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Communicable Diseases WATCH

衞生防護中心 Centre for Health Protection 保障市民健康 Protecting Hong Kong's health

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FEATURE IN FOCUS

Update on Spotted Fever

Reported by Dr Terence LAM, Scientific Officer, Enteric and Vector-borne Disease Section, Communicable Disease Branch, CHP.

Spotted fever is a tick-borne rickettsial disease caused by different species of "Spotted Fever Group *Rickettsia* (SFGR)" bacteria[1], which are obligatory intracellular bacteria that infect the endothelial cells of blood vessels and cause vasculitis. They are transmitted by blood feeding ticks which await their hosts on the tips of vegetation. People staying at vegetated areas such as hiking trails, camping sites and gardens, are at risk of contracting the infection.

The incubation period is commonly six to 10 days[2]. Infections caused by different species of SFGR vary in their clinical severity and symptoms. The symptoms usually include fever, headache and rash[3,4], which are notoriously non-specific. The rash usually appears two to four days after fever onset. Other symptoms include malaise, myalgia, anorexia, nausea, vomiting, abdominal pain and photophobia. Eschar - a dark, scab-like plaque overlying a shallow ulcer with surrounding erythema or scaling at the site of tick bite, may be present.

Clinical diagnosis is challenging and a high index of clinical suspicion is important for prompt management. Risk factors such as recent tick exposure, specific recreational (e.g. hiking) or occupational exposures to tick-infested habitats, recent travel to endemic area, and history of contact with symptomatic animals/pets, can help make a diagnosis. Early empirical antibiotic treatment is recommended for suspected cases as delayed treatment may result in severe complications and even fatal outcome.

In Hong Kong, spotted fever is a notifiable disease under the Prevention and Control of Disease Ordinance (Cap 599). From 2009 to 2018, the Centre for Health Protection (CHP) of the Department of Health recorded a total of 178 cases of spotted fever. The annual number of cases in the past 10 years ranged from 10 to 23 cases (median: 18.5 cases, Figure 1). Cases were recorded all year round with more cases recorded in summer months and also during November and December (Figure 2).

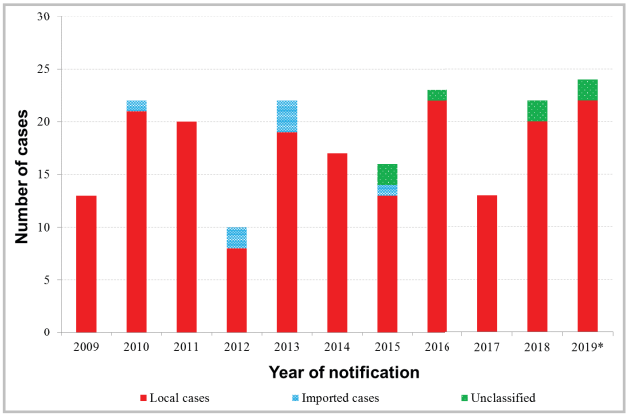

*Figure 1 - Annual number of spotted fever cases recorded by CHP from 2009 to 2019 (*Provisional figures as of September 30, 2019).*

In 2019, as of September 30, CHP recorded a total of 24 cases of spotted fever, as compared to a range of seven to 18 cases in the same period in the past 10 years. The cases involved 14 males and 10 females, with ages ranging from 16 to 76 years (median: 53.5 years). The most common symptoms were fever (100%), rash (96%) and myalgia (63%). Eschars were found in six (25%) patients. Seven (29%) patients recalled a history of bite by arthropod during the incubation period. All patients required hospitalisation, and their length of stay ranged from two to 54 days with a median of 6.5 days. While almost all of them recovered uneventfully, two cases (8%) with underlying illnesses developed severe complications. One patient developed pyelonephritis and septic shock, whose condition improved after treatment and he was discharged subsequently. The other patient developed haemophagocytic syndrome, respiratory failure, upper gastrointestinal bleeding and finally succumbed due to spotted fever.

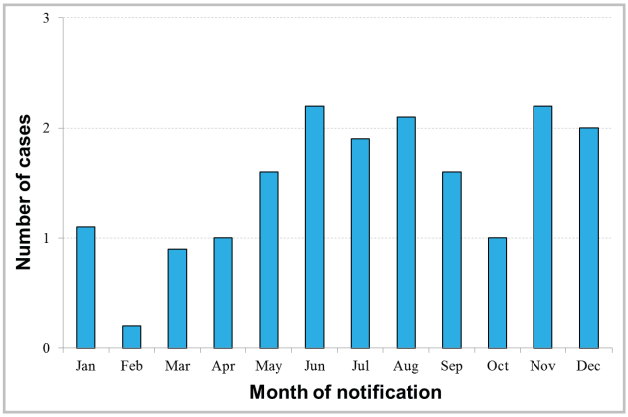

Figure 2 - Monthly average of spotted fever cases recorded by CHP from 2009 to 2018.

Of the cases reported in 2019, 22 (92%) were locally acquired infections, while the place of infection of the remaining two cases could not be determined as the patients had stayed both in and outside Hong Kong during the incubation period. All the cases were sporadic infections with no epidemiological linkage identified. Among the 22 local cases, 19 (86%) patients recalled history of visit to vegetated areas during the incubation period. The most common kind of exposure to

vegetated areas[#] was hiking areas (53%), followed by outdoor workplaces (32%), outdoor recreational areas (11%) and vegetated areas near home (11%).

Members of the public are reminded to take precautionary measures to prevent spotted fever. This is particularly important during warmer months when the tick activity is higher. People should seek medical attention as soon as possible if they develop symptoms (such as fever) after arthropod bite or visiting vegetated area, and should report to the doctor their travel history, exposure to animals or history of arthropod bite.

Prevention

Ticks are mainly found in vegetated areas; preventive measures should be taken when visiting rural areas to avoid bites by ticks.

Preparing for the visit:

- Wear loose, light-coloured long-sleeved tops and trousers, and use DEET-containing insect repellent on exposed parts of the body and clothing according to label instructions;
- Wear shoes that cover the entire foot, avoid wearing sandals or open shoes;
- Tuck trousers into socks or boot to prevent ticks from reaching the skin;
- Avoid using fragrant cosmetics or skin care products.

Preparing for the visit:

- Stay on footpaths and avoid walking through vegetation. Do not brush along the vegetation at the sides of footpaths;
- Avoid resting on vegetation, or at humid and shaded places;
- Do not hang clothing on vegetation;
- Do not feed or pat wild or stray animals;
- Re-apply insect repellents according to label instructions.

After the visit:

- Inspect body parts and clothing. Clear any attached ticks carefully;
- Take a soapy shower and wash the clothes;
- Inspect and clean the bodies of accompanying pets.

If an attached tick is found on the body:

- Gently remove it by grasping its head with tweezers or fine-tipped forceps close to the skin, then disinfect the bite area and wash hands with soap and water;
- Do not crush or twist the tick during removal.

Control of vectors and the reservoir of the diseases:

- Disinfest your pets regularly;
- Inspect and disinfest pet beddings regularly;
- Trim vegetation particularly the grass in your premises;
- To prevent rodent infestation, the best method is to deprive them of food and shelter. Store food and dispose of garbage properly. Seal up holes at floor, wall and ceiling, and also eliminate all other forms of harbourage for rodents.

[#]Some patients reported exposure to more than one kind of vegetated areas.

References

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Update of Creutzfeldt-Jakob disease in Hong Kong

Reported by Dr Eric LAM, Medical and Health Officer, Communicable Disease Surveillance and Intelligence Section, Communicable Disease Branch, CHP.

Creutzfeldt-Jakob disease (CJD) is a progressive and fatal neurodegenerative disease. It belongs to the family of human and animal diseases known as transmissible spongiform encephalopathies (TSEs) or prion diseases which are thought to be caused by the buildup of an abnormal, transmissible protein called "prion" in the brain. CJD is the most common form of TSE in human. There are other TSEs found in specific animal species, for example, bovine spongiform encephalopathy (BSE, often referred to as "mad cow" disease) in cattle, and chronic wasting disease affecting the deer family.

According to the cause and mode of transmission, CJD is classified into four forms[1-3]:

- Sporadic CJD - It is the most common type of CJD and accounts for at least 85% of cases[1]. The mode of transmission is unknown.
- Familial CJD - It is associated with inherited mutations of the prion protein gene and makes up 15 to 20% of CJD cases[1].
- Iatrogenic CJD - It is caused by accidental transmission via the use of contaminated surgical equipment or as a result of corneal or meningeal transplants or the administration of human-derived pituitary growth hormone.
- Variant CJD (vCJD) - It was first reported in the United Kingdom (UK) in 1996[2]. The occurrence of the disease is strongly linked to the consumption of food of bovine origin contaminated with the infectious agent of BSE.

CJD affects about one person in every million people per year worldwide[3]. The incubation period of CJD is long, usually in terms of years. Most cases of the sporadic, familial and iatrogenic forms are seen in older people and have a relatively shorter duration of illness compared with vCJD. While vCJD may present with emotional symptoms such as depression, anxiety and apathy, the other three forms of CJD tend to present with dementia and early neurological signs. Nevertheless all the four forms of CJD will develop progressive neurological signs including involuntary movements, unsteadiness and difficulty in walking. The disease is universally fatal, and the majority of CJD patients die in about one year from illness onset.

According to the World Health Organization (WHO), a CJD case is classified as a "definite", "probable", or "possible" case based on a set of clinical, laboratory and electroencephalogram findings[1]. Confirmatory diagnosis requires neuropathological and/or immunodiagnostic testing of brain tissue obtained either at biopsy or autopsy. The Centre for Health Protection (CHP) of the Department of Health has adopted the WHO classification and complied a case definition for CJD which can be found in the Communicable Disease Surveillance Case Definition available at https://cdis.chp.gov.hk/CDIS_CENO_ONLINE/disease.html.

In Hong Kong, CJD has been made notifiable since July 14, 2008. All medical practitioners are required to report any suspected or confirmed cases to CHP. From 2014 to 2019 (as of September 30), CHP has recorded a total of 58 cases of CJD. Between 2014 and 2018, the annual number of cases ranged from eight to ten (Figure 1). So far, 13 cases have been recorded in 2019 (as of September 30). Among the 58 cases recorded since 2014, the male to female ratio was 0.52:1. Their ages ranged from 51 to 90 years with a median of 65.5 years (Figure 2). Except a Vietnamese lady, all other cases were of Chinese ethnicity.

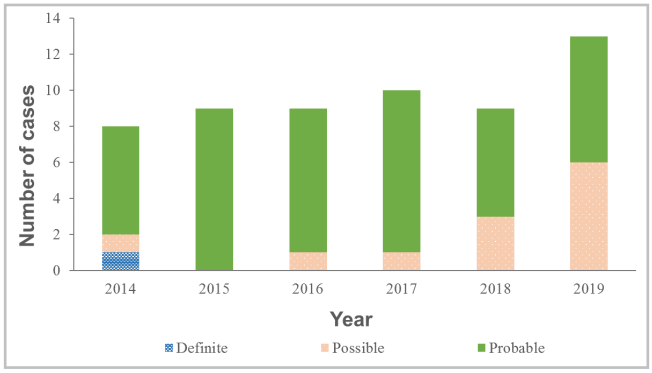

Figure 1 - Number of CJD cases in Hong Kong, 2014 to 2019 (as of September 30, 2019).

All of the 58 cases were sporadic CJD cases; among them, one (1.7%) was definite, 12 (20.7%) were possible and 45 (77.6%) were probable cases according to the WHO classification. No familial CJD, iatrogenic CJD and vCJD cases were recorded in this period. Forty-six patients had passed away (as of September 30, 2019), and CJD was the underlying cause of death for 43 of them. The remaining three fatal cases died of other disease conditions. Among the 43 fatal cases attributable to CJD, the duration from symptom onset to death ranged from 73 days to 846 days (median: 189 days). The majority (29 cases, 67.4%) of them died within one year from disease onset.

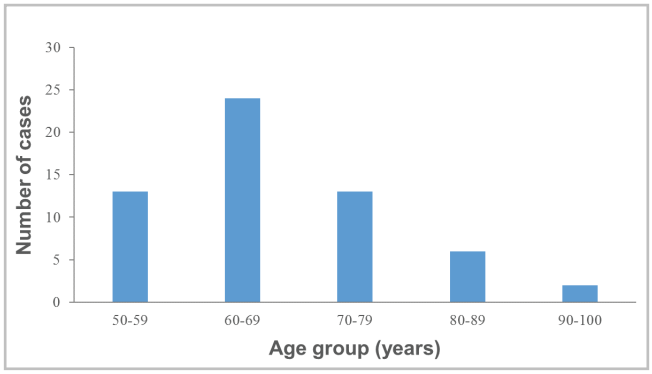

Figure 2 - Age distribution of CJD cases in Hong Kong, 2014 to 2019 (as of September 30, 2019).

Most (53, 91.4%) of the cases did not have history of travel to the UK where occurrence of vCJD has been found strongly associated with consumption of contaminated bovine products. There was no family history of CJD for all the cases. They had no known history of blood product transfusion or donation, neurosurgery, corneal transplantation or injection of growth hormone.

There is currently no curative treatment for any forms of CJD. Management of CJD remains supportive and is aimed at alleviating symptoms and slowing the progression of the disease.

To prevent the disease from spreading, tissue or organ donation from any CJD patients or re-use of potentially contaminated surgical instruments should be avoided. In view of the current understanding that vCJD may be linked to the consumption of bovine products contaminated with the BSE agent, WHO recommends that countries should not permit tissues that are likely to contain the BSE agent to enter any food chain.

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NEWS IN BRIEF

A local sporadic case of leptospirosis

On October 4, 2019, the Centre for Health Protection (CHP) of the Department of Health recorded a local case of leptospirosis affecting a 51-year-old man with underlying illnesses. He presented with fever, myalgia and diarrhoea since August 24. He was admitted to a private hospital on August 28 and was transferred to a public hospital on August 30. He was treated with antibiotics. His condition was stable and he was discharged on September 5. Paired sera taken on August 29 and September 19 showed more than four-fold rise in antibody titre against *Leptospira* by microscopic agglutination test. He had seen rodents at his workplace but he had no direct contact with rodents. He reported no other high risk exposures such as water activities, and had no travel history during the incubation period. His home contacts remained asymptomatic.

Three local sporadic cases of listeriosis

CHP recorded three sporadic cases of listeriosis in October 2019. The first case, a 42-year-old woman with unremarkable past health, presented with fever, malaise and myalgia since October 6. She was at that time pregnant for seven weeks. On October 9, she had vaginal bleeding and was admitted to a public hospital. Her blood culture collected on the same day yielded *Listeria monocytogenes*. She was treated with antibiotics and her condition was stable.

The second case was an 87-year-old man with underlying illnesses. He had presented with abdominal pain since October 8 and was admitted to a public hospital on the same day. The diagnosis was acute cholecystitis. Laparoscopic cholecystectomy was performed on October 12 and the bile collected during the operation grew *Listeria monocytogenes*. He was treated with antibiotics and his condition was stable.

The third case was a 54-year-old woman with underlying illness. She had presented with fever, headache and abdominal pain since October 14 and was admitted to a public hospital on October 15. Her blood culture collected on October 17 yielded *Listeria monocytogenes*. She was treated with antibiotics and her condition was stable.

All three cases had no recent travel history during the incubation period. Their household contacts remained asymptomatic. So far, no epidemiological linkage has been identified among the three cases.

A local case of *Streptococcus suis* infection

On October 14, 2019, CHP recorded a sporadic case of *Streptococcus suis* infection affecting a 73-year-old woman with underlying illness. She had presented with fever, headache, dizziness and vomiting since October 2 and was admitted to a public hospital on October 7. Her blood culture grew *Streptococcus suis*. The clinical diagnosis was sepsis. She was treated with antibiotics and her condition remained stable. She had history of right middle finger injury while handling raw pork at home during the incubation period. She had no travel history during the incubation period and her home contact remained asymptomatic.

CA-MRSA cases in September 2019

In September 2019, CHP recorded a total of 109 cases of community-associated methicillin resistant *Staphylococcus aureus* (CA-MRSA) infection, affecting 68 males and 41 females with ages ranging from 25 days to 90 years (median: 37 years). Among them, there were 88 Chinese, 5 Filipinos, 4 Caucasian, 4 Pakistani, 2 Indonesian, 1 Indian, 1 Nepalese, and 4 of unknown ethnicity.

One hundred and eight cases presented with uncomplicated skin and soft tissue infections while the remaining case had severe CA-MRSA infection. The severe case affected a 51-year-old man with underlying diseases. He presented with fever and redness and swelling over his right foot since August 26. He attended a public hospital on August 27 and was admitted for management. His blood specimen collected on the same day was cultured positive for CA-MRSA. He was diagnosed with CA-MRSA associated diabetic foot infection and sepsis. He was subsequently transferred to the intensive care unit for further management. He was treated with antibiotics and debridements. His condition was stabilised and he was discharged on September 18.

Among the 109 cases, two sporadic cases involved healthcare workers who work in different public hospitals and investigation did not reveal any epidemiological linkage. Besides, two household clusters, with each affecting two persons, were identified in September 2019.

Scarlet fever update (September 1, 2019 – September 30, 2019)

Scarlet fever activity in September increased. CHP recorded 87 cases of scarlet fever in September as compared with 63 cases in August. The cases recorded in September included 58 males and 29 females aged between 23 months and 43 years (median: five years). There was one institutional cluster occurring in a residential child care centre. No fatal cases were reported in September.