularly during swallowing. On several occasions, she developed transient loss of consciousness, characterized by slumping forward at the dining table. Each episode lasted approximately 5 to 10 seconds, with spontaneous and complete recovery. Notably, she remained entirely asymptomatic outside mealtimes. As a result, she developed significant anxiety and fear related to eating.

On admission, physical examination-including cardiovascular, respiratory, and neurological systems-was unremarkable. Routine laboratory investigations-including complete blood count, electrolytes, liver and renal function tests, thyroid function, and chest computed tomography-were all within normal limits. Transthoracic echocardiography demonstrated normal cardiac structure and preserved ventricular function, with no valvular abnormalities. Carotid Doppler ultrasound revealed no significant stenosis. A 12-lead electrocardiogram (ECG) demonstrated normal sinus rhythm (Figure 1).

Twenty-four-hour Holter monitoring demonstrated 71 episodes of atrial tachycardia (Figure 2, highlighted in red), with the longest run lasting 22 beats. These episodes were nonsustained, typically lasting 3 to 7 seconds, and occurred intermittently between periods of normal sinus rhythm. Importantly, the arrhythmic episodes were consistently clustered around mealtimes. A temporal relationship between swallowing and arrhythmia onset strongly supported the diagnosis.

During monitored observation while eating, the patient demonstrated reproducible episodes of atrial tachycardia immediately following swallowing (Supplementary Video 1). These arrhythmic episodes were characterized by abrupt onset, short duration, and spontaneous termination. Each episode was consistently associated with symptoms of dizziness, lightheadedness, and near-syncope. Multiple episodes occurred throughout the meal, interspersed with periods of normal sinus rhythm. Notably, no significant bradyarrhythmia's were observed during symptomatic events. The clear temporal relationship between swallowing and the onset of atrial tachycardia established a strong symptom-arrhythmia correlation, providing compelling evidence in support of the diagnosis of SIAT. The patient was advised to adopt dietary modifications, including avoiding large food boluses and abstaining from caffeine and alcohol, to reduce arrhythmic triggers. Catheter ablation was discussed; nonetheless, due to high-cost relative to the patient's financial capacity and limited accessibility, a pharmacological approach was prioritized. Treatment with amiodarone (100 mg/d) was, therefore, initiated.

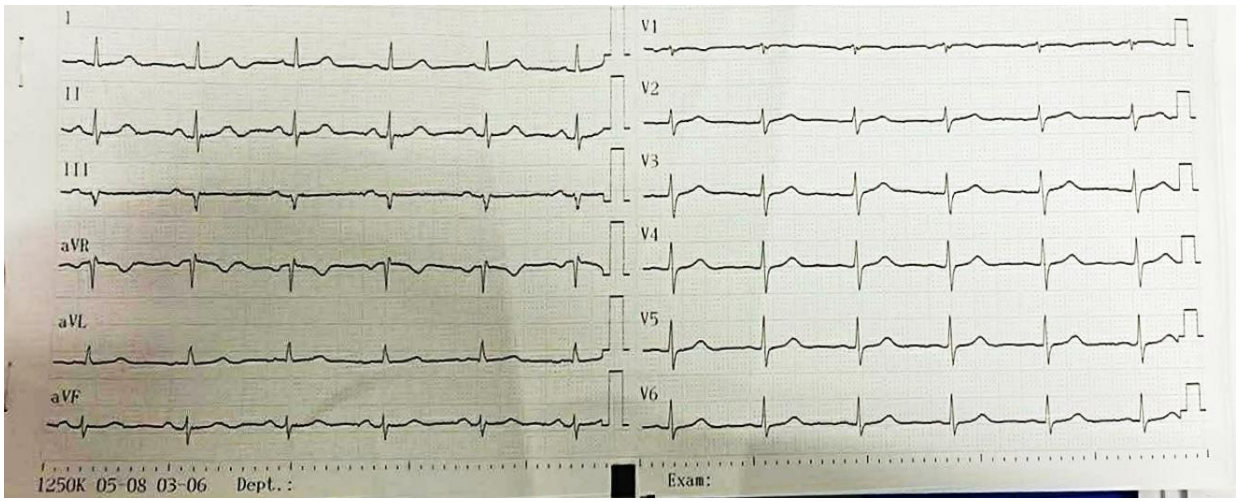


Figure 1. Admission electrocardiogram demonstrating sinus rhythm without conduction abnormalities

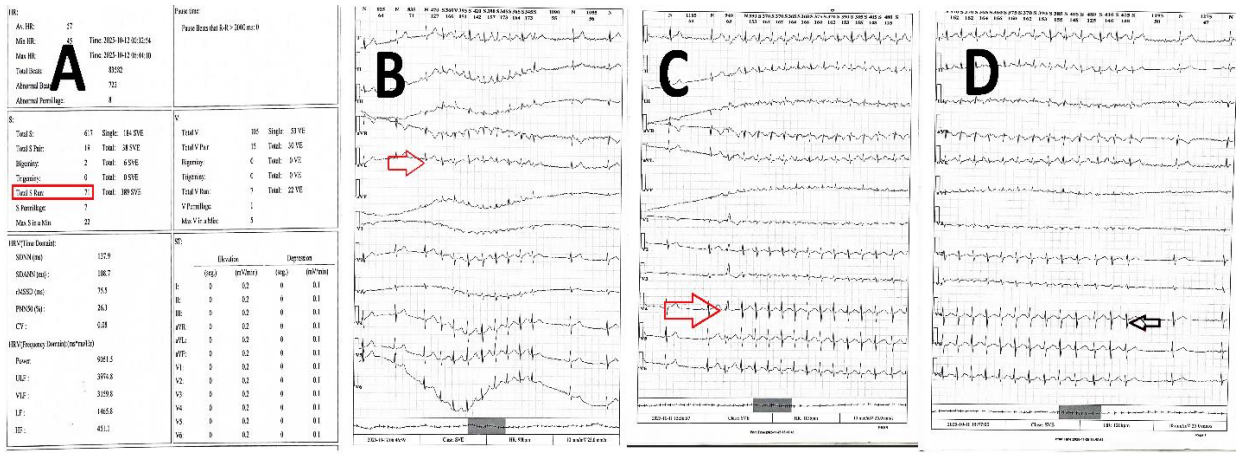


Figure 2. Holter ECG results. (A) Multiple short episodes of atrial tachycardia (circled in red) were observed, intermittently interspersed with sinus rhythm throughout the patient's meals. (B) A brief episode of atrial tachycardia was triggered during breakfast on swallowing (red arrow) and terminated abruptly. (C and D) During the afternoon meal, atrial tachycardia was triggered by swallowing (red arrow) and terminated immediately after swallowing (black arrow).

At 4-week follow-up, the patient was clinically well and reported complete resolution of symptoms. She no longer experienced dizziness, syncope, or any discomfort during meals and no longer felt anxious or fearful when swallowing. Repeat 24-hour Holter monitoring demonstrated a marked reduction in arrhythmic burden, with only a single brief episode of atrial tachycardia lasting 5 beats recorded during the night, occurring when the patient awoke to drink water. No further episodes were observed during daytime, including mealtimes. Given concerns regarding the potential adverse effects of long-term amiodarone therapy, and with a mean heart rate of 68 beats/min and a minimum heart rate of 55 beats/min, treatment was transitioned to bisoprolol (2.5 mg once daily).

At subsequent follow-up 12 weeks later, the patient remained symptom-free with sustained control.

Discussion

SIAT is an uncommon form of supraventricular arrhythmia, with fewer than 100 cases reported in the literature to date. It typically occurs in middle-aged men with structurally normal hearts and most commonly presents with palpitations rather than syncope.[2,3] In contrast, syncope associated with swallowing is more frequently attributed to vagally mediated bradyarrhythmia's, making tachycardia-related syncope an exceptionally rare and potentially under-recognized presentation.[4]

The present case highlights several important and atypical features. First, the patient was an elderly woman presenting with recurrent syncope temporally related to swallowing, representing a distinctly uncommon phenotype (Table 1).

Table 1. Summary of previously reported cases of swallowing-induced atrial tachycardia [2-4,6-8]

Author (Year)	Age/Sex	Trigger	Main symptom	Syncope	Treatment	Outcome
Morady et al.	64/M	Swallowing	Palpitations	No	Verapamil	Improved
Undavia et al.	47/M	Food ingestion	Palpitations	No	Catheter ablation	Successful
Tada et al.	52/M	Swallowing	Palpitations	No	Catheter ablation	Successful
Hu et al.	80/F	Swallowing	Palpitations	No	Catheter ablation	Successful
Wang et al.	51/F	Swallowing	Palpitations	No	Catheter ablation	Successful
Xu et al.	53/M	Solids	Palpitations	No	Beta-Blocker	Controlled
This case	78/F	Swallowing	Syncope	Yes	Amiodarone	Complete resolution

To date, fewer than 10 to 15 cases of SIAT presenting with syncope have been reported in the literature.[4,6,7] Among these, a substantial proportion of patients (approximately 60%–80%) ultimately underwent electrophysiological study and radiofrequency catheter ablation due to symptom severity or refractoriness to medical therapy.[6,7] Our case demonstrates a clear and reproducible symptom-arrhythmia correlation, which remains the cornerstone for diagnosis, particularly in situational arrhythmias such as SIAT.[2]

The pathophysiological mechanisms underlying SIAT remain incompletely understood and are likely multifactorial. Three principal mechanisms have been proposed: (1) direct mechanical stimulation of the atrium by esophageal distension; (2) vagally mediated reflex activation leading to heterogeneous atrial refractoriness and triggered activity; and (3) sympathetic reflex activation resulting in abnormal atrial automaticity.[2,3,8] In the present case, the consistent and immediate onset of tachycardia following swallowing, including during small-volume intake, supports a predominantly reflex-mediated mechanism rather than purely mechanical interaction. The occurrence of syncope may be explained by transient hemodynamic compromise due to rapid atrial tachycardia, leading to reduced ventricular filling and decreased cerebral perfusion, particularly in an elderly patient with limited physiological reserve.

Management of SIAT remains challenging because of its rarity and the absence of standardized treatment strategies. Conservative measures, including dietary modification and avoidance of triggering factors, are often recommended as initial therapy. Pharmacologic treatment with beta-blockers or no dihydropyridine calcium channel blockers is generally considered first-line, while antiarrhythmic agents may be used in selected cases.[5,10] Radiofrequency catheter ablation has emerged as an effective and potentially curative option, particularly in symptomatic or refractory patients, with high reported success rates.[6,7]

In this case, although catheter ablation was discussed as a definitive therapy, several factors influenced the decision to pursue medical management. These included the patient's advanced age, inadequate access to specialized electrophysiological services, and financial constraints—issues that are highly relevant in resource-limited settings. Crucially, the presence of a relatively low baseline heart rate (55–68 beats/min) raised concerns regarding the tolerability of beta-blockers and calcium channel blockers due to the risk of symptomatic bradycardia.[9,10] Hence, low-dose amiodarone was selected as an initial strategy to achieve rhythm control while minimizing negative chronotropic effects.

The favorable clinical response observed in this case is noteworthy. Because of concern regarding baseline bradycardia and the potential risk of excessive heart rate suppression, oral amiodarone was initiated at a low dose without a loading regimen. In parallel, the patient was advised to adopt behavioral and dietary modifications, including eating slowly, chewing thoroughly, consuming small bites, and preferring softer foods. During the early treatment period, presyncope and mild dizziness while eating still occurred intermittently; nevertheless, syncopal episodes did not recur, and symptoms progressively improved before resolving completely during follow-up. The gradual but sustained suppression of symptoms and arrhythmic episodes, together with subsequent

Holter monitoring findings, supported a clinically meaningful therapeutic effect of amiodarone despite the absence of a loading dose.

Beta-blocker therapy had initially been deferred because of concern for bradyarrhythmia in an elderly patient with a relatively low baseline heart rate. Still, after short-term rhythm stabilization with amiodarone, follow-up Holter monitoring demonstrated only a single brief episode of atrial tachycardia, with an average heart rate of 68 beats/min (maximum, 100 beats/min; minimum, 55 beats/min) and no clinically substantial bradyarrhythmia. Given these findings, along with concerns regarding the long-term adverse effects of amiodarone, de-escalation to low-dose bisoprolol was considered a reasonable and safer maintenance strategy.

Notably, reports of SIAT successfully treated with amiodarone as first-line therapy remain extremely limited. To the best of our knowledge, previous reports have rarely described the use of amiodarone as the primary treatment strategy in patients presenting with syncope. In contrast, most medically managed cases in the literature have involved beta-blockers or calcium channel blockers in patients with higher baseline heart rates.[6-8] For instance, in the study by Tada et al,[7] beta-blocker therapy was effective in patients with relatively preserved baseline heart rate, while Wang et al[8] described a case associated with sympathetic activation in which medical therapy was feasible. These differences further support the individualized treatment approach adopted in our patient.

This case also underscores an important clinical implication: SIAT should not be universally deemed a benign condition. When associated with syncope, it may represent a potentially high-risk presentation requiring prompt recognition and individualized management. Moreover, in settings where catheter ablation is not readily available, a tailored pharmacologic approach can provide effective symptom control and improve quality of life.

Conclusions

SIAT is a rare clinical entity that may present with atypical symptoms such as syncope, particularly in elderly patients. This case highlights that, although catheter ablation is often considered a definitive treatment, pharmacological therapy can achieve effective symptom control in selected patients. In resource-limited settings where access to invasive procedures is restricted, a tailored medical approach may represent a safe, feasible, and effective alternative.

Declarations:

Ethical Approval

Informed consent was obtained from the patient's family, and they gave their written consent to use the patient's personal data for the publication of this case report and any accompanying images. Any identifiable information in images has been removed or masked.

Funding

According to the author, this article has no financial support.

Conflict of Interest

The author has no relevant financial or nonfinancial interests to disclose.

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