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焦點個案 Incident in Focus

河豚毒素中毒 Tetrodotoxin Poisoning

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事故摘要

二零零七年三月，廣東湛江市爆發因進食雲斑裸頰鰕虎魚的食物中毒事故，有一名村民死亡。

雲斑裸頰鰕虎魚(拉丁學名: *Yongeichthys criniger*) 屬於鰕虎科，是含有“河豚毒素”的少數鰕虎魚之一。河豚毒素亦會存在於部分河豚內。這種有毒的鰕虎魚與同屬一科可供人食用的彈塗魚例如大彈塗魚(拉丁學名: *Boleophthalmus pectinirostris*) 外形相似，後者在中國是一種十分常見而沒有毒性的食用魚類。因此，有些人最初以為村民因進食彈塗魚而中毒。

含河豚毒素的鰕虎魚品種在本港十分少見，以往從沒報告市面上出售的食用鰕虎魚品種含有河豚毒素。

什麼是河豚毒素？

河豚毒素是一種毒性強烈的海洋生物神經毒素，因經常與魷形目的河豚有關而得名。河豚(見插圖)和刺規是含河豚毒素的魷形目常見魚類。此外，這種毒素亦會存在於鰕虎魚、貝類海產、加州蠔蝦、鸚哥魚、斑蟊屬蛙類、藍紋章魚、海星、神仙魚和扁蟹等其他動物品種。

專家相信，河豚毒素很可能是由經常與海洋生物有關的海洋細菌所產生。以河豚來說，河豚毒素主要分布在卵巢(魚卵)、魚肝和魚皮，而魚肉則通常不含毒素。不過，一些有毒的鰕虎魚，例如雲紋裸頰鰕虎魚(拉丁學名: *Yongeichthys nebulosis*)，其魚肉亦含有河豚毒素。

河豚毒素非常耐熱，因此在烹煮和乾燥等食物配製過程後多會仍然留在魚組織內，所以吃河豚和刺規等含有河豚毒素的魚類是十分危險的。



插圖：一些有毒的河豚品種；左圖：月尾兔頭魷(拉丁學名: *Lagocephalus lunaris*)；右圖：黃鰭多紀魷(拉丁學名: *Takifugu xanthopterus*) (由漁農自然護理署提供)

河豚毒素的毒性

人們攝入約1~2毫克河豚毒素便可致命。另外，專家估計只需0.2毫克河豚毒素便可令人出現

Illustrations: Some species of poisonous puffer fish. Left, Green rough-backed puffer (*Lagocephalus lunaris*); right, Yellow fin puffer (*Takifugu xanthopterus*) (courtesy of Agriculture, Fisheries and Conservation Department)



焦點個案

Incident in Focus

中毒症狀。河豚毒素中毒症狀通常會在病者吃下毒素後10至45分鐘出現，但亦可延至三小時或以上。病者會覺得面部及手腳感覺異常，隨後可能出現眩暈或麻痺，亦可能會有噁心、嘔吐、腹瀉和上腹疼痛。病者繼而可能會有呼吸急速等呼吸症狀，並可能出現低血壓、抽搐和心律不正。一般而言，病者的神志會一直保持清醒，直至死亡前的一段短時間，而死亡通常在進食後的六小時內發生。所有人類均可受河豚毒素中毒所影響。現時並無已知的解毒劑或抗毒素可消解河豚毒素，因此症狀的療法均屬支持性質。

不同品種河豚的毒性不同，毒素在組織的分布情況亦有異。此外，河豚的毒性和毒素成分亦偶爾會因季節和水域的差異及每條魚的獨特性而不同。人們可能只吃了小量河豚，便出現河豚毒素中毒症狀。

本港的河豚毒素中毒個案

本港亦有河豚毒素中毒個案，但為數不多。過去三年，向衛生署呈報的由河豚毒素引致的食物中毒個案共有五宗，受影響人士有12名，其中四宗(涉及11人)與進食河豚有關，另一宗(涉及一人)則懷疑與進食刺規魚乾有關(見插圖)。該名病者在飲用刺規魚乾湯後出現與河豚毒素中毒吻合的症狀。



插圖：刺規魚乾 (由香港中毒諮詢中心提供)

Illustration: Dried porcupine fish (courtesy of Hong Kong Poison Information Centre)

給業界和消費者的意見

在本港，市面上出售的所有食物必須適宜供人食用，業界應特別留意魚類及魚製品的進口與銷售，確保可供安全食用。至於消費者，則應避免購買及自行割洗河豚、刺規或不知名魚類進食。

更多資料

有關魚類品種的更多資料，請瀏覽漁農自然護理署管理的香港海水魚資料庫。

鳴謝

承蒙漁農自然護理署及香港中毒諮詢中心批准使用有關照片，謹此致以衷心謝意。

Tetrodotoxin is heat-stable and therefore likely to remain in fish tissue after food preparation steps (e.g. cooking and drying). Eating fish containing tetrodotoxin such as puffer fish and porcupine fish can therefore be hazardous.

Toxicity of Tetrodotoxin

In human, the lethal dose of tetrodotoxin is around 1 to 2 mg and the minimum dose necessary to cause symptoms has been estimated to be 0.2 mg. The onset of symptoms of tetrodotoxin intoxication usually occurs from 10 to 45 minutes after ingestion, but may be delayed by three hours or more. Paraesthesia appears in the face and extremities, which may be followed by dizziness or numbness. Nausea, vomiting, diarrhoea and epigastric pain may also be present. Later, respiratory symptoms such as rapid breathing may follow. Low blood pressure, convulsions and irregular heart rate may occur. In most instances, the patients retain consciousness until shortly before death, which usually takes place within the first six hours. All humans are susceptible to tetrodotoxin poisoning. There are currently no known antidotes or antitoxins to tetrodotoxin. The treatment of symptoms is therefore supportive.

There are differences in toxicity and toxin distribution in tissues among different puffer fish species. In addition, seasonal, individual and local variations of toxicity and toxin composition in puffer fish are occasionally observed. Tetrodotoxin poisoning may be caused by ingestion of only a small amount of puffer fish.

Past Tetrodotoxin Poisoning Cases in Hong Kong

Local cases of tetrodotoxin poisoning occur but are uncommon. In the past three years, there had been five cases of food poisoning, affecting twelve people, due to tetrodotoxin reported to the Department of Health. Of these, four cases (involving eleven people) were related to the consumption of puffer fish and the other one (affecting one person) was suspected to be related to the consumption of dried porcupine fish product (see illustration). The patient developed symptoms compatible with tetrodotoxin poisoning after consuming a soup made from dried porcupine fish.

Advice to the Trade and Consumers

In Hong Kong, all food available for sale on the market must be fit for human consumption and the trade should pay particular attention to the import and sale of fish and fish products to ensure they are safe for consumption. Consumers are advised to avoid purchasing, and dressing puffer fish, porcupine fish or unknown fish for consumption on their own.

Further Information

Further information on the fish species may be available from the [Hong Kong Marine Fish Database](#) maintained by the Agriculture, Fisheries and Conservation Department.

Acknowledgement

Kind permission for the use of photographs by the Agriculture, Fisheries and Conservation Department and the Hong Kong Poison Information Centre is gratefully acknowledged.

風險傳達
工作一覽
Summary of Risk Communication Work

風險傳達工作一覽 (二零零七年三月) Summary of Risk Communication Work (March 2007)	數目 Number
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食物中的致敏物 Allergens in Food

食物安全中心風險傳達組
科學主任游天頌先生報告

Reported by Mr. Arthur YAU, Scientific Officer
Risk Communication Section, Centre for Food Safety



插圖：會令人過敏的食物例子

Illustration: Examples of food that are allergenic

對於患有食物過敏症人士，生活可一點都不容易。當大部分人能夠隨心所欲地享用汽水、堅果、麵包、粉麵和點心等常見食品時，他們的情況卻截然不同。不少患有食物過敏症人士須自行“偵察”他們想吃的食物會否含有令他們致敏的物質。如果偵察行動失敗，他們便得承受苦果。歐洲研究顯示，約有1~3%的成年人及4~6%的兒童患有食物過敏症。

什麼是食物致敏物？

食物致敏物指可引致食物過敏症的食物，而此症可令過敏人士出現免疫反應。目前，有超過70種食物據稱會令人過敏，包括含有麩質的穀類、甲殼類動物、蛋類、魚類、奶類、木本堅果、花生和大豆以及這些食物的製品。有些食物添加劑亦會引致食物過敏症，最常見例子就是亞硫酸鹽。大部分食物過敏症都是由這八類致敏物所引致的。此外，食物亦可能會導致人們出現異常反應而沒有產生免疫反應。舉例來說，對乳糖耐受不良的人在喝牛奶後可能會出現腹瀉。確切來說，這些反應可稱為食物不耐受。

為什麼食物致敏物對某些人那麼重要？

患有食物過敏症人士會對大部分人不受影響的食物致敏物出現不良反應，即使致敏物的分量很少。在最嚴重的病例中(anaphylaxis)，患者可在接觸致敏物後的數分鐘內出現嚴重的全身性過敏反應，可影響人體多個部位，例如呼吸道、肺部、腸胃道和皮膚。患者須馬上接受診治，以免出現嚴重後果。至於其他常見過敏反應，則包括嘔吐、腹痛、哮喘、鼻炎、血管性水腫和蕁麻疹等。這些症狀雖然不會致命，但卻會令過敏人士感到不適。

為什麼難以知道食物中是否含有致敏物？

在很多情況下，致敏物質通常是預先包裝食物的主要配料，因此已在配料表中清楚標示。不過，它們有時卻會以其他名稱在配料表上出現，例如卵磷脂這種乳化劑可以由大豆製成，而乳清蛋白則來自牛奶。令情況更複雜的是，殘留的致敏物可能會滲進由同一生產線生產的下一批食品，令通常不含致敏物的食品受到污染。同類情況亦會發生在製造食物配料的過程中。

食物業如何處理這問題？

食物製造商應確保標籤上的資料正確無誤，符合本港有關標示食物致敏物的規管規定。以下三點有助業界人士更準確地標示食物致敏物：(1) 了解所採用的配料和食物添加劑會否含有致敏物；(2) 小心規劃生產程序，防止致敏物污染，並採取妥善的清潔程序；(3) 如不能避免致敏物污染，應在標籤上註明。

Life can be difficult for people suffering from food allergy. While most people can enjoy at will common food items like soft drinks, nuts, bread, noodles and dim sum, the situation for allergy sufferers is rather different. Many allergy sufferers have to do their own “detective work” to figure out whether substances they are allergic to are present in the food they wish to eat. If their detective work fails, they will suffer badly as a result. Studies in Europe showed that about one to three percent of the adults and four to six percent of children suffer from some types of food allergies.

What are Food Allergens?

Food allergens are food that can cause food allergies, where they cause an immunologic response in sensitive individuals. There are more than 70 types of foods that are reported to be allergenic. They include cereals containing gluten, crustaceans, eggs, fish, milk, tree nuts, peanuts and soybeans and their products. In addition, some food additives can also cause food allergy. The most common one is sulphite. These eight groups of allergens cause the bulk of the food allergy cases. Besides, people may also have abnormal reactions to foods without involving an immunologic response, such as those individuals who are intolerant to lactose may develop diarrhoea after taking milk. These reactions are more accurately described as food intolerance.

Why are Food Allergens so Significant to Some People?

People who suffer from food allergy may develop adverse reactions to the food allergen, even in minute quantity, that are otherwise perfectly normal to the rest of the population. In the worst case, anaphylaxis, which is a severe systemic allergic reaction involving many parts of the body like airway, lung, gastrointestinal tract and skin can occur minutes after contacting an allergen. Immediate medical attention is necessary in these cases to prevent serious consequences. Other common allergic reactions include vomiting, abdominal pain, asthma, rhinitis, angioedema, urticaria, etc. Although not fatal, they do inflict sufferings to allergic persons.

Why is it Difficult to Tell Whether a Food Contains Allergens?

In many cases, the allergenic substances are often major ingredients in prepackaged food and therefore their presence should have been clearly indicated on the ingredient list. However, the allergenic substances sometimes lurk behind other names in the ingredient list. For instances, lecithin, an emulsifier, can be produced from soybean whereas whey protein originates from milk. To make things more complicated, the traces of allergens may get carried over into the next product manufactured on the same production line, and therefore contaminating the product which normally does not contain allergens. The same scenario can also apply to the manufacturing of food ingredients.

How can the Food Trade Address the Issue?

Food manufacturers should ensure that the labelling is accurate and fulfils the local regulatory requirement on the labelling of food allergens. Accuracy of food allergen labelling can be improved by (1) knowing whether the ingredients and food additives used contain allergens; (2) careful production planning, prevention of allergen contamination and proper cleansing procedures; (3) indicating on the label when contamination with allergen is unavoidable.

食物安全平台
Food Safety Platform

《食物及藥物(成分組合及標籤)(修訂)規例》已於二零零四年七月制定。所有預先包裝食物如含有上述八類致敏物，必須按照該規例的規定標示。為期三年的寬限期將於二零零七年七月九日前屆滿。患有食物過敏症人士從此可減少偵察行動，生活可變得更輕鬆！

With the enactment of the Food and Drugs (Composition and Labelling) (Amendment) Regulation in July 2004, all prepackaged food are required to indicate the presence of the eight allergens according to the requirements of the Regulation. The three-year grace period will lapse on 9 July 2007. People who suffer from food allergy will have less detective work to do and have an easier life!

食物事故點滴
Food Incident Highlight

腎病患者應避免進食楊桃

鑑於有兩名慢性腎衰竭病人在進食楊桃後出現打嘔、嘔吐、神志不清和肌肉抽搐等中毒症狀，澳門衛生局在二零零七年三月十四日呼籲腎病患者避免進食楊桃或含楊桃的食品。

巴西、台灣、香港和中國內地均曾發生慢性腎衰竭病人因進食楊桃而中毒的個案。一般相信，楊桃含大量的草酸鹽和中量的鉀，並可能含有一種對腎病患者有害的毒素。此外，過去亦有身體健康的人在空腹及脫水狀況下喝大量酸楊桃汁引致中毒。

腎衰竭病人或腎功能欠佳的人應避免進食楊桃及其製品。



插圖：楊桃

Illustration: Star Fruit

Patients Suffering From Kidney Diseases Should Refrain From Eating Star Fruit

On 14 March 2007, Macau Health Bureau alerted public with kidney diseases to avoid eating star fruit or products containing star fruit. The alert arose when two patients with chronic renal failure developed symptoms of intoxication (including hiccup, vomiting, impaired consciousness and muscle twitching) after eating star fruit.

In the past, poisoning cases in relation to consumption of star fruit have been reported among patients with chronic renal failure in Brazil, Taiwan, Hong Kong and Mainland China. It is thought that star fruit contains high oxalate and moderate potassium contents, and might contain a toxin which could be harmful to patients suffering from kidney diseases. Poisoning has also been reported among healthy individuals who ingested a large amount of sour star fruit juice on an empty stomach and in a dehydrated state.

Individuals with renal failure or impaired renal function are advised to refrain from eating star fruit and its products.

鯪魚膽引致的中毒事件

衛生署近日報告，一名婦人在進食燉鯪魚膽後出現急性肝腎衰竭而入院。

鯪魚及部分其他鯉科魚類的魚膽與人們出現由膽汁引致的肝炎及腎功能衰竭有關。這種急性中毒相信是由與鯪醇相關的化學物所引致。這些化學物不會透過烹煮過程消除，可影響肝臟、腎臟和心血管系統，有些個案更會損害中樞神經系統，以往曾有死亡案例。

由於鯉科魚類(包括鯪魚(又稱草魚)、鯉魚、鯪魚、青魚、鯽魚、鱧魚(又稱白鱧)及大頭(又稱花鱧或鱮魚)等)的魚膽含有毒物質，市民切勿進食其魚膽。



插圖：鯪魚

Illustration: Grass Carp

Poisoning Caused by Grass Carp Gall Bladder

The Department of Health recently reported that a woman was hospitalised with acute renal and liver failure following consumption of a stewed grass carp gall bladder.

Gall bladders of grass carp and some other species of the family Cyprinidae have been associated with bile-induced hepatitis and renal failure in human. Such acute poisoning is believed to be caused by chemicals related to cyprinol. These chemicals could not be destroyed by cooking, and can affect liver, kidney, cardiovascular system, and in some cases, the central nervous system. Death was also reported.

As the gall bladders of the members of the carp family, including grass carp, common carp, mud carp, black carp, edible goldfish, silver carp and big head, contain the toxic substances, the public should not consume their gall bladders.