IMAGE OF THE MOMENT

Streptoco

Figure 1 Fulminant purpura associated with *Streptococcus suis* severe infection.

Not all patients who have meningitis and a rash have meningococcal disease.

A 63-year-old female patient was admitted to the Hospital for Tropical Diseases, Ho Chi Minh City, Viet Nam with a four day history of fever and meningism. Abdominal pain and diarrhoea occurred on the second day, and widespread skin purpura developed on the fourth day. Although retired she had continued to prepare and sell fresh pork in the market. On admission the Glasgow Coma Scale was 13/15, there was marked neck stiffness, and widespread skin and conjunctival haemorrhages. Her index finger on the left hand and six of her toes were necrotic (Figs 1 and 2).

The CSF was cloudy with a marked increase in the protein (446 mg/dL) and white cell count (350×10^3/mL, 65% neutrophils, 35% lymphocytes). The glucose in the CSF was less than 1.0 mmol/L compared with a plasma concentration of 5.0 mmol/L. CSF lactate was markedly elevated (9.2 mmol/L). Direct examination of the CSF and fluid from the purpuric rash

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c c u s s u i s

Figure 2 Finger necrosis on admission and (below) at 10 days following admission. This required amputation.

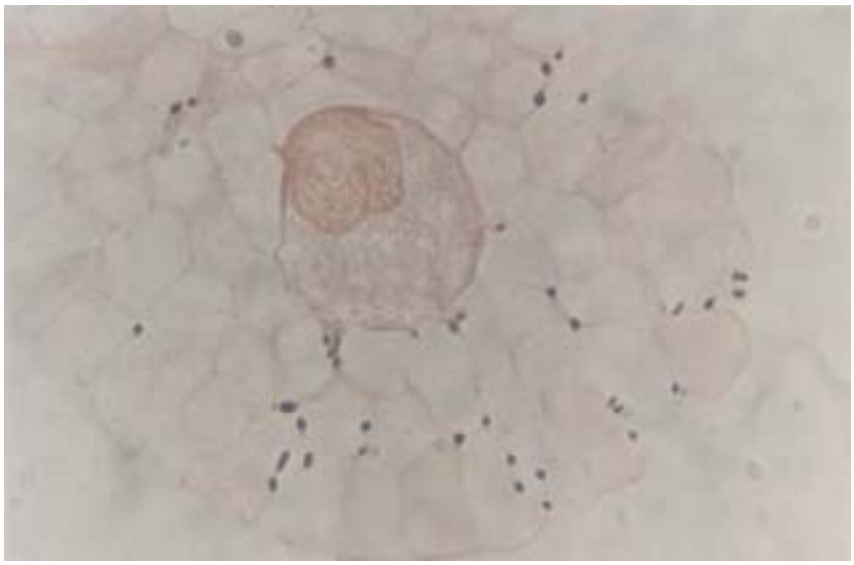

Figure 3 Gram stain of the CSF showing Streptococcus suis present as Gram positive cocci.

Infection is related to occupational contact with pigs or pork, but the precise epidemiology remains poorly understood. Splenectomised patients are particularly at risk as with other capsulated Gram-positive organisms.

showed a large number of Gram-positive cocci, occurring either as single bacteria, in pairs, or as short chains (Fig. 3). *Streptoccocus suis* serotype 2 sensitive to both penicillin and ceftriaxone was cultured from blood, CSF, and the fluid taken from the skin lesions (Figs 4 and 5). The patient was treated with intravenous ceftriaxone 4 g per day for 10 days. She made a remarkable recovery but required amputation of one finger and two toes, and was left with permanent hearing loss bilaterally.

Streptococcus suis is a Gram positive, facultative anaerobic coccus. It is a zoonotic pathogen causing disease in both pigs and humans. There is a high degree of carriage in the upper respiratory tract of healthy pigs, mainly in the tonsils and nasopharynx, and in the uterus, with some carriage in the gut (Higgins & Gottschalk 1999). Serotype 2 has been associated with the most severe forms of disease in both pigs and humans and has emerged in the last few years as an important cause of meningitis (and rarely of infective endocarditis, and septicaemia) in the Far East (Hong Kong, Thailand, Viet Nam) and occasionally in Europe. At the Hospital for Tropical Diseases in Ho Chi Minh City it is the most common cause of bacterial meningitis in adults.

Infection is related to occupational contact with pigs or pork, but the precise epidemiology remains poorly understood. Possible routes of entry include skin abrasions (Clifton-Hadley

Figure 4 Streptococcus suis was cultured from the blood, CSF and from a skin scrape.

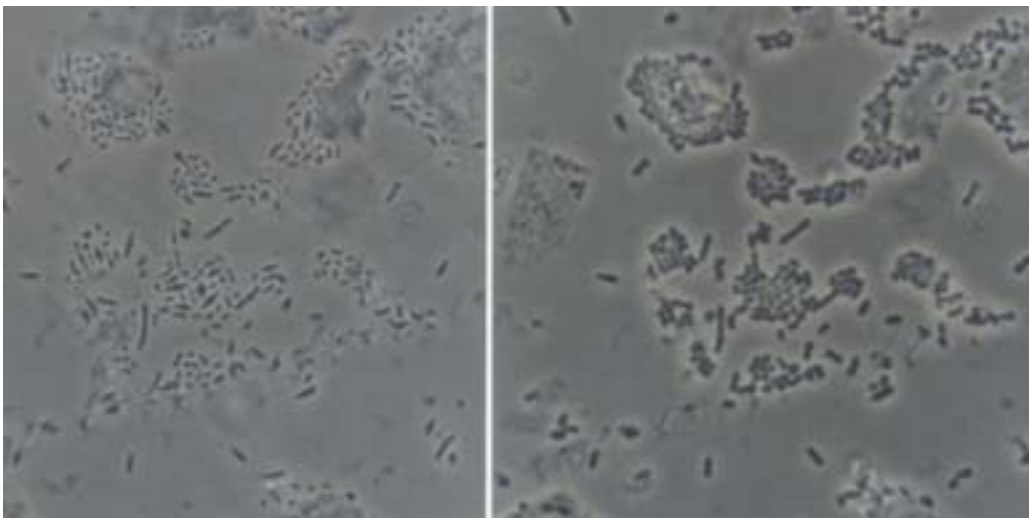

Figure 5 The swelling of the capsules (Quellung reaction) is seen on the right after specific antiserum is added, confirming these isolates are Streptococcus suis serotype 2.

1983) but upper respiratory and gastrointestinal tract transmission can not be excluded. Splenectomised patients are particularly at risk as with other capsulated Gram-positive organisms.

Approximately 40% of patients develop permanent deafness following *Streptococcus suis* meningitis. There is direct invasion of the cochlea with the cochleal aqueduct the apparent conduit for the spread of infection from the subarachnoid space to the perilymphatic space (Kay 1991).

Streptococcus suis remains fully sensitive to the penicillin and β-lactam class of antibiotics which remain the treatments of choice.

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