Feature:
Food poisoning outbreaks suspected to be related to calcium oxalate raphides

Review of scarlet fever, 2009-2010

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Food poisoning outbreaks suspected to be related to calcium oxalate raphides

Reported by Dr YH Leung, Medical Officer, Field Epidemiology Training Programme, Surveillance and Epidemiology Branch, CHP

Consumption of plants containing calcium oxalate raphides is known to cause local irritation in oral cavity. In the past few years, the Centre for Health Protection (CHP) received reports of food poisoning outbreaks showing compatible clinical and epidemiological features caused by calcium oxalate raphides. We review the epidemiology of the cases recorded from 2008 to 2011. As of March 7, 2011, CHP recorded a total of 34 reports (8, 11, 10 and 5 reports in 2008 to 2011 respectively) affecting a total of 48 persons. There was no obvious seasonal pattern (Figure 1).

The 48 affected persons included 29 females and 19 males with a median age of 42 years (range: 16 to 70 years). The number of affected persons in each report was typically small with 1-3 (median = 1) persons affected. The most common presenting symptoms included numbness/burning sensation of the tongue (77%), mouth (60%) or lips (23%) and swelling of tongue/lips (21%) which usually occurred immediately or within 15 minutes after consumption of the suspected food item. Gastrointestinal symptoms such as abdominal pain, nausea or diarrhoea were not commonly reported (Table 1). Thirty-three (69%) patients attended Accident and Emergency Department or general practitioner for treatment.

Table 1 - Clinical presentation of the 48 patients.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Number of patients (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Numbness or burning sensation of</td>
<td>37 (77%)</td>
</tr>
<tr>
<td>Tongue</td>
<td></td>
</tr>
<tr>
<td>Mouth</td>
<td>29 (60%)</td>
</tr>
<tr>
<td>Lips</td>
<td>11 (23%)</td>
</tr>
<tr>
<td>Swelling of tongue/lips</td>
<td>10 (21%)</td>
</tr>
<tr>
<td>Gastrointestinal symptoms</td>
<td>6 (13%)</td>
</tr>
<tr>
<td>Nausea</td>
<td>5 (10%)</td>
</tr>
<tr>
<td>Abdominal pain</td>
<td>4 (8%)</td>
</tr>
<tr>
<td>Diarrhoea</td>
<td>2 (4%)</td>
</tr>
</tbody>
</table>

Figure 1 - Food poisoning outbreaks suspected to be related to food containing calcium oxalate raphides, 2008 to 2011 (As of March 7, 2011).

Summary of D222G mutation in pandemic influenza A (H1N1)2009

D222G mutation in pandemic influenza A (H1N1)2009 (pH1N1) virus was first reported in three (two fatal and one with severe illness) cases of pandemic influenza in Norway in November, 2009. The same mutation was subsequently detected in pH1N1 viruses in some other countries including Brazil, Mainland China, Japan, Mexico, Ukraine, and the United States.

The Public Health Laboratory Services Branch of CHP so far detected 14 sporadic cases of D222G mutation among over 500 pH1N1 viruses tested, 9 in 2009, 4 in 2010 and 1 in 2011. They were 5 men (Continue on page 20).
while only three (6%) of them required hospitalization. All patients recovered.

The suspected food items consumed by the patients included different types of vegetables. Water spinach (7 cases), Chinese white cabbage (3 cases) and Chinese flowering cabbage (3 cases) were more commonly reported. As most of the vegetables claimed to have been consumed by the patients are not supposed to contain calcium oxalate raphides, it is postulated that the vegetables might have been mixed with small amount of oxalate raphides-containing plants. Available food remnants/food samples collected were tested negative for pesticides including carbamates and organophosphate. In one report in 2008, two persons (one male and one female, aged 16 and 41) consumed soup containing some plants provided by a relative from the Mainland developed typical symptoms immediately after chewing the plant. They attended Accident and Emergency Department of a public hospital and recovered uneventfully without hospitalization. Microscopy identified raphide crystals in both the food sample and remnant. The plant was subsequently morphologically identified as Alocasia macrorrhiza (also known as wild taro).

Calcium oxalate raphides are needle-shaped crystals contained in specialized cells called idioblast in certain kinds of plants such as wild taro. After ingestion, bundles of the raphides are fired out of the idioblasts in response to mechanical pressure resulting in local tissue injury of the oral cavity. Patients may present with numbness, burning sensation or swelling of the lips, tongue and mouth immediately after ingestion. Plants that belong to Alocasia genus of the Araceae family are commonly found to contain calcium oxalate raphides. Taro (wild taro/false taro) has been reported in a recent local study to be the most common culprit causing oral mucosal irritation after plant product ingestion. Calcium oxalate raphides cannot be dissolved in water and are heat resistant. Therefore, thorough washing and normal cooking cannot reliably remove calcium oxalate raphides from the plants. To avoid this kind of food poisoning outbreak, it is prudent to remove any plants mixed in the vegetables.


**Review of scarlet fever in Hong Kong, 2009-2010**

*Reported by Dr YH Tam, Medical Officer, Field Epidemiology and Training Programme, Surveillance and Epidemiology Branch, CHP*

Scarlet fever is a contagious disease resulting from pyrogenic exotoxins produced by Group A β-haemolytic streptococci (GAS). It starts most commonly with streptococcal pharyngitis and, much less commonly, superficial skin or wound infections. Clinical presentations include fever, erythematous skin rash with sand-paper texture, sore throat, strawberry tongue and subsequent skin desquamation. Apart from their acute morbidity, streptococcal infections can be followed by acute glomerulonephritis and, in case of pharyngitis, acute rheumatic fever one to several weeks later; though these sequelae are now rare in developed countries. Surveillance...

**Laboratory surveillance on multi-antimicrobial resistant bacteria (January 2011)**

The Microbiology Division of the Public Health Laboratory Services Branch (PHLSB) provides diagnostic microbiology laboratory services and receives referred isolates from various laboratories for confirmation and characterization testing. Laboratory surveillance results on multi-antimicrobial resistant bacteria have been uploaded to the CHP’s website. For details, please refer to the following link:

on scarlet fever therefore helps monitor the local epidemiology of streptococcal infections.

In 2009 and 2010, CHP recorded a total of 316 clinically compatible cases of scarlet fever in Hong Kong. The annual numbers were lower than that in previous 3 years (Figure 1). About two-thirds (213 cases, 67.4%) occurred during months from December through May (Figure 2).

Majority (94.3%) of the cases were ≤12 years old and over 67% were children ≤6 years old (Figure 3). Males were more commonly affected than females with a ratio of 1.45:1.

Erythematous rashes, most of them were sandpaper-like, blanchable and distributed over limbs and trunk, was the commonest (95.9%) clinical presentation, followed by fever ≥38°C (94.0%), strawberry tongue (44.3%) and skin desquamation (22.8%). Sore throat suggesting pharyngitis was reported by the majority of cases (74.1%). Recent skin wound was reported by 18 cases (5.7%), but wound culture from 5 of them did not yield streptococci. Fourteen cases (4.4%) also suffered from chickenpox in the 2 weeks preceding the onset of scarlet fever.

185 persons (58.5%) were hospitalized for 1-18 days (median = 2 days). Three cases developed complications. This included a 3-year-old boy who developed painful swelling over multiple joints around 12 days after his onset of scarlet fever and was diagnosed as rheumatic fever; a 15-year-old boy who developed hepatitis as a rare complication of scarlet fever; and a 14-year-old girl who developed peritonsillar abscess requiring surgical incision and drainage. All cases recovered eventually. Majority (94%) of the cases were sporadic with no epidemiological linkage. Nine clusters affecting a total of 20 persons with 2-3 persons in each cluster were identified. They involved 11 boys and 9 girls aged 1-10 years. Eight of them were siblings coming from 4 families. The other 5 clusters (12 children) were students attending same kindergartens/primary schools.

143 cases (45.3%) were laboratory confirmed by positive throat culture for GAS (135 cases), anti-streptolysin O titre (ASOT) >200 in serum (5 cases) or both tests (3 cases). For the positive throat culture cases, 49 had also serum taken to test for rising ASOT, but high ASOT could not be detected in 46 of them. Most (86.0%) of them were tested too early, i.e. within 7 days of illness onset (median = 3 days). The three cases with high ASOT were tested from 4–23 days of illness onset (median = 18 days). Studies reported that ASOT generally begins to rise about 1 week and peaks 3-6 weeks after the onset of symptoms.

Other microbiological tests including rapid antigen detection test and anti-streptozyme titre were also performed in some patients. However, their sensitivities were either relatively low or dependent on the time of serum collection as ASOT. For example, GAS was isolated from three cases whose anti-streptozyme titre was tested negative on 2-12 days of illness onset (median = 2 days), which may be too early. In view of these limitations, further throat culture or ASOT measurement should be considered for those who were clinically compatible to scarlet fever.

All the 138 isolates of GAS had sensitivity test performed for selected antibiotics. All isolates tested for penicillin were sensitive but 38.7% were resistant to erythromycin. Sensitivities to four other antibiotics were also tested in some isolates (Table 1). Penicillin remained to be the drug of choice for treating scarlet fever in non-allergic people.

Control of scarlet fever and streptococcal infection relies on prompt identification and treatment of cases. Effective antibiotic treatment can reduce the infectious period from weeks to 24 hours. Since the transmission of GAS is mainly through large respiratory droplets and direct contact, infected persons should observe good personal hygiene and refrain from work or going to school during infectious period.

### Table 1 - Antibiotic resistance patterns of GAS isolated from throat specimens of scarlet fever cases reported in 2009-2010.

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>Number of isolates tested</th>
<th>Percentage of resistant strains</th>
</tr>
</thead>
<tbody>
<tr>
<td>Penicillin</td>
<td>109</td>
<td>0%</td>
</tr>
<tr>
<td>Erythromycin</td>
<td>137</td>
<td>38.7%</td>
</tr>
<tr>
<td>Clindamycin</td>
<td>48</td>
<td>25.0%</td>
</tr>
<tr>
<td>Co-trimoxazole</td>
<td>43</td>
<td>51.2%</td>
</tr>
<tr>
<td>Ampicillin</td>
<td>39</td>
<td>0%</td>
</tr>
<tr>
<td>Tetracycline</td>
<td>27</td>
<td>25.9%</td>
</tr>
</tbody>
</table>
SUMMARY OF SELECTED NOTIFIABLE DISEASES AND OUTBREAK NOTIFICATIONS (WEEK 9 - WEEK 10)

- **Hand, Foot & Mouth Disease Outbreaks**
  - Week 7: 0
  - Week 8: 0
  - Week 9: 261
  - Week 10: 1

- **Influenza-like Illness (ILI) Outbreaks**
  - Week 7: 6
  - Week 8: 18
  - Week 9: 31
  - Week 10: 28

- **Food Poisoning**
  - Week 7: 14
  - Week 8: 7
  - Week 9: 9
  - Week 10: 4

- **Gastroenteritis Outbreaks**
  - Week 7: 3
  - Week 8: 4
  - Week 9: 5
  - Week 10: 1

- **Measles**
  - Week 7: 0
  - Week 8: 0
  - Week 9: 0
  - Week 10: 1

- **Tuberculosis**
  - Week 7: 86
  - Week 8: 97
  - Week 9: 126
  - Week 10: 104

- **Chickenpox**
  - Week 7: 273
  - Week 8: 284
  - Week 9: 261
  - Week 10: 248

- **Hepatitis A and Hepatitis E**
  - Week 7: 9
  - Week 8: 3
  - Week 9: 2
  - Week 10: 4

Data contained within this bulletin is based on information recorded by the Central Notification Office (CENO) and Public Health Information System (PHIS) up until Mar 5, 2011. This information may be updated over time and should therefore be regarded as provisional only.