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Case Report

A Case of Swallow Syncope without Organic Esophageal Disease

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Summary: A 51-year-old male with swallow syncope is reported. He did not have organic esophageal disease, organic heart disease or neurologic disease. Holter monitoring showed multiple episodes of asymptomatic paroxysmal atrioventricular block and sinus bradycardia during meals. Inflation of a balloon positioned in the lower esophagus reproducibly induced atrioventricular block, sinus bradycardia and hypotension. Atropine sulfate 0.5 mg prevented atrioventricular block and hypotension. He complained of fainting and syncope with dysphagic sensation only during hasty eating. We advised him to eat slowly, and he has been followed up without anticholinergic drugs or cardiac pacing. He has not complained of fainting since discharge from our hospital.

Key words: Swallow syncope, Atrioventricular block, Sinus bradycardia

Syncope provoked by swallowing is unusual. Most cases have been reported in association with esophageal tumor[1)], isophageal diverticulum[2,3)], esophageal spasm[4)] and achalasia[5)]. There have also been reports of syncope in association with neurologic disease[6)] and with glossopharyngeal neuralgia[7)]. In most cases, syncope occurred mainly as a result of atrioventricular block and/or sinus bradycardia, sinus arrest and sinoatrial block. We report here a case of swallow syncope without organic esophageal disease.

CASE REPORT

A 51-year-old male was admitted to our hospital in August 1987 for evaluation of lightheadedness and syncope. During the 5 years prior to admission he experienced 1 to 2 syncopal attacks per month while eating. Heart rate was 74 bpm and regular; blood pressure was 116/72 mmHg. Cardiac examination, chest X-ray, echocardiogram and electrocardiogram on admission (Fig. 1A) were normal. Multiple episodes of asymptomatic paroxysmal atrioventricular block were recorded during meals by Holter monitoring (Fig. 1B). Neither esophagography without anticholinergic medication nor esophagoscopy demonstrated any abnormality (Fig. 2). Carotid sinus massage, Aschner's test and Valsalva maneuver slightly prolonged sinus cycle length but did not induce paroxysmal atrioventricular block. He achieved stage 4 of Bruce's protocol during a treadmill exercise test at a sinus rate of 180 bpm without atrioventricular block.

A balloon 15 cm in length was positioned in the lower esophagus and connected to a mercury manometer. A surface electro-

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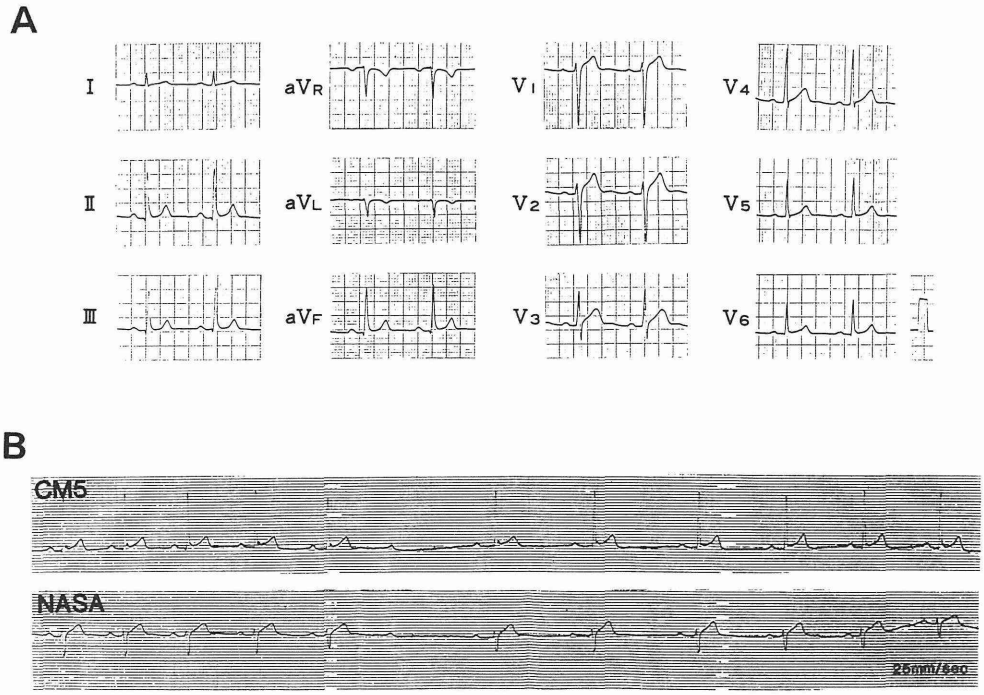

Fig. 1. The standard 12-lead electrogram revealed no abnormal finding (A). Holter monitoring showed multiple episodes of asymptomatic paroxysmal atrioventricular block during meals (B).

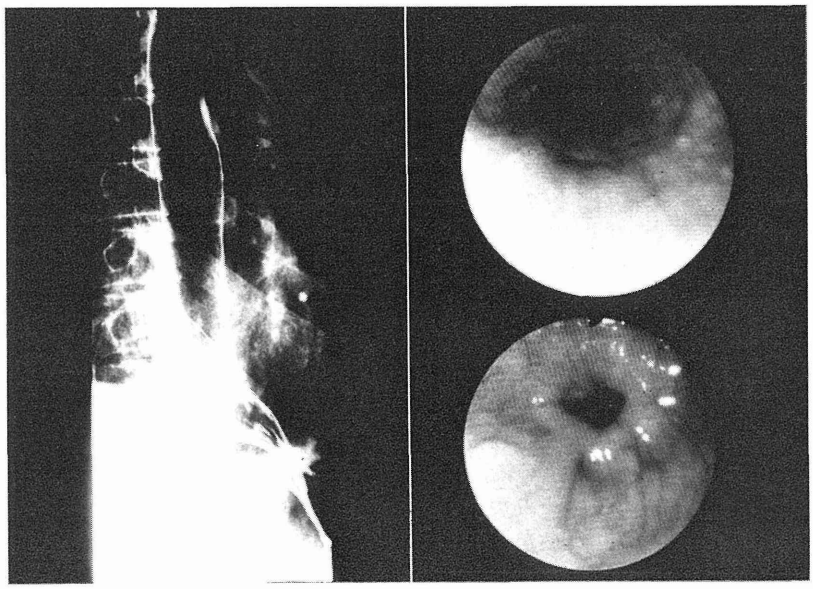

Fig. 2. Neither esophagography (left side) nor esophagoscopy (right side) demonstrated any abnormality.

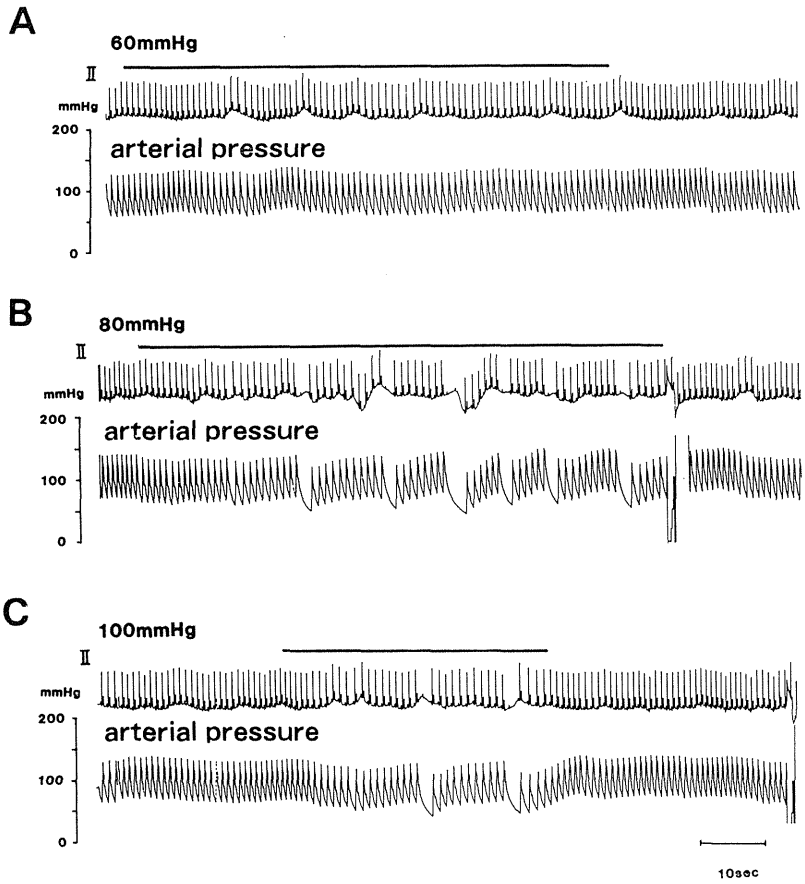

Fig. 3. The electrocardiogram and blood pressure monitoring are shown during inflation of a balloon positioned in the esophagus. Balloon inflation at a pressure of 60 mmHg induced slowing of sinus rate but did not induce atrioventricular block (A). Balloon inflation at pressures of 80 mmHg (B) and 100 mmHg (C) induced, reproducibly, sinus bradycardia, atrioventricular block and hypotension.

gram and radial arterial blood pressure were continuously monitored. At inflation pressure up to 60 mmHg, sinus rate slowed slightly, atrioventricular block did not occur, and blood pressure did not significantly change (Fig. 3A). Balloon inflation at a pressure greater than 80 mmHg induced, reproducibly, sinus bradycardia, paroxysmal atrioventricular block and hypotension (Figs. 3BC, 4). The patient complained of fainting. After administration of 0.5 mg atropine sulfate, balloon inflation at a pressure up to 100 mmHg induced sinus rate slowing and slight hypotension but did not induce atrioventricular block (Fig. 5).

The electrophysiological study at rest revealed that A–H interval was 125 msec, H–V interval was 55 msec, sinus node recovery time was 1220 msec, sino-atrial conduction time was 130 msec, AV nodal Wenckebach point was 150 beats/minute, effective refractory period of AV node was 320 msec, and functional refractory period of AV node was 390 msec. All these values were within normal range. During the

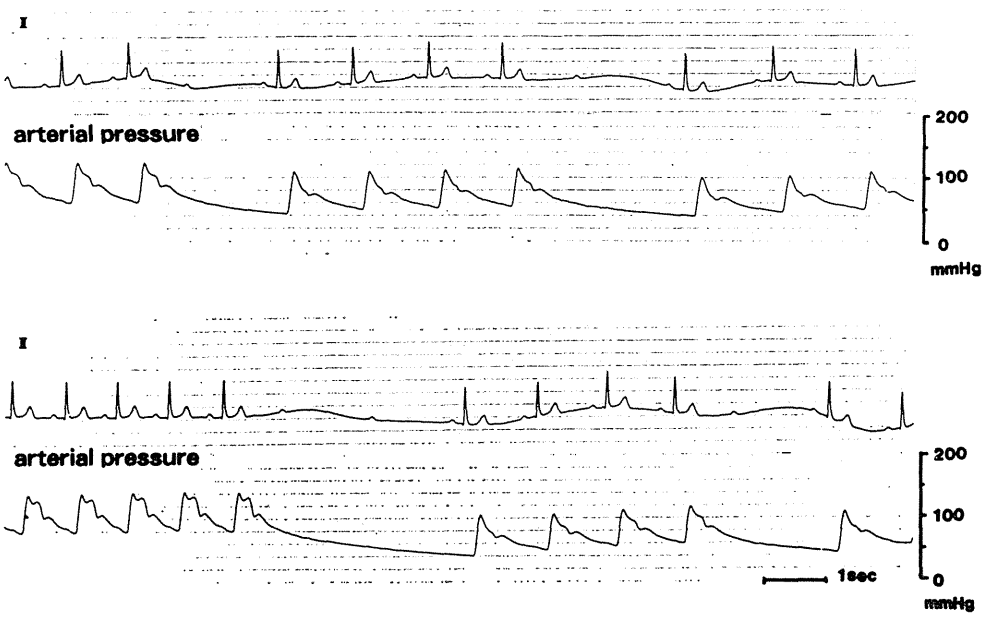

Fig. 4. Balloon inflation at a pressure of 80 mmHg induced sinus bradycardia, atrioventricular block and hypotension.

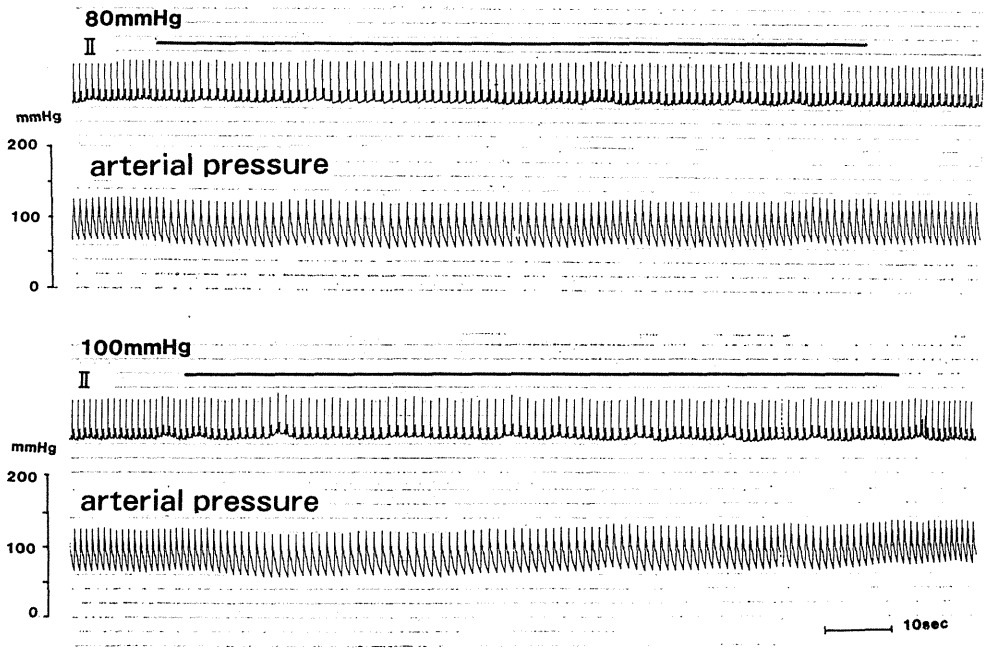

Fig. 5. After the administration of 0.5 mg atropine sulfate, balloon inflation at pressures up to 100 mmHg could not induce atrioventricular block.

electrophysiological study, a balloon was positioned in the esophagus, but atrial fibrillation refractory to procainamide up to 1200 mg was induced. Further examination could not be carried out. The right cardiac catheterization study demonstrated normal intracardiac pressure and normal cardiac output.

The patient complained of fainting and syncope with dysphagic sensation only during hasty eating. We advised him to eat slowly, and we have followed him up without cardiac pacing or anticholinergic medication. The patient has not complained of fainting or syncope since discharge from our hospital.

Discussion

Since the first report of swallow syncope by Spens[8], about 30 cases have been reported[1-14]. Most have been reported in association with esophageal disorders ranging from diverticulum[2,3] to stricture[10], spasm[4] and carcinoma[1]. Swallow syncope is a condition that probably results from an exaggeration of the vagovagal reflex. It is hypothesized that in these esophageal disorders there is a more sensitive afferent vagal barrage during swallowing. A few cases without esophageal disorder were reported in association with neurologic disorder[6], organic heart disease and/or digitalis administration[3,11,12,13]. Sapru[14] reported a case without esophageal disorder, neurologic disorder, organic heart disease or digitalis administration. Our patient was confirmed to have no organic esophageal disorder by esophagography and esophagoscopy, and no organic heart disease or conduction disturbance by cardiac examination, electrocardiogram, echocardiogram, electrophysiological study and right cardiac catheterization study. He did not receive a digitalis administration or reveal physical findings suggestive of neurological disorder. Vagotonic maneuvers other than balloon inflation in the esophagus did not induce atrioventricular block. The enhanced sensitivity of the esophageal local nervous receptor was considered to be the cause of the exaggeration of the vagovagal reflex.

In most cases syncope occurs mainly as a result of atrioventricular block and/or sinus bradycardia, sinus arrest and sinoatrial block. Our patient had sinus bradycardia and atrioventricular block upon swallowing during Holter monitoring and balloon inflation in the esophagus. The latter also induced sudden reduction of blood pressure in our patient.

There are 3 methods for the treatment of swallow syncope. One is the treatment of the esophageal disorder. Tolman *et al.*[10] reported a case of swallow syncope with esophageal stricture corrected by esophageal dilatation with metal olive dilators. A second method is intervention to neural reflexes. Anticholinergic drugs have been reported effective in most cases but the effect was inconsistent. The third method is the cardiac pacemaker.

In our patient, 0.5 mg atropine sulfate prevented atrioventricular block. He complained of fainting and syncope with dysphagic sensation only during hasty eating. We advised him to eat slowly, and we have followed him up without cardiac pacing or anticholinergic medication. The patient has not complained of fainting or syncope since discharge from our hospital. But because swallow syncope is a rarely reported and potentially lethal syndrome[8], we must continue to follow him closely.

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