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## Case Report

# Death due to choking caused by swallowing Sushi Rolls

## Abstract

Setsubun is associated with The Chinese New Year, or Lunar Calendar which was used for centuries in Japan, so this is a coming of spring festival as well as the traditional newyear. It is still an important event in Japan.

Setsubun properly refers to the day before the coming of any of the four seasons. So, this is actually spring Setsubun. Setsubun dinner is simple, sushi rolls. The proper way to eat this dinner is to face a certain direction, and eat the entire sushi roll without stopping. We experienced an autopsy case of a death due to swallowing down sushi rolls. The deceased was a 54-year-old man who was found dead in the restroom. An autopsy revealed congestive changes of organs. We report here an autopsy case.

## Introduction

The term Setsubun originally referred to the four days marking the change from one season to the other, but today only the first day of spring according to the lunar calendar is referred to by that time. Setsubun falls on February 3. On Setsubun evening, many households enjoy a bean-throwing ceremony.

People fill a wooden measure with roasted soybeans and throw them in and around their houses. This ceremony is performed to bring in good fortune and drive away evil spirits. It is customary for people to pick up and eat the same number of beans as their own age. Tradition states that you have to eat the sushi roll uncut, in one continuous go as cutting will shorten your luck.

Eating the whole long roll will bring you long-lasting, continuous luck! You must also eat the sushi roll in the lucky direction of the year. For 2016, the lucky direction is South-South-East.

The initiation of swallowing has been thought to depend on separate thresholds for food particle size and for particle lubrication [1]. The moment of swallowing, defined here as the number of chewing cycles until swallowing, will depend on the volume of the food and on the characteristics of the food, like water, fat percentage and hardness [2-5].

The moment of swallowing has been shown to be rather constant within a subject for one type of food, whereas large variations in the number of chewing cycles until swallowing

were observed between subjects [4,6,7]. Hard and dry products require more chewing cycles and longer time in the mouth until swallowing for sufficient breakdown to take place and for enough saliva to be added to form a coherent bolus safe for swallowing [8].

## Case Report

A 54 years old man was found lying with vomit in the restroom. He was cardiopulmonary arrest on arrival to the emergency department. A forensic autopsy was performed about 12h after his death. The deceased was 161cm tall and weighed 72.0kg. Postmortem rigidity was present at the jaw and upper limbs. Moderately purplish-red post-mortem hypostasis was evident on the dorsal aspect of his body and severe congestion was seen in his face and neck (Figure 1). The heart weighed 380g and contained large amounts of dark-red liquid blood in the heart. The left and right lungs weighed 510g and 610g respectively. Both lungs were edematous (Figure 2). A bolus of food consisting of rice, seaweed and vegetables was plugged in the laryngeal orifice and similar food contents were present in the esophagus (Figures 3,4). Almost all organs were congestive. We verified his death attributed to swallowing down sushi rolls.

## Discussion

Among accidental deaths in Japan, choking ranks as the number one cause with more than 4000 cases a year [9]. Approximately, half of the elderly population experience reduced activities of daily living (ADL) and/or swallowing function, and approximately one-fifth have some type of disorder that

affects daily living [10]. When a liquid is swallowed all at once, a bolus is formed in the oral cavity, and a swallowing reflex is triggered before the bolus reaches the pharynx. However, when eating solids, the bolus mixes with saliva during chewing and is actively delivered to the oropharynx by the tongue, followed by swallowing [11-14]. Since the main cause of aspiration is a delayed swallowing reflex, triggering the swallowing reflex early may present a method to prevent aspiration and choking [15]. On February 3<sup>rd</sup>, people in Japan celebrate Setsubun, the coming of spring. Special sushi rolls are eaten while facing the auspicious direction for that year. After dinner, roasted soy beans are thrown out the front door of the house to cast out



Figure 1: Strongly congestion was showed in his face and neck.



Figure 2: Both lungs were edematous.



Figure 3: A lot of rice, seaweed and vegetables were contained. (Pharyngolarynx)



Figure 4: A lot of rice, seaweed and vegetables were contained. (Esophagus).

demons, disease and bad fortune, and welcome spring and a new year of good fortune. Basically, fortune rolls are just big fat sushi rolls eaten at this special time of year. They are a combination of special ingredients, put in rice, wrapped in seaweed. Fortune rolls are usually fatter than standard rolled sushi. Mochi is a traditional Japanese food and an important festive feature during the New Year's holiday. Choking due to Mochi were reported especially among the elderly [16,17]. We showed a first choking case accompanied with the Japanese traditional event, Setsubun.

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