CASE REPORT

Exotic Food Anaphylaxis and the Broken Heart: Sago Worm and Takotsubo Cardiomyopathy

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SUMMARY

There is increasing consumption of exotic food in Malaysia. Animals such as insects, worms and wild life animals also form part of the staple food of the local population. This practice may lead to more incidence of food allergy and anaphylaxis. We report a non-indigenous man who developed food anaphylaxis after consuming fried sago worms and consequently Takotsubo cardiomyopathy. We postulate that certain food allergy and anaphylaxis could be another causative trigger for Takotsubo cardiomyopathy.

INTRODUCTION

Takotsubo cardiomyopathy(TC) is an entity which is under recognized and presents similarly like myocardial infarction features. It predominantly afflicts the female gender and there is a readily identifiable stressor prior to the event. The triggering stressors can be emotional, medical or physical in origin. However, there is no reported case of TC developing after ingestion of sago worms with anaphylaxis reaction. It also rarely occurs in the male. We postulate that food allergy and subsequent anaphylaxis could be another triggering factor for TC.

CASE REPORT

A 46 year old Chinese man consumed about 20 sago worms three days prior to the index hospitalization episode. He claimed that it was the first time he had eaten the sago worms. The worms were washed with water and fried in a wok without the addition of cooking oil for home consumption. He was an active smoker and there was no other significant cardiovascular risk factor. There was no prior history of allergy, asthma or viral illness.

He developed generalized itchiness on his face, arms and body, and also difficulty in breathing a few hours after the ingestion of the worms. After 3 days of consuming the sago worms, his clinical status gradually worsened until he needed admission to a district hospital, presenting with chest pain and congestive heart failure(CHF) of New York Heart Association(NYHA) class IV. The cardiac enzymes were mildly raised- creatinine kinase 252(U/L), lactate dehydrogenase 740(U/L) and aspartate aminotransferase 33(U/L). There was no eosinophilia evidence in the full blood count. The notable electrocardiographic(ECG) feature was T wave inversion in the anterior precordial leads. Initial Cardiac Echo showed a left ventricular ejection fraction of 40 % with left ventricular mid segments hypokinesia and left apex akinesia. During this admission, he was treated for acute coronary syndrome(ACS) and CHF. Upon discharge from the hospital, he was prescribed acetylsalicylic acid, frusemide, carvedilol, spirinolactone and lovastatin. However, he discontinued the medications after 2 months as he felt he had recuperated well.

After stabilization of his medical problem, he was referred to our center for an elective coronary angiogram about five months later. From our assessment, he was not in failure, asymptomatic and there was normalization of the ECG. A repeat Echo at our centre showed a left ventricular ejection fraction of 53% with no regional wall motion abnormality(RWMA). Subsequently, a coronary angiogram was performed which showed normal coronary arteries. From the phone follow-up of 10th month from the index event, he remained well and adhered to our advice of not consuming sago worms again.

DISCUSSION

Sago worm is the larva of Sago Palm Weevil(Rhynchophorus ferrugineus), a type of beetle that bores into the trunk of sago trunk for food and to lay eggs. The eggs would hatch into plump yellow body larvae with dark brown hard heads. Sago trees are commonly found along the swampy freshwater areas of Sarawak on the Borneo Island and other Southeast Asia countries and actively cultivated. Hence, sago worms have became a type of delicacy amongst the indigenous people in Southeast Asia and especially the Melanaus and Dayaks in Sarawak on the Borneo Island. The sago worms can be eaten raw with the head removed or fried till become crispy and had been featured in the Fear Factor reality TV programme.

This patient obviously had bravely eaten the sago worms for the first time and developed symptoms and signs consistent with anaphylaxis [1]. However, the concomitant clinical presentation of chest pain, ECG T inversion in anterior precordial leads and mildly raised cardiac enzymes convinced the physician to treat him primarily as ACS in cardiac failure and secondarily for anaphylaxis.

Various theories and possible hormonal aetiologies have been described such as catecholamine excess [2] and serotonin excess[3] inducing this type of cardiomyopathy. It is postulated that the ingestion of the sago worms triggered a probable

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anaphylactic IgE-mediated release of mediators from mast cells and basophils [1] forming physiological stress on the body and subsequent hyperadrenergic state causing catecholamine toxicity [2] on the heart of this middle age male. The excess catecholamines could cause toxicity to the myocardium, myocardial stunning, coronary spasm and microvascular dysfunction, and inducing a peculiar stress-induced cardiomyopathy or Takotsubo cardiomyopathy or broken heart syndrome.

Takotsubo cardiomyopathy is a syndrome characterized by transient reversible systolic dysfunction of the apical and/or mid segments of the left ventricle that mimics myocardial infarction (MI), with the absence of significant obstructive coronary artery disease[2] and was first described by the Japanese in 1990. This syndrome usually afflicts postmenopausal women in 90% of reported caseseries with less than 3% of the patients younger than 50 years old [2,4]. Usually, there is preceeding medical, physical or emotional stressor such as severe sepsis state, natural calamities or shocking bad news. As about only 1-2% of all ACS cases can be attributed to this syndrome, it is most appropriate to treat them for ACS until proven otherwise as Takotsubo cardiomyopathy [2]. This patient's ECHO showed hypokinesia of the left ventricle mid segments and akinesia of the left ventricle apex which didn't correlate with any major coronary territory in the presence of a normal coronary angiogram, fulfilling the modified Mayo Clinic criteria for Takotsubo cardiomyopathy [2,4].

Clinical recovery is virtually reported in all patients in 1 to 2 months' time [2,4], consistent with his improved clinical state and self discontinuation of his medications by the second month. Although coronary angiogram ought to be done early in this patient to rule out plaque rupture or obstructive coronary artery disease, logistic problem precluded him coming to our center early. The normal coronary angiogram done 5 months after the index event and the normalized ECG and ECHO demonstrated the reversibility and transient nature of Takotsubo cardiomyopathy.

With the rising popularity of eating exotic wild life animals, insects and worms, this practice may lead to more incidence of food allergy and anaphylaxis. We report a non-indigenous man who developed food anaphylaxis after consuming fried sago worms and consequently, Takotsubo cardiomyopathy. We postulate that certain food allergy and anaphylaxis could be another causative trigger for Takotsubo cardiomyopathy.

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