CASE 1

Submitted by: Dr. K. A. Osterberg, University of Minnesota Medical School, Minneapolis, Minnesota.

Ref. No. U.H. 1005140 A64-2

This 9 month old boy was the product of a normal full term pregnancy. At about three months the patient developed progressive weakness, hepatomegaly, cardiomegaly, and cardiac failure which was terminated by a fatal aspiration pneumonia.

The electromyogram was interpreted as showing muscle denervation secondary to anterior horn cell or axonal destruction. The glucose tolerance test was normal, but the mumps skin test was markedly positive at three months of age.

At autopsy the brain and spinal cord showed no significant gross abnormalities.

CASE 2

Submitted by: Dr. Peter W. Lampert, Armed Forces Institute of Pathology, Washington, D.C.

Ref. No. AFIP Accession 1029367

A 69-year-old man was admitted to the hospital because of a stroke. He had a right hemiplegia, developed bronchopneumonia and died 6 weeks after admission.

At autopsy the heart weighed 300 gms. There was a recent hemorrhage in the left frontal lobe and a separate large hemorrhage in the left parietal lobe.

CASE 3

Submitted by: Dr. Raymond A. Clasen, Presbyterian - St. Luke's Hospital, Chicago, Illinois.

Ref. No. C.C.H. #1917-61.

This 52 year old white male had fever, cough, and neck pain for four days. Eighteen months before he developed partial paralysis of his right extremities. He also complained of pains in the neck, back, knees and other joints. He stopped work 5 years before admission because of this osteoarthritis. For one year he was totally bedfast due to both the right hemiparesis and the arthritis.

Examination showed an emaciated, dehydrated, white male with many bed sores and a diffuse brown macular rash with many scabs. He was mildly confused, stuttered, and repeated phrases over and over. Blood pressure was 130/70; rectal temperature 102.6. There were flexion contractures of both knees with atrophy of all leg muscles. The right arm and leg were spastic but the facial muscles were not involved. The tongue showed poor voluntary movements; sensation was intact. The cerebrospinal fluid was clear and colorless; pressure 110 mm. with no cells, protein 40 mg.%, sugar 80 mg.%, serology negative.

Following treatment with intravenous penicillin, the temperature fell and orientation improved. He complained of failing vision and on the 13th hospital day he suddenly became dyspneic and unresponsive. For the next two weeks he remained moribund and died on the 27th hospital day.

Significant autopsy findings were limited to the brain. The process illustrated was present diffusely throughout both hemispheres. The cortex, generally, appeared grossly normal. The brain stem and cerebellum were within normal limits.

CASE 4

Submitted by: George P. Sayre, Mayo Clinic, Rochester, Minnesota.

Ref. No. 105-A-63.

A 31 year old white man had neurological difficulty from birth. He was in asphyxia livida after a difficult forceps delivery. After delivery, there was a marked tonic spasm of arms and legs. At eight months, signs of central nervous system damage were evident. At 25 months he walked with support with typical spastic gait and was thought to have spastic paralysis. He understood well, responded quickly and tried hard to express himself. During the following years, he was not able to talk. He was confined to a wheel chair all of the time. He could make his needs known by his facial expressions. He enjoyed listening to the radio and watching TV. He also had athetoid movements, especially on the right side. He fell out of the wheel chair on September 16, 1962, breaking his right humerus. On September 20, 1962, he was transferred to Rochester State Hospital for the treatment of this fracture. At that time he was diagnosed to have mental retardation, mild; cerebral spastic quadriplegia, athetoid type due to injury at birth. He also had a history of three attacks of lipoid pneumonia between 1952 and 1957. On September 24, 1962, an intra-medullary nail was used on the right humerus to correct the fracture (open reduction) but infection developed. On April 25, 1963 he suddenly became unresponsive, hypotensive, and had shallow respirations. In about four hours he died.

At autopsy, the calvarium, dura, venous sinuses, arachnoid and convolutions were normal. The cerebral vessels were within normal limits. There was no marked atrophy in the cortex. The putamen and pallidus, especially putamen, had spotty white and yellow areas which gave them a marble appearance. This was present only in the middle portion of the putamen and the pallidus. These spotty areas ranged from 1.0 mm. to 2.0 mm. The spinal cord was normal.

CASE 5

Submitted by: Dr. Lucy B. Rorke, Philadelphia General Hospital, Philadelphia, Pennsylvania.
Ref. No. N.P. 63-93.

A 15 month old colored female admitted because of inability to walk after having just learned to do so. Development normal to onset of above symptom. Examination revealed a thin child with no active motion of legs. Neurological examination disclosed spasticity at the hips, flexion and adduction of thighs, increased patellar reflexes, absent Achilles and hypotonia of leg muscles. Hypochromic anemia discovered and x-rays revealed saucerization of posterior aspect of T 10-12 and widening of paraspinous line on right at T 11-12. Myelogram showed complete block at T 12-L 1. Cerebrospinal fluid examination showed no white blood cells, 20 red blood cells per high power field, chlorides 726, protein 620. Laminectomy from T 8 to L 1 with removal of intraspinous portion of tumor thought to be arising from extraspinal site. Skull films showed harlequin appearance of sphenoid ridge suggesting neurofibromatosis. Second operation two weeks after first (thoracotomy) for removal of tumor from left postero-lateral pleural cavity. Tumor found around aorta, in intervertebral foramina and possibly below diaphragm. Post operatively given 300r dose of x-ray. Chief problem two months post operatively has been scoliosis and spasticity of left lower extremity. Right-sided symptoms have disappeared.

CASE 6

Submitted by: Dr. Francoise Robert and Dr. Louis-Charles Simard, Hospital Notre-Dame, Montreal, Canada.

M. B., a man of 24, was admitted on April 22 with a two month's history of severe frontal and occipital headaches and vomiting. On examination there was a 3+ bilateral papilledema and some very slight weakness of the left arm. A right carotid arteriogram showed a space occupying lesion in the right frontal lobe with marked displacement of the right anterior cerebral artery to the left.

On April 25 a tumor growing between the floor of the anterior fossa and the frontal lobe was removed. It was attached to the dura and the cribriform plate. Part of the latter was resected. The tumor weighed 90 gm. It was soft, brownish and finely granular.

On May 2, x-ray of the skull was repeated. It showed absence of the anterior part of the cribriform plate on the right side. There was an inferior extension of a soft tissue mass measuring 2 cm. in diameter which seemed in continuity with the bone defect. The right ethmoidal air cells were clouded.

Between May 2 and June 14, the patient received 5500 r over the right supraorbitary region.

He was readmitted on August 12, 1963, for further investigation and treatment. Some tumoral tissue was found attached to the right middle turbinate. The superior turbinate could not be seen. A fragment of approximately 1 cm. in diameter was removed. The patient received 4400 r over the right and left ehtmoidal regions.

On the last follow up examination in November 1963, the patient was well and symptom free.

CASE 7

Submitted by: Dr. John T. McGrath, University of Pennsylvania, Philadelphia, Pa.

Ref. No.: 61 254

An 8 year old female Dachshund was first seen on Feb. 25, 1961 because of urinary incontinence and incoordination. Neurologic examination revealed a tilt of the head to the left, dilated pupils, slight incoordination with an absent placing reaction in the left forelimb and bilateral loss of hopping reaction. Cortisone was given but on March 3, 1961 the animal evidenced "psychic depression" and pacing or forced movement. With continued therapy, all neurologic signs disappeared by March 10, 1961. On March 23, 1961, neurologic signs of head tilt and incoordination reoccurred. With continued medication, the neurologic signs seemed suppressed. A severe dysmetric gait was never observed.

On April 19, 1961 euthanasia was requested. At this time there was a slight tilt of the head to the right, a depressed placing reaction in the right forelimb and dilated pupils. Cerebrospinal fluid studied revealed 1 WBC/cmm. and a total protein of 112 mg.%. Necropsy findings included a tumor of the cerebellum and fourth ventricle, subacute pyelonephritis and cystitis, multiple adrenal cortical adenomas and a herniated intervertebral disc at C2-3.

The cerebellum appeared grossly enlarged, especially on the left side. Folia of the left lateral lobe appeared replaced by brownish-red tissue. Coronal sections revealed a soft, brownish-red, slightly cystic mass displacing most structures including roof nuclei on the left side and extending to the right. The major diameter of the mass varied from 2.0 to 2.5 cm. The mass involved the fourth ventricle appearing adherent to the underlying medullary ependyma.

Section: Cerebellum and mass.

CASE 8

Submitted by: Dr. Richard Lindenberg, Central Anatomic Laboratory, Baltimore, Maryland.

Ref. No. CAL. Aut. No.: 525/63

A 4-year-old Negro boy was admitted to the hospital because of convulsions and unconsciousness after a fall from a porch. On x-ray no skull fracture could be found. An EEG showed grossly abnormal tracing in the right hemisphere with the highest voltage in the right posterior region. A right arteriogram presented no evidence of intracranial space occupying lesion. The patient was discharged after three weeks with a diagnosis of cerebral concussion and posttraumatic convulsions.

He was doing well on phenobarbital until about 5 months later when he suddenly developed uncontrollable seizures beginning on the left side. A subdural hygroma was suspected and tempoo-parietal trephines were placed bilaterally. The dura was grossly tense and when incised brain extruded on the right almost like toothpaste. On the left the brain was also tight and bulging. There was no spinal fluid evident on either side. Attempts at draining the ventricles failed. No obvious mass was hit. Needle biopsy from the right hemisphere showed normal tissue with little fresh hemorrhage from the needling. Shortly after operation the patient died from respiratory failure.

On gross examination the brain was markedly swollen (1220 gms.), pale and showed some herniation of hippocampal gyri and cerebellar tonsils. On coronal sections, the right hemisphere was slightly larger than the left, but no gross lesions were present except for a needle track extending from the right lower anterior central convolution into the caudate nucleus without perforating the ventricle wall. There was no evidence of former subdural or subarachnoid hemorrhage or of cerebral contusion. No space occupying lesion was found.

The general autopsy revealed no alteration which could have been responsible for the swelling of the brain.

CASE 9

Submitted by: Dr. Leon Roizin, New York State Psychiatric Institute, New York, N.Y.

Ref. No. P.I. 2986

This 6-month-old boy was the product of an uneventful pregnancy and full term, low forceps delivery. Birth weight was 5 lb. 4 oz. Jaundice was noted immediately after birth and persisted for 2 months. At 4 months his appearance was that of a day old infant. He did not respond to sound or bright objects but did respond to touch. He did not turn over. At the age of 5 months his motor development was at the 12 week level. In all other areas he functioned between the 4 and 8 week level. He died of bronchopneumonia with a temperature rising to 105° F.

At autopsy the body was 22 inches in length and weighed 7-1/4 lbs. The head circumference was about 12 inches. Gross abnormalities included bilateral bronchopneumonia and scattered foci of fatty metamorphosis of the liver. The fontanelles were small. The dura was firmly adherent to the inner table of the skull. The brain weighed 200 gm. All its components were reduced in size, but particularly the cerebral and cerebellar central white matter, striated portion of the pons and the pyramids. The ventricular system showed moderate diffuse dilatation. The lining of the lateral ventricles was diffusely thickened and mottled with tiny grayish white elevations. The central white matter in the frontal lobes was soft and grayish and contained a few tiny chalk white foci. A few similar foci were found in the subependymal region of the lateral ventricles. Large cerebral gyri were incompletely subdivided into tiny complex convolutions. In the cerebellar folia, the multiple sulci effected more complete subdivisions.

CASE 10

Submitted by: Dr. Kenneth M. Earle, Armed Forces Institute of Pathology, Washington, D.C.

Ref. No. AFIP Accession 1063167

Examination on April 6, 1962 of this 45-year-old white male showed "residual particulant matter in the left anterior chamber as the result of uveitis, so that the retina could not be seen. There was no generalized lymphadenopathy. The cardiovascular findings were normal. The left tendon reflexes and the biceps, triceps, and patellar reflexes were increased over those on the right. The left Hoffmann was positive and the left Babinski equivocal." His WBC was 15,900 with 3% non-segmented cells, 46% segmented cells, 21% lymphocytes, 21% eosinophils and 9% monocytes. Sedimentation rate was 15 mm. per hour and there was noted on the slide moderate anisocytosis with several macrocytes and slight hypochromia. Hemoglobin was 13.8 gms. and hematocrit was 44%. A trichinella agglutination test was negative.

On April 7, 1962, EEG suggested a mass in the right cerebral hemisphere. Spinal fluid showed 38 mgm. protein and 11 white cells, all eosinophils. Carotid arteriogram confirmed the right cerebral mass. The patient developed a progressive right hemiparesis and he was readmitted on May 13, 1962. Arteriogram showed increased size of the right hemisphere. Right parietal biopsy revealed meningoencephalitis with a predominance of eosinophils in the exudate. He was confused and psychotic post-operatively, then he responded to steroid therapy. Viral complement fixation studies were positive 1:64 for influenza B, positive 1:16 for mumps (viral) and positive 1:8 for mumps (soluble). He deteriorated slowly, was readmitted on July 11, 1962 and died on July 13, 1962 with signs of increased intracranial pressure.

Autopsy revealed no evidence of trichinella in multiple sections of muscle. The eyes were not removed. The brain weighed 1700 gms. At the site of biopsy in the parietal lobe was a 1.5 cm. abscess filled with purulent material. Multiple yellowish-brown nodules were scattered throughout both hemispheres (in gray and white matter) and in the tegmentum and base of midbrain and pons. No organisms could be found with special stains.

CASE 11

Submitted by: Dr. C. L. Dolman, Vancouver General Hospital, Vancouver, Canada.

Ref. No. VGH S63-17284

This 58 year old bulldozer operator three years before death developed a slowly and unremittingly progressive illness which began with burning and spontaneous small amplitude jerks in the feet followed by a sensation as if he walked on gravel, burning on urination, burning of the perineum and a queer rectal sensation. On examination, nine months after onset of his illness, he appeared healthy and intelligent. The only abnormalities were a trace of weakness in the glutei, slightly impaired sensation to pin-prick in a sock distribution, sluggish ankle jerks and positive Babinski reflexes. X-rays of the skeleton were normal. Cerebrospinal fluid pressure was 80, protein 50 mgm.%, 84 lymphocytes per cu. mm., sterile on culture, negative darkfield examination, Kolmer negative, hemoglobin 130%, sedimentation rate 3 mm. per hour. Gastric analysis showed free acid present. Myelogram was normal.

One year before death he had lost about 20 pounds in weight, had become impotent and had some difficulty passing urine. Vibration sense and sense of joint position were impaired and the lower abdominal reflexes were absent. Cerebrospinal fluid findings were similar to the previous ones.

He was lost track of until the coroner reported his death from suicide. Necropsy was performed by the Coroner's Pathologist. Wet samples of the various organs were received. The stomach contained a typical peptic ulcer. Patchy graying was noted in the spinal cord, most marked in the lower segments. The pieces of brain received were grossly normal, although microscopic lesions were found.

CASE 12

Submitted by: Drs. P. A. McGarry and John Moossy, Louisiana State University School of Medicine, New Orleans, La.

Ref. No. A63-839, N. 2553

A Negro male, 67, noted weakness, anorexia, intermittent headache and fever for three months prior to admission but sought no treatment. For three weeks prior to admission he noticed neck pain aggravated by movement and radiating into both shoulders and hands. On the day of admission he awoke with severe neck pain, paraplegia, and incontinence. Examination showed flaccid paraplegia, nuchal rigidity, weakness and questionable fasciculations of upper extremities. There were no deep tendon reflexes or pathologic reflexes in the lower extremities. Lumbar puncture opening pressure was 150 mm. The cerebrospinal fluid was cloudy and contained 1200 WBC per cu. mm. (98% neutrophils) and 320 RBC per cu. mm. Protein was 109 mg. per 100 ml. No organisms were seen. Hemogram showed hematocrit 35, hemoglobin 11.8 gm. per 100 ml., WBC 12,400 per cu. mm. (80% neutrophils). STS was negative. BUN was 22, and FBS was 99 mg. per 100 ml. Anesthesia was present below T6 level and hypesthesia extended from T4 to T6. Myelogram showed a block at T1. Laminectomy from T1 to T3 was done on the day of admission. The upper thoracic cord was softened and swollen. Death occurred two days later.

Past medical history included two myocardial infarctions from which he recovered without residuals and an automobile accident resulting in neck pain, but no other disability, three years prior to admission.

Autopsy showed hemorrhagic softening of the spinal cord from C6 to T4, left ventricular myocardial hypertrophy and toxic splenitis.

Slides are of myocardium and C8.

CASE 13

Submitted by: Drs. Robert N. Baker and Uwamie Tomiyasu, V. A. Center, Los Angeles, California.

Ref. No. A-721-63

This 44 year old white male engineer developed headache and papilledema in August 1960. He was admitted to Los Angeles VAH and a diagnosis of coccidiodal meningitis was established. No systemic coccidiodes infection was found. He received a prolonged course of Amphotericin B, intravenously and intrathecally. Because of progressive headache, papilledema, blindness and dementia, a ventriculojugular shunt was performed in February 1961. A marked improvement followed with return of vision and speech and disappearance of headache. Following a recurrent febrile course, a diagnosis of chronic staphylococcus albus septicemia was made in July 1962. This was thought to be due to an infection involving the shunt. Prolonged penicillin therapy and revision of the shunt brought long periods free of fever and toxemia but this ultimately recurred. Finally, surgical manipulation of the shunt was associated with periods of deep coma and the patient died on October 30, 1963.

An autopsy revealed chronic coccidiodal meningitis, chronic ventriculitis and miliary pulmonary and widespread cocciciodal infection.