Case 7

Submitted by: Margaret G. Norman, M.D.
Vancouver General Hospital
Vancouver, British Columbia

Clinical Abstract: This 6-year old girl complained of headache and fever the night prior to admission. Next day she was sent home from school after vomiting. At home she was confused, "not with us". Her family doctor saw her at 2030 hours and sent her to the local hospital immediately.

There she was unresponsive, with a stiff neck. A lumbar puncture removed turbid cerebrospinal fluid (CSF) with a leukocyte count of 21,400/cu mm and Gram negative rods. She was started on ampicillin and chloramphenicol 400 mg. 20 minutes after the LP she had respiratory arrest, was intubated and ventilated. pH 7.37, pCO_2 35, pO_2 136.

On transfer to Vancouver General Hospital at midnight, she was unresponsive, her pupils reacted sluggishly to light, she had divergent gaze, fundi were normal. There was no response to painful stimuli, extremities were flaccid, deep tendon reflexes were absent, toes were slightly downgoing. B.P. 80/60, pulse 80/minute. Right ear drum marginally red. After a period of hyperventilation the pupils reacted slightly to light, with slight flexion of the lower extremities, but not upper in response to painful stimuli. She opened her eyes momentarily, had some chewing movements. There was tonic masseter spasm. Peripheral blood leukocyte count 10,000/cu mm with 75% stab cells. The child was treated with chloromycetin, ampicillin, decadron. Artificial ventilation as continued. She was treated with mannitol; pentobarbital 10 mg/kg bolus was given, and pentobarbital was continued with 2 mg/kg/hr.

She was seen by a neurosurgeon 2-1/2 hours after admission for intracranial pressure monitoring at which time she did not respond to commands, blinked when suctioned, would open her eyes to painful stimuli, withdrew lower limbs to pain, but did not respond to deep pain in her upper limbs. Corneal reflexes sluggish, gag reflex present, facial movements symmetrical. She was flaccid with decreased tone, more marked on the right side. First recorded ICPs are 18, 20. The next day the pressures were under 10 and stayed low so barbiturates were gradually withdrawn and the subdural screw removed on the 5th day. Since the H. influenza was sensitive to both chloromycetin and ampicillin, on the 4th day chloromycetin was discontinued. Chest X-ray showed right-sided pneumonia.

On the fifth day she still had flaccid guadriplegia, required maintenance on a ventilator, had no response to deep pain in arms or legs, depressed or absent deep tendon reflexes and downgoing plantars. Her corneals were brisk, gag reflex present but depressed. She opened her eyes and mouth to command and it was thought she was more aware of her surroundings. On the 8th day one observer noted that she was alert, with intact cranial nerve function except for weak facial movements and impaired swallowing. There was slight withdrawal of the right foot to pain, but not to command.

After being afebrile for the first 6 hospital days she developed a fever on the 7th day which rose to 40.9°C on the 10th day. On the 9th day a chest X-ray showed bilateral pneumonia. A lumbar puncture showed opening pressure 13, CSF clear, clourless, RBC 52/cu mm, WBC 9/cu mm, protein 30/mg/dl, glucose 90/mg/dl. Her WBC rose from 13,500/cu mm on day 1 to 24,500 cu mm on day 10. On the 11th day her abdomen became distended, tense, silent, tympanitic and abdominal X-ray showed gas throughout the bowel, with multiple air fluid levels, linear distribution of air in the bowel wall consistent with necrotizing enterocolitis, and air in the portal venous system. Ampicillin was discontinued and ticarcillin 300 mg/kg/day, gentamycin 7.5/kg/day and chloramphenical 100 mg/kg/day was started. Over the next few hours her blood pressure fell and 14 hours after abdominal problem was noted, dopamine 25 mg/kg/kg was started. This was discontinued a few hours later, and the patient died on the 12th day of her illness, 33 hours after the beginning of her abdominal distention.

The only other abnormal finding in the CNS at necropsy was infarction of the cerebellar tonsils, which looked similar to the infarction in the slide circulated. The necropsy confirmed the cause of death was a necrotizing gastroenterocolitis.

Material Submitted: One H & E stained section.

Points for Discussion: Mechanism causing infarction.