Streptococcus suis Meningitis : Report of a Case

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Abstract

A 50-year-old policeman who presented with subacute meningitis, bilateral rectus muscle palsies, dizziness and early bilateral deafness was reported. Cerebrospinal fluid (CSF) revealed polymorphonuclear pleocytosis with Gram-positive cocci. Blood and CSF cultures grew *Streptococcus viridans* which subsequently identified to be *Streptococcus suis*. The patient improved after treatment but deafness persisted.

Key word : Meningitis, *S. suis*, Case Report

Streptococcus suis is a zoonotic pathogen which causes meningitis, septicemia, arthritis and endocarditis in pigs. Human infection is rare and often presents as acute meningitis with severe hearing loss in the early course of meningitis. The majority of the recorded cases have been reported in pig rearing countries such as the Netherlands and Hong Kong(1). In Thailand, there are 9 reported cases of *S.suis* meningitis(2,3). We herein report an additional case of *S.suis* meningitis who presented with subacute meningitis.

CASE REPORT

A 50-year-old policeman was admitted to Srinagarind Hospital in July 1997 with the chief complaint of fever, headache, dizziness and hearing loss. He had been well until 8 days prior to admission, he experienced fever, headache and vomiting. Two days later he developed dizziness and bilateral severe hearing loss. He was treated at a private clinic without improvement. There was no history of sinus or ear infection. He occasionally drank Thai whisky and there was no occupational exposure to pigs or pork.

Physical examination showed an alert man with body temperature of 39°C, stiffness of the neck, bilateral lateral rectus muscle palsies and deafness. The tympanic membranes were clear. Other findings were unremarkable.

Laboratory results included: hematocrit

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level of 41 per cent; peripheral white cell count of 35,000 cells/cu.mm with 81 per cent polymorphonuclear cells; normal blood glucose, serum BUN, electrolytes and urinary analysis. Serum VDRL and anti-HIV were non-reactive. Chest X-ray, CT scan of the brain and echocardiography were within normal limits. Audiogram revealed bilateral deafness. A lumbar puncture showed a yellowish cerebrospinal fluid (CSF), an opening pressure 500 mm.H_20, white blood cell of 4,950 cells/cu.mm with 85 per cent PMNs, protein of 456 mg/dl, glucose of 10 mg/dl (blood glucose 152 mg/dl). Gram stain revealed moderate intra- and extracellular Gram-positive-cocci. India ink preparation, cryptococcal antigen and CIE for *H.influenzae*, *N.meningitidis* and *S.pneumoniae* were negative.

The patient was treated with intravenous penicillin G 24 million units/day. Three days later, the hemocultures and CSF culture grew *Streptococcus viridans* which was sensitive to penicillin. It was later identified to be *S.suis*. On the fifth day of treatment, he developed generalized maculo-papular rash. Antibiotic was switched to ceftriaxone but skin rash still increased, then vancomycin 2 g/day was used for 10 days. His symptoms gradually improved. On follow-up 2 months later, lateral rectus muscle returned to normal function and dizziness was improved but he continued to have bilateral deafness.

DISCUSSION

The association between the human infection by *S.suis* and contact with pigs has been documented in more than 50 per cent of cases, such as pig breeders, abattoir workers, meat processing and transport workers, butchers and cooks. Approximately 20 per cent of patients were noted to have minor cuts or burns before the illness, which suggest that the skin may be the portal of entry. However, many patients had no history of injury, so that the respiratory or oral route of infection remains possible[1].

S.suis meningitis usually occurs in healthy adults. Alcoholism, diabetes and malignancy were noted in certain cases and could be considered as predisposing factors. The characteristic clinical manifestation is acute purulent meningitis with the development of severe sensori-neural hearing loss in the early course of the disease. Rarely, the patient presents with subacute meningitis with lymphocytic CSF pleocytosis, resembling tuberculous or fungal infection[2]. The other associated clinical features are sepsis, toxic-shock syndrome, arthritis, diarrhoea, endophthalmitis, endocarditis, myocarditis, spondylodiscitis and purpura or hemorrhagic blebs[1-5]. In the laboratory, the initial diagnosis of the organism is often mistaken for *S.pneumoniae*, *S.viridans* or group D enterococci. The organism is usually sensitive to penicillin. The prognosis of this disease is good and the relapse of the disease rarely occurs. After treatment, the deafness, unilateral or more commonly bilateral, is likely to remain permanent in about 50 per cent of cases. In an animal study, it was suggested that cochlear sepsis rather than eighth cranial nerve involvement was primarily responsible for hearing loss[6].

In our case, from the clinical manifestations, *S.suis* meningitis was initially diagnosed although the patient's occupation did not relate to pigs or meat and the meningitis was presented with subacute onset. We then requested Ramathibodi Hospital to give definite identification of the organism. Nevertheless, from our experience, the differential diagnosis in patients with bacterial meningitis and early deafness is group B streptococcal meningitis[7]. Lastly, we believe that this organism is under-recognised since identification of *S.suis* is not feasible in most laboratories, including our hospital.

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REFERENCES

1. Kay R, Cheng AF, Tse CY. Streptococcus suis infection in Hong Kong. QJM 1995;88:39-47.
2. Pootong P, Boongird P, Phuapradit P. Streptococcus suis meningitis at Ramathibodi Hospital. Rama Med J 1993;16:203-7.
3. Leelarasamee A, Nilakul C, Tien-Grim S, Srifuengfung S, Susaengrat W. Streptococcus suis toxic-shock syndrome and meningitis. J Med Assoc Thai 1997;80:63-8.
4. Arend SM, van Buchem MA, van Ogtrop ML, Thompson J. Septicaemia, meningitis and spondylodiscitis caused by Streptococcus suis type 2. Infection 1995;23:128.
5. Kohler W, Queisser H, Kunter E, Sawitzki R, Frach G. Type 2 Streptococcus suis (R-Streptococci) as pathogens of occupational disease. Report of a case and a review of the literature. Z Gesamte Inn Med 1989;44:144-8.
6. Kay R. The site of the lesion causing hearing loss in bacterial meningitis: a study of experimental streptococcal meningitis in guinea-pigs. Neuropathol Appl Neurobiol 1991;17:485-93.
7. Chotmongkol V, Anutrakulchai S, Anunnatsiri S. Group B streptococcal meningitis in an adult. Southeast Asian J Trop Med Public Health 1995; 26:593-5.

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รายงานผู้ป่วยชายไทย 1 ราย อายุ 50 ปี อาชีพตำรวจ มีอาการของเยื่อหุ้มสมองอักเสบชนิดค่อยเป็นค่อยไป ร่วมกับมีอัมพาตของกล้ามเนื้อในการกลอกตาไปด้านข้างทั้งสองข้าง เวียนศีรษะ และหูหนวกทั้งสองข้างในระยะแรกของโรค ผลการตรวจน้ำไขสันหลังมีโพลีมอร์นิวเคลียร์เซลล์เพิ่มขึ้นและการย้อมสีกรัมพบเชื้อแบคทีเรียรูปกลมติดสีกรัมบวก ผลการเพาะเชื้อในเลือดและน้ำไขสันหลังขึ้น*สเตร็พโตคอคคัส วิริแดนส์* ซึ่งจากการวิเคราะห์โดยละเอียดพบเป็น*สเตร็พโต-คอคคัส ซูอิส* ผู้ป่วยตอบสนองดีต่อการรักษาแต่อาการหูหนวกไม่ดีขึ้น

คำสำคัญ : เยื่อหุ้มสมองอักเสบ, *สเตร็พโตคอคคัส ซูริส*, รายงานผู้ป่วย

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