รายงานผู้ป่วย

Streptococcus suis Meningitis : A Case Report

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Abstract : **We reported 51 year old man from Kanchanaburi Province presented with acute bacterial meningitis. The pathogenic bacteria was identified as γ-haemolytic streptococci (non gr D). The cerebrospinal fluid (CSF) showed lymphocytic pleocytosis which were indistinguishable to tuberculous or fungal infections. After treatment with penicillin and third generation cephalosporin for 2 weeks, CSF culture for bacteria was negative, but the symptoms were still persisting and later on developed sensorineural hearing loss. Antibiotics were continued for another 6 weeks. Patient responsed to medication well but complicated with hydrocephalus and sensorineural hearing loss that both were treated promptly. The most likely pathogenic organism in this patient is Streptococcus suis.**

เรื่องย่อ : **เยื่อหุ้มสมองอักเสบจากเชื้อสเตรปโตคอคคัส ซูอิส : รายงานผู้ป่วย 1 ราย**

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สารศิริราช 2542; **51:** 45-48.

ผู้ป่วยชายอายุ 51 ปี ภูมิลำเนาจังหวัดกาญจนบุรี มีอาการไข้สูงและปวดศีรษะมากมา 5 วันก่อนมาโรงพยาบาล. การตรวจร่างกายพบอาการแสดงบ่งถึงภาวะเยื่อหุ้มสมองอักเสบ. ผลการตรวจน้ำไขสันหลังพบเม็ดเลือดขาวเพิ่มขึ้น และส่วนใหญ่เป็นลิมโฟซัยท์. ผลการเพาะเลี้ยงเชื้อจากน้ำไขสันหลังพบ γ-haemolytic streptococci (non gr D). ผู้ป่วยได้รับยาเพนนิซิลลิน และเซโฟแทคซิมเป็นเวลา 2 สัปดาห์. ภายหลังการเพาะเชื้อจากน้ำไขสันหลังไม่พบเชื้อ, แต่ผู้ป่วยยังมีอาการไข้และปวดศีรษะ, พร้อมกับมีภาวะแทรกซ้อนคือการได้ยินเสื่อม. ผู้ป่วยซึ่งได้รับการรักษาอีกโดยให้ยาเดิมต่อจนครบ 6 สัปดาห์. ผู้ป่วยตอบสนองต่อการรักษาดี, แต่มีภาวะแทรกซ้อนตามมาคือการได้ยินเสื่อมและโพรงสมองมีน้ำเกิน (hydrocephalus). สำหรับเชื้อโรคที่น่าจะเป็นต้นเหตุของภาวะเยื่อหุ้มสมองอักเสบในผู้ป่วยรายนี้มากที่สุดคือ Streptococcus suis.

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CASE REPORT

A 51 - year - old man from Kanchanaburi was admitted to Paholpholpayuhasena Hospital on 10 September 1998, due to high fever and severe headache for 5 days. The initial pertinent physical examination revealed high body temperature (38.5 ° C) and meningeal irritation signs (stiffneck and Kernig's sign). There were no other definite neurological deficit. Lumbar puncture was done and showed pleocytosis (leucocytes 102/mm^3 with polymorphonuclear cell 58%, lymphocyte 42%), protein 126 mg/dl, glucose 1 mg/dl. Gram stain revealed gram positive cocci in pair and acid fast bacilli were not found. Streptococcal meningitis was diagnosed and he was treated with penicillin G sodium (PGs) 24 million unit/day and cefotaxime 4 gm/day for 14 days. After 5 days of therapy his body temperature was normal and all clinical signs were markedly improved. CSF and blood cultures revealed γ-haemolytic Streptococci (non gr D). He was then discharged on the 18th admission date.

One day after being discharged, he returned to the hospital due to severe headache and confusion. CT-brain scan was done and the result was reported as normal. CSF finding revealed lymphocytic pleocytosis but the CSF culture for bacteria reported as no growth. He was then treated with penicillin G sodium (PGs) 24 million unit/day and chloramphenicol 4 g/day for 7 days, then he was referred to Siriraj Hospital.

At Siriraj Hospital, the relevant physical examination showed high fever (38.5 ° C), alert but positive for meningeal irritation signs (neck stiffness and Kerning sign). There was no localising sign on neurological examination. Details of CSF findings were tubulated in Table 1. He was treated with PGs 24 million unit/day in combination with cefotaxime 8 gm/day for 6 weeks. He responsed well with no more headache nor meningeal irritation signs, but he still had persisting low grade fever and sensorineural hearing loss bilaterally. CT- brain scan and magnetic resonance venography revealed hydrocephalus with some areas of brain infarction and suspected left sigmoid venous sinus thrombosis (Figure 1,2). He was given aspirin, furosemide, repeated lumbar puncture for decreasing intracranial pressure. Clinical signs were improved gradually and then he was discharged home after 4 weeks of admission.

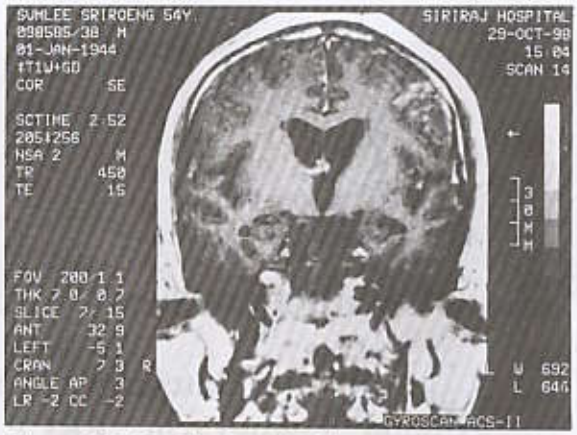

Figure 1. MRI of brain (T1W image) showed hydrocephalus with localised brain infarction over the left frontoparietal region.

Figure 2. T1W of magnetic resonance revealed hyperintensity imaging over the left sigmoid sinus which was compatible with venous sinus thrombosis.

DISCUSSION

This patient suffered from atypical subacute meningitis which was characterised by lymphocytic pleocytosis, elevated protein and decreased glucose level in the CSF which was resemble tuberculous meningitis or fungal infection, but haemoculture and CSF culture revealed γ-haemolytic Streptococci organism. The patient developed sensorineural hearing loss as a complication of meningitis. The

most causative organism in this patient is Streptococcal suis type II.

Streptococcus suis was designated as group R Streptococcus but has been found to contain group D teichoic acid antigen and can be misidentified as Streptococcal bovis or the enterococcus.[5] The group D reaction may be difficult to demonstrate using routine methods.[6] It causes meningitis, pneumonia, arthritis, septicaemia and endocarditis in pigs and occasionally can be transmitted to human. In man the organism caused infections at several organs - but mainly meningitis. Almost all cases occur in those working with pigs or pigmeat.[5,6,7,11] The organism may gain access through cuts or abrasion wound, found in about 40% of patients.[7] Most of the patients have polymorphonuclear pleocytosis in the initial CSF findings but can be lymphocytic pleocytosis similar to those of tuberculous or fungal infections.[7] Hearing loss appear to be the most frequent sequelae in patients with meningitis due to Streptococcal suis and have been reported more frequently than in patients with meningitis due to other bacteria.[1,2,3,5,7,8,9,11]

Streptococcus suis meningitis may not be a rare disease especially in South East Asia and Hong Kong.[7] In Thailand, the first report was from Ramathibodi Hospital in 1987.[4] So far there had been only 9 cases reported, 6 cases from Ramathibodi Hospital and 3 cases from Siriraj Hospital.[4,7,9] Most authors suggested that several cases of Streptococcus meningitis in Thailand were misdiagnosed due to the feasibility of the laboratory to identify this organism. Thailand is an agriculture country which as a known risk fact or for the pig breeders, butchers and those who use closely contact with pig or even pigmeat that may lead to severe disease. History of minor cut wound which is usually neglected must be asked for. Physicians should keep in mind that Streptococcus suis meningitis can present with subacute form and the cerebrospinal fluid findings may resemble tuberculous meningitis. Early diagnosis and prompt treatment of this condition may prevent complication such as permanent deafness. Our patient had lymphocytic meningitis, early sensorineural hearing loss, and the gram stain of CSF and culture revealed Streptococcus. All these findings are compatible with the diagnosis of Streptococcus suis meningitis although the initial report could not identify this organism in certain. Our patient had no history of contacting with pig but as mentioned before, the organism might access into human body even through small wound. If the gram stain of the

Table 1. Details of cerebrospinal fluid profile

Date	Opening Pressure	Closed pressure	WBC (mm^3)	PMN (%)	Lymphocyte E (%)	Glucose (mg/dl)	Protein (mg/dl)	Gram stain
10/9/41			102	58	44	1	126	gram positive cocci
25/9/41			350	2	98	39	81	negative
9/10/41	35	22	620	64	35	39	205	negative
13/10/41			615	31	69	39	210	negative
20/10/41	30	22	232	32	67	33	191	negative
29/10/41	34	22	283	26	72	42	221	negative
3/11/41	14	12	30	30	70	53	279	negative

CSF in our patient didn't reveal gram positive cocci, there might cause the delaying of appropriate antibiotics.

Most Streptococcal suis is very sensitive to penicillin or ampicillin, but the duration of treatment may be prolonged up to weeks.[8] Our patient still developed clinical manifestation of meningitis even after appropriate antibiotics treat for 2 weeks. We thus continued the same drugs for another 6 weeks. He improved satisfactorily but complicated with hydrocephalus and bilateral sensorineural hearing loss which should be monitered closely. This notion indicates that in Thailand early disruption of antibiotics for streptococcal meningitis should be caution especially in those who are suspicious of streptococcal suis infection. Otherwise complications such as deafness and hydrocephalus would be accompanied. Diagnosis of streptococcal suis infection should be considered in the differential diagnosis of lymphocytic meningitis such as tubuculous meningitis or fungal meningitis.

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