Case 1

Submitted by: Drs. H. A. Kretzschmar, and William F. Hoyt
University of California, San Francisco
San Francisco, CA 94143

Reference No.: UA83-13

Clinical Abstract:

A 75-year-old right-handed white male was admitted to the hospital with a one-year history of episodic left retro-orbital pain and diplopia.

The patient had been well until one year prior to admission when he first complained of left-sided headache. He was treated for sinusitis and otitis with antibiotics. A more localized left retro-orbital constant throbbing pain associated with horizontal diplopia with left lateral gaze returned three months later. At that time his neurologic exam was normal, ESR was 70 mm/hr. Despite a normal temporal artery biopsy he was treated with prednisone 60mg/day. The pain and diplopia resolved shortly after treatment was initiated. Five months later he returned to medical attention with recurrence of left retroorbital pain and diplopia. Evaluation showed a depressed left nasolabial fold, but no ophthalmoplegia. An angiogram was normal and a CT scan showed diffuse atrophy. A lumbar puncture revealed protein 61 mgm %, glucose 81 mgm %, and 1+ oligoclonal bands. When steroids were increased the patient again became pain-free.

Six months later he complained of sharp retro-orbital pain which worsened with eye movements, diplopia in all fields of gaze, and patchy left facial numbness. He also had anorexia, nausea, vomiting, dysphagia and had lost 50 lbs. in weight.

He had had a TIA with transient global amnesia three years prior to admission and pneumonia several months prior to admission.

Admission physical examination showed a cachectic male with depressed affect, and mild dementia. He had scalp tenderness, proptosis and chemosis. Both globes easily ballotted. There was no meningismus. He had a pupil-sparing left III, IV, V_1, VI, and VII paresis. There were full EOM's in the right eye, fundi were normal. He showed general paratonia, diffuse weakness in the right upper and right lower extremities with slight reflex asymmetry. Deep tendon reflexes and proprioception below the knees were absent in the lower extremities. He had a frontal gait with wide-based, reluctant, shuffling steps, no ataxia, and no Romberg sign. ESR was 21mm/hr. A lumbar puncture was done which showed an opening pressure of 60 cm_3H_2O, protein 110 mgm %, glucose 51 mgm % (serum 118 mgm %), 1 RBC and 46 WBC per mm^3 (3P7M90L), oligoclonal bands were present, IgG index 2.9; cytology was normal, crypto Antigen, AFB, and fungal cultures were negative, as were serum RPR, and FTA. A CT scan showed a "thickened left cavernous sinus."

Following a craniotomy, Decadron and Imuran were begun. The patient became pain-free and horizontal EOM's improved. His later course was complicated by gastrointestinal bleeds, a hypertensive episode and urosepsis. His renal function deteriorated, he developed pulmonary edema and expired.

Material Submitted: One hemotoxylin and eosin stained section and a gross photograph of the base of the skull at autopsy.

Points for Discussion: 1. Diagnosis 2. Pathogenesis.

Case 2

Submitted by: Surl L. Nielsen, M.D.
Sutter Community Hospitals and Mercy Hospital
Sacramento, CA

CLINICAL ABSTRACT

This 72-year-old male presented with a two-week history of headache, low-grade fever, and mental confusion following hemodialysis.

The patient gave a history of chronic renal failure for several years, with azotemia due to arterionephrosclerosis. Worsening of this state necessitated institution of hemodialysis two weeks prior to the present admission. Following dialysis, he complained of headaches and manifested a low-grade fever. He was given a short course of antibiotics, but failed to improve. X-rays disclosed haziness in the left frontal sinus, but no other possible source for infection was discovered. CT scans of brain were interpreted as normal.

Admission general physical examination was unremarkable except for a temperature of 101°. He was somnolent, had recent memory loss, and decreased attention span. His eye movements were full, pupils equal and reactive; corneal reflexes were intact and facial strength was symmetrical. His palate and tongue moved well and his speech was clear. Asterixis was present, greater on the left, but no myloclonus was detected. Fine motor control was slow but symmetrical and no ataxia was found. Reflexes were normal.

Initial lumbar puncture yielded clear fluid with an opening pressure of 155, glucose 33, protein of 114 and 53 white blood cells-88% mononuclear. CSF and blood cultures were negative. He was placed on Penicillin, but continued to show progressive somnolence, diminished attention span, tremors and asterixis.

On the third hospital day, a repeat lumbar puncture was performed. The opening pressure was 120, and the protein had risen to 368 mgm, with a glucose of 29 and 39 WBCs-90% mononuclear. His condition continued to deteriorate and he died on the third hospital day.

General autopsy findings included generalized arteriosclerosis with an old posterior wall myocardial infarction, and end-stage kidneys (75 gm each) due to arterio- and arteriolar nephrosclerosis. Healed granulomata were found in both lungs, without identifiable organisms.

The brain weighed 1320 gm and no swelling or evidence of herniation was detected. The leptomeninges were slightly cloudy, but no exudate was seen. Multiple areas of hemorrhagic necrosis were found in the cerebrum, cerebellum, and brainstem. These varied from 2 mm to 2 cm in size, had indistinct borders, and some had evidence of early cavitation.

POINTS FOR DISCUSSION

1. Diagnosis.

2. Possible relationship to the chronic renal failure and/or hemodialysis?

Case 3

Submitted by: Drs. Susan Morgello, Gil Block, Richard W. Price, and Carol K. Petito, M.D.
Departments of Pathology (Neuropathology) and Neurology,
Cornell University Medical College
New York, New York 10021

Reference No.:

Clinical Abstract:

The patient was a 29-year-old homosexual male who presented 12 months antemortem with fever and thrombocytopenia. Stool cultures were positive for Entameba histolytica and a bone marrow biopsy was consistent with idiopathic thrombocytopenic purpura. He subsequently developed Pneumocystis carinii pneumonia, left forearm Herpes zoster, and bilateral CMV retinitis. Six months antemortem he again developed herpetic dermatitis of the right forearm and hand and left posterior thorax. At this time the patient displayed poorly described intermittent episodes of expressive aphasia.

Four months antemortem the patient was admitted for evaluation of confusion. Neurologic examination revealed disorientation, dysarthria, a nominal aphasia, dyscalculia, decreased short term memory and an inability to follow simple commands. Cranial nerve examination revealed a fixed 6 mm right pupil and a 4 mm reactive left pupil. There was a right pronator drift, symmetric reflexes and bilateral plantar flexor responses. CTT head scan with and without contrast was normal. Cerebrospinal fluid examination showed a protein of 90 mg.%, normal glucose, no cells and a negative culture.

Three weeks antemortem the patient was admitted for evaluation of fever and progressive deterioration of his mental status. Neurologic evaluation revealed an awake male, eyes open, without speech production but with rare following of one-step verbal commands. Cranial nerve examination was remarkable for bilateral blindness and bilateral primary position downbeat and rotatory nystagmus. Sensorimotor examination revealed diffuse spasticity, bilateral frontal release signs and plantar extensor responses. CTT head scan with and without contrast was normal and cerebrospinal fluid evaluation was remarkable for a protein of 131 mg.%. The patient developed bilateral pneumonia and died of respiratory failure.

Autopsy findings included Pneumocystis carinii pneumonia and aspiration bronchopneumonia and multiple granulomata containing acid-fast bacilli in lymph nodes, spleen and liver. The brain weighed 1350 g. On coronal section, soft, granular, yellow-gray lesions that usually were well demarcated were present throughout the white matter of the brain and brainstem. These lesions ranged in size from 0.5 cm. to 2.5 cm. in diameter. The optic tracts were atrophic. The ventricles were mildly dilated. Sections of cerebellum and spinal cord were grossly unremarkable.

Material submitted: One 2 X 2 Kodachrome of anterior frontal lobes
One H & E slide from right parietal lobe

Points for discussion: 1. Diagnosis
2. Pathogenesis

Case 4

Submitted by: Drs. P.E. Neumann and D.S. Horoupian
Department of Pathology (Neuropathology)
Albert Einstein College of Medicine
Bronx, New York 10461

Reference No.: A82-128

Clinical Abstract:

The patient was a 34 year old female former IV drug abuser who was born with Ebstein's anomaly. In 1973, she underwent tricuspid valve plication, atrial septal defect repair and pacemaker insertion. She presented in July 198[illegible] with right sided weakness and paresthesias, numbness of teeth, gums and tongue, auditory hallucinations, paranoid ideation and difficulty speaking and writing. A neurology consultant found no reason to suspect an organic brain syndrome, so she was admitted to the psychiatry service for three months. EEG, while on low dose Haldol, revealed diffuse slowing. A Bender test was stated to be compatible with an organic process. CSF, in July, contained 9 WBCs (predominantly mononuclear) and had a protein of 32 (24% gamma globulin). Six weeks later the CSF had a single WBC and a protein of 32.

She was readmitted in March 1982 for two months complaining of inability to function, increased agitation and auditory hallucinations. CT of the head revealed no abnormalities. A switch from Haldol to Stelazine coincided with improvement in her condition.

Her final admission began in July and ended with her death in September 1982. On admission, she was depressed with a flat affect and psychomotor retardation. Examination revealed disorientation, poor memory, anomia, stiffness, hyperreflexia of the lower extremities and frontal release signs. In the initial hospital course there were episodes of unresponsiveness with drooling and diaphoresis that lasted several minutes. CSF studies (9/82) revealed 35 WBCs (mostly mononuclear), a protein of 35 and equivocal oligoclonal banding. Serum measles antibody titers were 1:40. She suddenly became febrile (104.5°) and minimally responsive with decreased reflexes and incontinence. No source for the fever was found. The next day she had a generalized seizure and died later that day with a cardiac arrhythmia.

Necropsy findings included surgically repaired congenital heart disease, dilatation of the atria and the right ventricle, biventricular hypertrophy, acute and chronic myocarditis, chronic persistent hepatitis with fibrosis and hemorrhagic cystitis. The brain weighed 1240 gms. Gross examination of the brain and spinal cord was unremarkable.

Material submitted: One LFB-PAS stained section of the pons.

Point for discussion: How would you classify this condition?

Case 5

Submitted by: S. R. VandenBerg, M.D., Ph.D. & L. J. Rubinstein, M.D.,
Division of Neuropathology, Department of Pathology,
University of Virginia School of Medicine, Charlottesville, VA

Reference No: 17734

Clinical abstract: The patient was a 41-year-old white female with a two-day history of headache, nausea and photophobia. She was admitted to the emergency room and rapidly became unresponsive and unarousable, and suffered a generalized seizure with decorticate posturing five hours after admission. Repeated lumbar punctures revealed opening pressures of 320-326 mm/Hg, 1000 mg of protein and a mild pleocytosis (10 WRC/mm^3). A CT scan showed diffuse edema. The patient was started on antiviral therapy in view of the presence of oral fever blisters; however, she rapidly deteriorated and died 32 hours after admission.

At autopsy, the brain was grossly swollen, and on coronal sectioning showed marked vascular congestion of the subcortical white matter and diffuse white matter edema. Congestion was also found in the thalami and basal ganglia. There was a segment of cortex, about 2 cm long, along the lateral border of the left posterior parietal lobe which showed marked hemorrhagic discoloration. Aside from that lesion, no hemorrhages or necrosis were seen in the cerebrum, cerebellum or mid-brain.

Within the same week, three other patients were admitted with the same clinical symptoms, but the disease was less fulminating. All three patients had a brain biopsy performed from the frontal region, and in two of these patients the microscopic findings were similar to those demonstrated in the slide submitted here.

Following various negative investigations for the demonstration of a bacterial, viral, toxic or metabolic disorder, all three patients admitted within a week of the present case showed increased titers in their serum against OX proteus (Weil-Felix reaction) and significant raises in the latex agglutination test for Rocky Mountain spotted fever. A fifth patient, admitted two weeks later, has shown a similar rise in the latex agglutination test. In none of the patients was there any history of having been bitten by a tick. Two of the four patients developed a rash after admission for their neurological disease, and in one of them the rash was so unremarkable as to be originally attributed to trauma.

Material submitted: One H&E stained section. The slide submitted is representative of the most severe lesions found microscopically in the deep white matter and in the basal ganglia, especially the thalamus.

Points for discussion:
1. Diagnosis
2. Specificity of the neuropathological lesion
3. Are we dealing with a new type of Rickettsial organism, possibly with special neurotropic virulence?

Case 6

Submitted by: Paul Garen, M.D. and J. D. Balentine, M.D.
Department of Pathology (Neuropathology)
Medical University of South Carolina
Charleston, South Carolina, 29425

Reference: A83-519

W. M. is a 70 year old black male who was being followed for Parkinson's disease of one year's duration and being treated with L-dopa. Other intercurrent problems were gout, anemia, and chronic leg ulcers. Past medical history included severe ETOH abuse. He had a 5-10 year history of worsening arthritis, especially prominent in the hands. His current hospital admission was prompted by sudden onset of confusion, decreased ability to walk, right-sided weakness and right facial droop. Physical examination showed a thin black male who was alert and able to follow simple commands. A mild VII nerve palsy was present on the right. Cranial nerves II, III, IV, V and VI were intact while VIII, IX, X and XII could not be well-assessed. Cog-wheel rigidity was present in the right upper and lower extremities and some muscle fasciculations were noted. Cerebellar testing was inadequate. Frontal release signs were negative. No Babinski was elicited. Laboratory examination showed a normochromic, normocytic anemia, and elevated BUN and creatinine. CT scan revealed only widened sulci and mildly enlarged ventricles. A lumbar puncture was performed with a protein of 85, glucose of 62, and white cell count of 68 RBC's and 33 WBC's, differential of 95 lymphs and 4 polyps. Lactic acid was 24.4. Stains for organisms were negative.

The patient's hospital course was marked by development of a lower left lobe aspiration pneumonia which did not respond well to treatment. He became septic and eventually expired.

General autopsy findings showed a liver with a moderate lymphoplasmacytic portal infiltrate and kidneys with an interstitial chronic inflammation. Patchy fibrosis and fibrinous pericarditis were present in the heart. Marked bilateral adrenalitis was also noted. Gross examination of the brain revealed slight cerebral atrophy of the frontal lobes with enlarged ventricles. The spinal cord appears to be normal.

Material submitted: One H & E stained section of frontal lobe.

Points for discussion: 1) Differential diagnosis

Case 7

Submitted by: Mary Ambler, M.D.
Department of Pathology (Neuropathology)
Rhode Island Hospital
Providence, Rhode Island 02902

Reference No.:

Clinical Abstract:

A 62-year-old white female was evaluated August 1, 1982, for cough, dyspnea, anemia, and recent onset of cardiac murmur. She had no history of syncope or of seizure. An echocardiogram showed an atrial valve lesion. On August 4, the aorta was cross-clamped and bypassed, and a 2.0 x 4.0 cm left atrial myxoma, studded with surface villi and blood clot, obstructing the mitral orifice, was excised. A surgical atrial septal defect was closed with a pericardial patch. During induction there was transient hypotension due to atrial obstruction, but the postoperative course was uncomplicated and she was discharged nine days after surgery.

In April, 1983, she developed orthostatic dizziness and vertigo, and during one episode lost consciousness, striking her right orbit and fracturing her left humerus. Skull x-rays were negative. During cardiac monitoring there was no arrhythmia. An EEG showed right frontal slow and sharp waves. A CT scan demonstrated a right frontal subcortical density with surrounding edema interpreted as a lobar hemorrhage. An arteriogram contained no abnormal vessels. Lumbar puncture eight days after admission showed no xanthrochromia, 45 RBC, 0 WBC, protein 22 mgm%, and glucose 69 mg%. Following discharge, the CT scan remained unchanged.

She was well until August, 1983, when she noted recurrent seizures. After three seizures in a 24-hour interval, she was readmitted on September 1, 1983, and a CT scan was unchanged from previous studies. An arteriogram showed large feeding vessels but no A-V shunting, aneurysm, or calcification. A craniotomy was performed on September 14, 1983, and a circumscribed, superficial, red-brown, spongy lesion of the right frontal lobe was removed. Her postoperative course was uneventful.

Material submitted: One H & E stained section of the right frontal lesion

Points for discussion:
1. Diagnosis
2. Relationship to prior surgery, seizure and/or trauma
3. Pathogenesis

Case 8

Submitted by: Drs. Samuel K. Ludwin and Robert N. Beauchene
Department of Pathology (Neuropathology)
Queen's University, Kingston, Ontario, Canada K7L 3N6

A-10414 Mr. J.D.

This 68 year old man underwent an aorto-bifemoral bypass operation in a peripheral hospital Nov. 4/83. There were no intra-operative complications. Several hours post-operatively the patient developed acute renal failure followed shortly by congestive heart failure and pulmonary edema.

Twenty-four hours post-op. the patient was noted to be drowsy but arousable and still responding to questioning. Seventy-two hours post-op. the patient's mental status had worsened and was now described as somnolent with brief apneic episodes. The patient was then transferred to the Kingston General Hospital where he was found to be drowsy, and was disoriented to time and place, but responding to commands and was disoriented to time and place. There were no focal signs. Blood pressure was stable, but the respiratory rate was 10 with prolonged apneic periods. Blood gases on admission were pH 7.35, pCo_2 29, HCO_3 16. Creatinine was six times normal and the BUN was 4 x normal. CT scanning, EEG and LP results were normal.

By 48 hours following admission the patient was unresponsive. Apneic spells lasted up to 40-50 secs with pH dropping to 7.24 while asleep. Three days following admission the patient suffered a cardiac arrest while in the dialysis unit. During the arrest the pH dropped to 7.16. Nearly 50 minutes elapsed before the systolic blood pressure climbed over 100 mmHg while at the same time the pH was 7.38.

The patient failed to regain consciousness and after several isoelectric EEG's ventilatory support was withdrawn. The patient died 6 days following his operation. He had been ventilated for approximately 12 hours following his arrest.

General Autopsy findings revealed marked aortic atherosclerosis with a status post-aortofemoral by-pass, acute tubular necrosis and pulmonary edema.

Gross examination of the brain showed a small old right frontal infarct and cerebral edema with diffuse softening and discoloration of the white matter in places hemorrhagic.

Materital submitted: 1 Kodachrome
1 slide (Solochrome H and E)

Points for discussion - Diagnosis
Pathogenesis

Case 9

Submitted by: Dr. Raymond A. Clasen
Department of Pathology
Rush Medical College
Chicago, Illinois

Reference No.: 82-13,882

Clinical Abstract

The patient was a 19 year old white male who had a six week history of back pain and urinary retention. A CT scan revealed a calcified lesion at L1-2. At surgery on 11/11/82 a 3x2 cm mass containing nerve roots was found just below the conus medullaris. The tumor could not be completely resected. Postoperatively he was able to walk without assistance but continued to have urinary retention. This was treated by self-catherization and the patient was able to return to college.

Material submitted: One H & E and one unstained slide.

Points for discussion: Diagnosis, prognosis, therapeutic recommendations.

Case 10

Submitted by: B.W. Scheithauer, M.D.
Surgical Pathology
Mayo Clinic, Rochester, Minnesota 55905

Reference No: S40-47

The patient is a 61 year old male with a 15 month history of low back pain. Plain x-rays showed evidence of degenerative joint disease. A myelogram was performed showing total block at level L3. At surgery an intradural extramedullary encapsulated tumor was found arising from the filum terminale. The 2 cm lesion showed secondary attachment to a nerve root. The tumor was totally excised. Follow-up reveals that the patient died of a myocardial infarction 23 years after surgery. No clinical evidence of recurrence was noted.

Material submitted: One H & E and one unstained section.

Points for discussion: What is the differential diagnosis?