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Choking or Café Coronary Syndrome: A Series of Three Sudden Death Cases

الاختناق أو متلازمة الشريان التاجي (متلازمة كافيه القلبية): سلسلة من ثلاث حالات وفاة مفاجئة

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Abstract

Death by Café' coronary syndrome is very rarely seen and at the same time challenging to interpret at the autopsy. We highlight the importance of autopsy in such cases and solve Café coronary at autopsy.

Café coronary syndrome was first reported as sudden collapse at restaurants while dining. Death was attributed to neurogenic cardiac arrest due to food in the upper airway and reflex vagal inhibition. Many of those individuals had consumed large amounts of alcohol before the incident. We present a series of three cases of sudden death by Café coronary in which food accidentally lodged in upper airways and collapsed suddenly without showing signs of asphyxia. Different risk factors were observed in all cases, including obesity as one of the associated risk factors for such incidence.

This paper underlines the significance of detailed autopsy and reliable history given by the witnesses related to death occurring by Café coronary syndrome.

Keywords: forensic sciences, forensic pathology, sudden death, café coronary, choking, reflex vagal inhibition, autopsy.

المستخلص

نادرًا ما تُرى الوفاة بسبب متلازمة الشريان التاجي (متلازمة كافيه القلبية)، وفي الوقت نفسه يصعب تفسيرها عند تشريح الجثة. ونسلط الضوء في هذه الورقة على أهمية التشريح في مثل هذه الحالات للتعرف على متلازمة الشريان التاجي عند التشريح.

تم الإبلاغ عن متلازمة الشريان التاجي لأول مرة على أنها انهيار مفاجئ في المطاعم أثناء تناول الطعام. تُعزى الوفاة إلى السكتة القلبية العصبية بسبب وجود طعام في مجرى الهواء العلوي وتثبيط المبهم المنعكس. وقد استهلك العديد من هؤلاء الأفراد كميات كبيرة من الكحول قبل وقوع الحادث. نقدم سلسلة من ثلاث حالات وفاة مفاجئة بسبب متلازمة الشريان التاجي، حيث استقر الطعام عن طريق الخطأ في المسالك الهوائية العليا وانهار فجأة دون ظهور علامات الاختناق. وقد لوحظت عوامل خطر مختلفة في جميع الحالات، بما في ذلك السمنة باعتبارها واحدة من عوامل الخطر المرتبطة بمثل هذه الحالات.

تؤكد هذه الورقة أهمية تشريح الجثة التفصيلي والتاريخ الموثوق الذي قدمه الشهود فيما يتعلق بالوفاة التي حدثت بسبب متلازمة الشريان التاجي.

الكلمات المفتاحية: علوم الأدلة الجنائية، علم الأمراض الجنائي، الموت المفاجئ، متلازمة الشريان التاجي، الاختناق، تثبيط العصب الحائر اللاإرادي، تشريح الجثة.

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1. Introduction

Café coronary is a condition in which the usual presentation of the case is sudden and unexpected death occurring during a meal due to accidental occlusion of the airway by food. Because of its suddenness and occurrence in middle-aged or older people, doctors usually attribute death to coronary artery disease. Most of the time, the victim is found in the restaurant. Haugmen gave the term Café coronary in 1963 for such deaths [1-3].

Commonly, the victims are well-nourished people who died suddenly while taking meals without any symptoms of respiratory distress. Signs of choking are absent, and the cause of death is reflex vagal inhibition of the heart. The suddenness of the death is most marked. Predisposing factors for Café coronary include mainly poor or absent dentition and diminished swallowing reflex. Due to inhibited gag reflex, the food remains in there and stimulates the recurrent laryngeal nerve, a branch of the vagus nerve, which causes reflex inhibition of the heart [4]. Here, we report three cases of Café coronary syndrome where sudden death occurred due to food particles inside the respiratory passage without showing signs of asphyxia.

2. Cases

2.1. Case Presentation 1

A two-year-old female suddenly fell unconscious at a railway station and was declared dead on arrival in the emergency department of the tertiary care hospital. The dead body was shifted to the mortuary for medico-legal autopsy. At autopsy, the dead body of the female weighed 9.8 kg and measured 73 cm in length. Post mortem staining was present over the back and dependent parts of the body, and it was found to be fixed. Rigor mortis was present over the whole body. No external injury was observed over the body.

On internal examination, the lumen of the trachea showed the presence of one piece of black gram measuring 1.1 cm x 0.6 cm x 0.5 cm just above bifur-

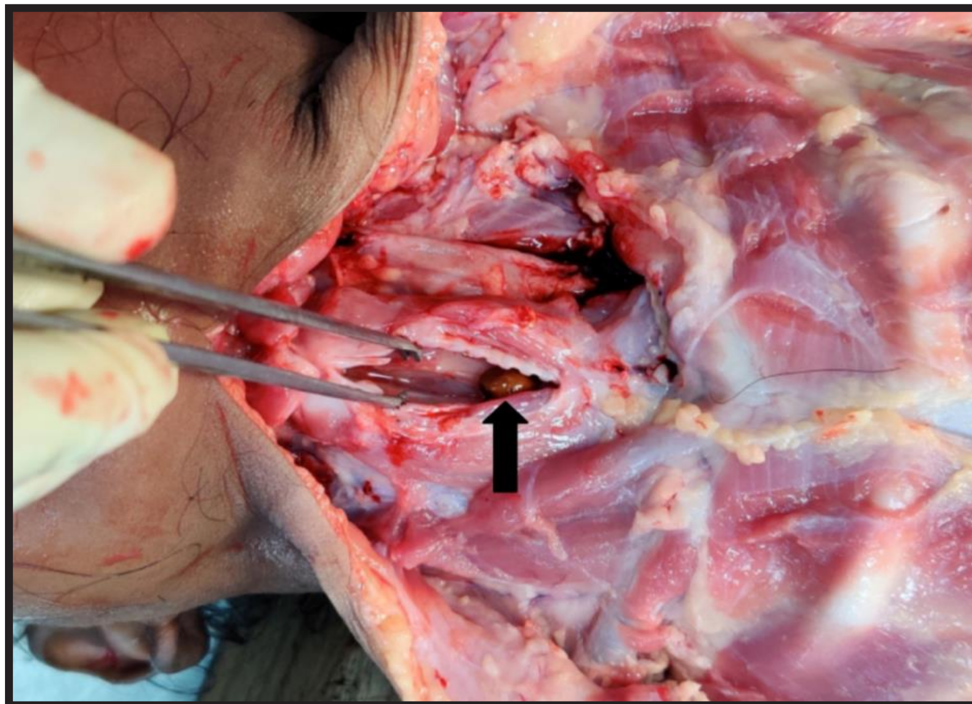

Figure 1- *Black Gram (himmas aswad) lodged in the trachea just above bifurcation (black arrow)*

cation, Figure 1. Gross features of asphyxiation were absent. On the cut section, all the lungs' lobes were congested. No abnormal finding was noted in the heart grossly. The stomach contained about 10gm food particles, mainly consisting of black grams. Similar food particles were also identified in the oral cavity and the esophagus. All other internal organs were congested on the cut section, and female reproductive organs were unremarkable. The toxicological profile was negative for any poison/intoxication/drug.

2.2. Case Presentation 2

A 22-year-old male fell quietly immediately after eating at feast without showing signs of any air hunger or difficulty in breathing. He was brought to a nearby hospital, where he was declared dead, and his body was sent for medico-legal examination. The relatives gave a history of psychiatric illness and binge eating. The deceased was moderately body built, weighing 68kg and measuring 164cm. Post mortem staining was present over the back of the body, and it was found to be fixed. Rigor mortis was present over the whole body. No external injury was present over the body.

On further examination, a large bolus of food (banana) was observed extending from the oro-pharynx to vocal cords, almost wholly blocking airways, Figure 2. Mucoid secretions were present in the trachea. On the cut section, all the lungs' lobes were congested. No abnormal finding was noted in the heart grossly. The stomach contained about 600 gram chewed food material with some banana pieces were appreciable. All internal organs were congested. The toxicological profile was adverse for any poison/intoxication/drug.

2.3. Case Presentation 3

A 36-year-old adult female fell unconscious while eating at home. She was taken to tertiary care Hospital, where she was declared brought dead.

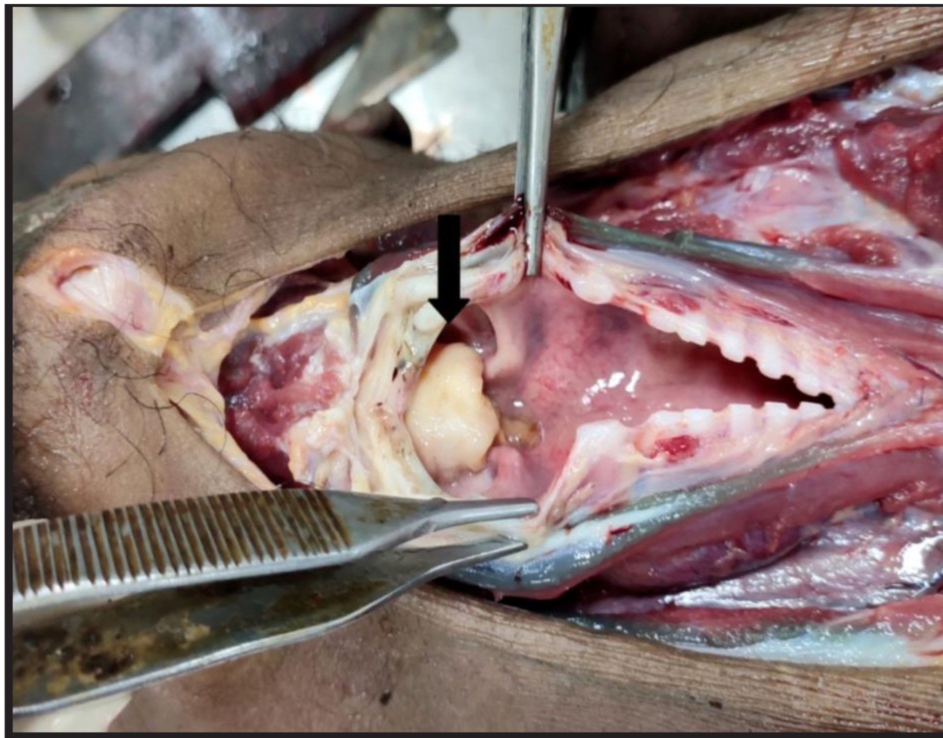

Figure 2- *Banana piece lodged in the larynx (black arrow)*

The deceased was morbidly obese, weighing 92kg and measuring 151cm on external examination. Post mortem staining was present over the back of the body; it was found to be fixed. Rigor mortis was present over the whole body. No external injury was present over the body.

On internal examination, the oropharynx and larynx showed the presence of a large bolus of food, showing a mixture of incompletely chewed pieces of rice and pulse and blocking lumen (Fig. 3). The trachea was filled with mucoid secretions mixed with food material. The heart and rest of the organs showed no significant abnormality. The stomach contained 500 grams of partially digested yellowish food material with chewed rice and pulse pieces. The toxicological profile was negative for any poison/intoxication/drug.

3. Discussion

Café coronary term is misleading as suddenness, and rapid death usually suggest an acute heart attack. The triggering event in such a condition is the presence of food material in the internal airways, usually between the pharynx and the bifurcation of the trachea [3]. Poor or absent dentition is the most critical risk factor for lodging food material in the air passage. The second most crucial factor is impaired swallowing and/or cough reflex due to neurological disease or intoxication from various substances, alcohol being the most typical [1], and obesity [5].

The mechanism of sudden death in Café coronary has been debated. Various mechanisms have been proposed in the literature. The most accepted mechanism is related to reflex vagal inhibition causing cardiac arrest. It is produced by stimulating the superior laryngeal nerve by food particles in the respiratory passage. Some authors have also suggested the possibility of cardiac arrest accelerated by excess catecholamine release from adrenaline response [6]. Death due to food material in the re-

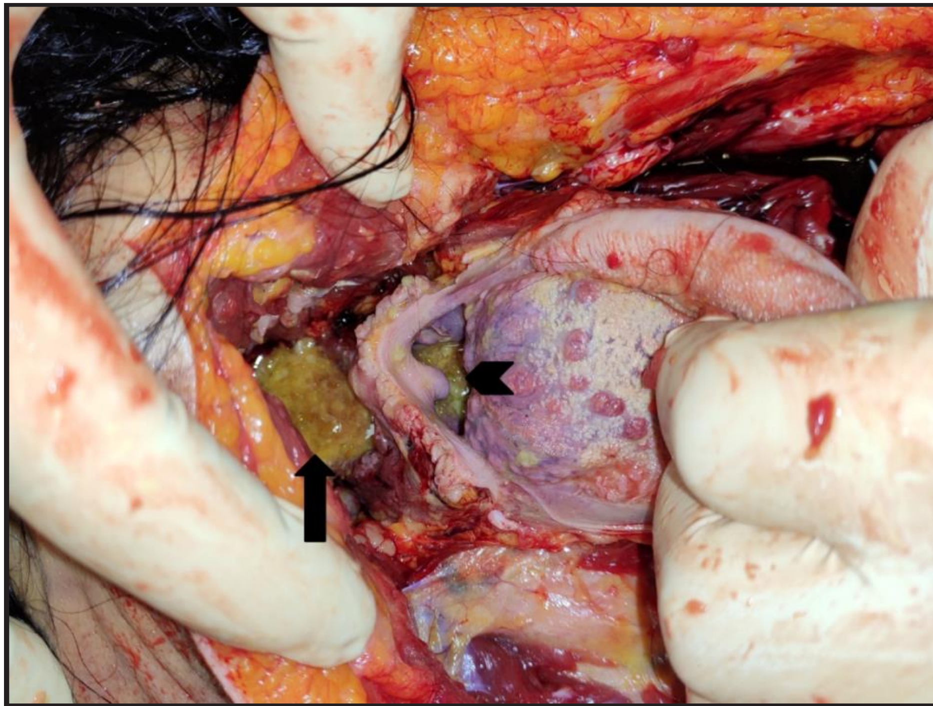

Figure 3- *Bolus of food having non-masticated and undigested particles of rice and pulse in oropharynx and larynx (black arrow)*

spiratory passage at autopsy could indicate death either by Café coronary or Choking. In case of death by choking, a large bolus of food occludes respiratory passage and produces signs of respiratory distress or any of the classical signs of asphyxia. The findings of intense air hunger, gag reflex, and coughing are very prominent in choking. In contrast, death due to Café coronary is always accidental.

Children's most expected age group is observed between 1-3 years due to incomplete dentition. A similar finding was observed in the first case of the present series [7]. Older people are more susceptible to Café coronary because of impaired swallowing reflex and poor dentition or dentures [1]. Literature also suggests that the most familiar age groups so far affected are the 5th-7th decade of life with male preponderance [8, 9]. However, both the adults were in the 2nd and 3rd decade of life in the present series.

Psychiatric patients are also at risk for an episode of food lodging in the airway and subsequent death. In their study, S.J. Hwang et al. revealed that the annual death rate because of food lodgment was 5.05 per 1,000 persons, which was 2.9 times higher than the general population [10]. Several risk factors in people with mental illness are associated with poor eating habits, impaired dentition, co-morbid neurological diseases [11], dysphagia, aging, use of antipsychotics, and extrapyramidal syndromes [9]. Similar findings were noted in the second case of the current series; a history of poor eating habits and impaired dentition was present. Obesity has also been suggested as a potential risk factor associated with poor swallowing reflex and dysmotility of the esophagus, making them prone to the adverse event which was observed in the third case of the present series [5].

Varied types of food material with different consistency are reported in the literature. Food can be found as a single bolus or multiple boluses in the lower airway. Nuts are the most typical food material among children [6], while meat and meat products represent two-thirds of the bolus material. Wearers of dentures are at significantly higher risk [8]. We found black gram, banana, and rice mixed with the pulse in the first, second, and third cases in the present case series, respectively. Carina is the most standard site in the trachea for foreign body lodgment in children. Similar findings were noted in the first case. In adults, the most ordinary place has been observed to be the hypo-pharynx and supra-glottis region which is consistent in the second and third cases of the present series [6].

Typical findings in all three cases discussed here include the presence of food particles inside the respiratory passage without any intoxication or any fatal illness. In the first case, this occurred due to undeveloped molars, which help in chewing. In the second case deceased was mentally unstable and binge eater, and in the third case deceased was an obese female and binge eater [5]. It is essential to highlight that there was no air hunger, coughing, or breathing difficulty as suggested from the history given by the witness and minimal or absent features of asphyxia at autopsy in all three cases suggestive of death by Café coronary instead Choking.

4. Conclusion

Sudden collapse during or after taking food materials should always raise the possibility of Café coronary. Poor or absent dentition and altered swallowing reflex are precipitating factors. It could be a consequence of psychiatric or neurologic disease and people without mental disorders either due to intoxication or obesity. Autopsy demonstration of food material in the respiratory passage should be coupled with reliable clinical history, ruling out any other pathology and toxicological evaluation of the cases.

Conflict of interest

The authors declare no conflicts of interest.

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