CASE 1995-1

Submitted by:

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Ref. #S93-40470

Clinical History:

The patient is a 60-year-old female who presented with a 20-year history of gradually progressive proximal lower extremity weakness initially noted with rising from a squat position. During the previous ten years she had intermittent episodes of knee buckling with occasional falls. Over the past 2-3 years she noticed distal leg weakness with some foot dragging and some difficulty lifting her arms above the shoulders. Approximately one year ago, she fractured her left hip and now requires a walker for ambulation. She denied sensory symptoms, visual problems, speech problems, difficulty swallowing, and bowel and bladder dysfunction. The patient had no history of skin rashes, joint symptoms, weight loss, fevers, or cardiorespiratory and gastrointestinal symptoms. She also noted that episodes of severe weakness seemed to be precipitated in some instances by eating certain salads, spaghetti or pizza dinners. Her medications at the time of presentation included Diamox, micro-K, and calcium and vitamin supplements. The family history is remarkable for three sons, age 36-43 years, who have experienced episodic weakness and her father who also experienced similar episodic weakness and died at age 39 years of an aspiration pneumonia from suspected respiratory weakness. A paternal aunt and two paternal cousins, likewise, have problems with episodic weakness.

General physical examination was unremarkable except for temporal muscle atrophy and diminished muscle bulk especially in the hand intrinsics. There is no evidence of fasciculations, ptosis, facial weakness, and bulbar abnormalities. Reflexes were normal throughout as was the sensory examination. Laboratory findings were as follows Na = 146 mEq/l, K = 3.6 mEq/l, Cl = 109 mEq/l, glucose = 84 mg/dl, Ca = normal, Mg = normal, PO_4 = normal, B12 = normal, TSH = normal, ESR = normal, CRP = normal, CK = normal, aldolase = normal, ANA profile - negative. EMG studies showed a generalized myopathy predominantly involving the lower extremities with associated fibrillation potentials and occasional myotonic discharges.

Materials Submitted:

Kodachrome photomicrographs including an H&E stained section of skeletal muscle, acid phosphatase stained section of skeletal muscle and an electron micrograph.

Points of Discussion:

1) Diagnosis
2) Pathogenesis

CASE 1995-2

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Case reference number: 94-A-237

Clinical History:

The clinical chart of this 24-year-old North American native reflects her sad social circumstance and the numerous Emergency visits for assaults, falls and attempted suicide. She was a substance abuser and was frequently described as intoxicated and smelling of glue. Though observed to be slow to respond and very tremulous, she was never seen by a neurologist. Neuroradiological studies were never done. Death was by hanging.

Material submitted: LFB/PAS stained section of cerebellum.

Points for discussion:

1. Diagnosis
2. Pathogenesis

CASE 1995-3

Submitted by : Jean Michaud and Yves Robitaille
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Case reference number : NP93-274

Clinical History

This 60 year-old man was last admitted for loss of consciousness. He was a heavy drinker since adolescence but this worsened when he became a widower 13 years ago. He lived alone and refused contact with his family. He was noisy and troublesome to neighbours who frequently saw him lying for hours in the garden.

According to his children, his mental status deteriorated in the year prior to his death but he always refused medical evaluation. On the day of admission, he was found unconscious in the garden. In the emergency room, he was very drowsy with poor hygiene. Ocular fundi, cranial nerves and tendon reflexes were normal. Laboratory data showed increased total and conjugated bilirubin but no other significant abnormalities. The ammonia level was normal. His evolution was stormy with delirium tremens and he died two days after admission.

Necropsy findings :

The brain only was sent for consultation. It weighed 1,280 g. There was moderate to severe atrophy of cerebral hemispheres and mild atrophy of the cerebellum.

Material submitted : HPS section of the temporal lobe

Points for discussion : 1- Differential diagnoses.
2- Physiopathology.

Case 1995-4

Submitted by : Mark A. Edgar, MD and E. Tessa Hedley-Whyte, MD
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Case reference number: A92-290

Clinical History

A right handed white man presented at 43 years of age with impaired balance and difficulty using the left arm. There was no family history of neurologic disease. He had a five year history of hoarseness, mild dysarthria and a tendency to choke on liquids. Constipation and urinary incontinence developed in the two years before he presented and he had had a several year history of increasing depression. For the year prior to his presentation he noted problems with gait, particularly with turning and for the previous six months he experienced trouble using his left arm when dressing and slowness in typing. Over the weeks preceeding presentation he noticed a tendency to "gape", holding his mouth open inappropriately and he developed difficulty with his left leg when shifting gears and a tendency to limp when fatigued. He had lived and worked on a farm and had been in contact with a variety of pesticides. He had a history of manic-depressive illness.

On examination at 43 years of age he was well developed and well nourished. BP was normal both supine and sitting. Pulse was 72. General physical exam revealed an enlarged, smooth prostate and vitiligo involving both arms and trunk. Neurologic exam revealed normal orientation, memory, normal language skills, praxis, calculation ability and left-right discrimination. Ocular fundi and visual fields were normal. Cranial nerve examination revealed a slight tendency to stare and lag of the left mouth on smiling. He had normal muscle bulk with "lead pipe" rigidity in the extremities, greater on the left side but there was no true pill-rolling tremor. Voluntary movements were slow, much more so on the left with a mild left pronator drift. Deep tendon reflexes were 3+ throughout with bilateral extensor plantar responses. Cerebellar exam was normal apart from slowed rapid alternating movements in the left arm. He had difficulty initiating gait and had en bloc turning , decreased armswing, and flexed posture. Sensory exam was normal. Cranial MRI was normal and he was treated with Sinemet. Four years later his principal complaint was frequent falls, especially when making turns. He also had episodes of "freezing up" and swings in his degree of bradykinesia. He walked with small steps. He was lost to followup until he died, aged 51 years.

GROSS AUTOPSY FINDINGS:

The brain weighed 1660g and had mild atrophy of the frontal and parietal lobes. The putamen showed bilateral moderate atrophy and the substantia nigra was very pale. The cerebellum was moderately atrophic and the basis pontis was slightly shrunken. Thalami, amygdalae and hippocampi were normal to gross inspection. The ventricles measured 54 ml.

MATERIAL SUBMITTED:

One luxol fast blue-H&E and one unstained section.

POINTS FOR DISCUSSION:

1. Diagnosis
2. Specificity of abnormal features

1995 Case 5

Margaret L Grunnet, MD, Dept of Pathology
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The patient was a 62 year old man with a long history of a chronic progressive neurodegenerative disease who died at a local nursing home with the following history. From the age of 14 months, when the patient began to walk , he was never able to keep up with children his age and fell easily. At age five he was seen by a physician who noted him to be unsteady on his feet with his eyes closed. He had hyperactive knee jerks unsustained ankle clonus and positive Babinski's.. At age 12, he was seen at Yale where he was found to be generally weak, the legs more than the arms. The weakness was symmetrical with atrophy of the interossei of the hands and a suggestive atrophy of peroneal and anterior tibial muscles. Ankle jerks were absent, knee jerks were diminished with slightly hyperactive reflexes in the arms. Pyramidal, posterior column, and cerebellar signs were all negative. Sensation was intact except for loss of vibratory sense in the feet. Pes cavus was present. He had nystagmus on the extremes of lateral and upward gaze. There was marked unsteadiness in the upright posture and with support he walked with a widebased gait. His speech was high-pitched, monotonous and slow. Laboratory studies including a lumbar puncture were normal.

Family history revealed no other family members with any neurological disease. His sister was normal except for dextrocardia.

He was seen again at Yale at age 20.At that time his neurological exam was not much different than at age 12 although he had been using leg braces to help in walking. He also had atrophy of thenar and hypothenar eminence as well as of interossei muscles of the hand.. During the time between 12 and 20, the patient finished eighth grade at a special school. He also worked at a Defense plant as a grinder for nine months. He lived at home and did not work after the war was over.

At age 23, he was seen at Yale for vocational rehabilitation. At that time they noted that his IQ was dull-normal. Other findings had remained the same except his gait was even more unsteady. Adiodokokinesis and fine hand movements were performed adequately and he had no intention tremor. Speech was now slurred, high pitched, monotone and responses slow although the patient was cooperative. The patient reported that occasionally when he swallowed liquids they would come out his nose. He reported some difficulty in initiating the urinary stream but no urinary incontinence although he reported fecal incontinence.

At age 32 he was admitted to at a chronic care hospital
because of the death of his parents and his inability to care for himself. At that time he had both fecal and urinary incontinence, bilateral foot drop, weakness of all lower extremity muscles bilaterally as well as weakness of hip flexors. Both knee and ankle jerks were absent and vibratory and position sense was decreased in both lower extremities to the sacrum. He had no cerebellar deficit or fasciculations. A lumbar puncture showed increased protein.

At age 56 he was seen by another neurologist who noted several new findings including dysarthria, and intention tremor in his right arm. He now needed a walker to get around. Nerve conduction studies showed compressive neuropathy at the wrist and EMG findings were consistent with neuropathic disease rather than myopathic disease. He was seen several times at the MDA Clinic with further progression of his disease. The last note when he was age 60, indicated more progression of his disease. His voice was hypophonic with dysarthria. His lower extremities were markedly weak. His hands were clawed without strength although proximal strength was relatively preserved. He had a pronounced intention tremor. There were trace reflexes noted at the biceps but deep tendon reflexes were absent at other sites. Planter responses were silent and there was sensory loss distally in the lower extremities as well as in the hands. MRI showed cerebellar atrophy without pontine atrophy. Nerve conduction studies were consistent with a sensory neuropathy. Intellectual function was difficult to assess due to his problems with speaking, however, he was able to cooperate with the examiner.

He died at the age of 62 of acute and chronic aspiration pneumonia. At autopsy the brain showed mild cerebral and cerebellar atrophy.

Your slide is an LFB-PAS stained section of cortex and spinal cord.

Questions: 1. What is the diagnosis?
2. what is the etiology?

CASE 1995-6

Submitted by: Luis A. Moral, M.D.
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Case reference number: A94-71

Clinical history: The patient was a 34 year old female with history of AIDS, dementia, MAI infection, candidal esophagitis, refractory anemia and genital Herpes. She presented with multiple complaints, including decreased oral intake and inability to take medications, dysphagia, nausea, chronic abdominal pain, confusion, and a questionable seizure on the day prior to admission. On physical examination, she was disoriented and had adherent white plaques to the oropharingeal mucosa. There was mild cervical lymphadenopathy and left upper abdominal quadrant tenderness. Admission labs were significant for a microcytic anemia, mild leukopenia and mild thrombocytopenia. During hospitalization, the patient's condition continued to slowly deteriorate and she was found deceased, 36 days after admission.

Necropsy findings: The brain weighed 1150 grams and was covered by clear meninges. Coronal sections of the cerebrum showed the periventricular area to be slightly granular and friable. The gray and white matters were otherwise unremarkable, and there was no ventricular dilatation. Brainstem and cerebellum were within normal limits. Significant non-CNS findings included P. carinii pneumonia and disseminated MAI infection.

Material submitted: One H&E stained and 1 unstained section of cerebrum, from different blocks.

Points for discussion: Diagnosis.

Case 1995-7

Submitted by: Zlatoia Savici, M.D., Pawel Cyrkowicz, M.D., Saroja Ilangovan, M.D., Raymond Clasen, M.D. and Marc G. Reyes, M.D. Cook County and Rush Presbyterian St Luke's Hospital, Chicago, IL, 60612

Case reference number: (A) S-13931-94; (B) S-2205-94

Clinical History

This 28 year-old bisexual hispanic man with a history of cocaine, alcohol and cigarette abuse tested positive for HIV in 1989. In 1993, he developed Pneumocystis carinii pneumonia and several skin lesions of the right chest wall were biopsied and diagnosed as "dermatofibroma" (11/93) and "spindle cell neoplasm with vascular proliferation" (10/94). On 11/18/94, he was admitted to Cook County Hospital because of difficulty of walking which was preceded by weakness of the his left hand, then right arm and neck five months before.

Magnetic resonance imaging of the cervical spine showed a mass impinging on the spinal cord at C5-T1. Emergency cervical laminectomy on 11/20/94 revealed an elongated extradural tan tumor loosely adherent to the dura at the level of the C6 and C7 vertebra. The tumor was completely removed. No attachment to the nerve root was observed. Irregular, tan red soft tissue measuring 2.5 x 1.5 x 0.7 cm was submitted for examination.

Submitted: Two hematoxylin and eosin slides from epidural mass (A) and skin (B).

Points for discussion:

1. Diagnosis
2. Etiopathogenesis

Case 1995-8

Submitted by:

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Case reference #NP92-324

Clinical History:

This 5-year-old girl was admitted to Loyola University Medical Center on 6/25/92 with the chief complaint of left-sided weakness.

History of Present Illness:

The child was healthy until three days prior to admission, when she vomited a couple of times. The parents felt that she had the flu until the day of admission when, while walking through the shopping mall, the mother noticed that she was dragging her left foot and had difficulty in walking. She was taken to her pediatrician, who confirmed the left-sided weakness and left facial droop. A CT scan was done at the outside hospital and the child was diagnosed as having a "brain tumor" and was subsequently transferred to Loyola.

Physical examination at the time of admission revealed a lethargic girl with bilateral papilledema and left central facial weakness. The left upper extremity was weak 3-4/5 and there was a positive Babinski on the left side. A repeat CT scan showed a 7 x 6 cm. enhancing mass in the right parietal area. The tumor was reported inhomogenous with calcification and necrosis in the center. At surgery, the tumor was focally attached to the dura. A "total" removal of the tumor was accomplished. The surgical specimen measured 7.5 x 6.5 x 5 cm. and weighed 80 g. The cut surface revealed the tumor to have a fleshy-tan scalloped periphery with pale yellow partly collapsed central areas of necrosis.

Follow-up:

She developed a recurrence of the tumor in November 1992 which was partly resected, and in January 1993 she had another recurrence in the same area. The family refused any further surgery, and she died on 1/27/93. A request for autopsy was not granted by the parents.

Material Submitted:

Hematoxylin and Eosin stained sections from the tumor.

Points for Discussion:

1. Diagnosis
2. Histogenesis

CASE 1995-9

Submitted by: Susan M. Staugaitis, M.D., Ph.D.
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Case Reference Number: MP94-147

Clinical History:

The patient was delivered after cephalocentesis with resultant fetal death at 32 weeks gestational age.

The mother was a 31-year-old G3P2 who was referred for an ultrasound at 30 weeks gestation because she was large for dates. The mother had prenatal care with normal laboratories and a normal ultrasound at 7 weeks. There was no history of medical problems or of tobacco, alcohol or drug use.

Ultrasound showed a single live fetus having an intracranial midline mass measuring 6.0 x 6.5 x 7.5 cm. The mass had a solid appearance with significant blood flow. The lateral ventricles were widely dilated, presumably due to obstruction of the foramina of Munro. Eight days later the mass was estimated to be 8.8 x 7.2 cm with a sonolucent area of 2.5 x 1.9 cm. An ultrasonography-guided cephalocentesis was performed. Fetal heart activity ceased after 760 cc of bloody fluid was removed. The fetus was delivered via vacuum extraction after induced labor. The placenta was manually extracted.

Necropsy findings:

The fetus weighed 2530 gm. Body length was 49.6 cm and foot length was 6.4 cm. Head circumference was 39 cm. General autopsy showed no congenital abnormalities. There was mild cardiomegaly, mild thymic involution, marked extramedullary hematopoeisis in liver and severe placental edema.

The fresh brain weighed 720 gm. The lateral ventricles were markedly dilated. Following one week fixation in 10% formalin and one week fixation in 100% ethanol, the brain weighed 310 gm. The gyri were flattened. The region of the base of the third ventricle appeared to be expanded by an intracerebral mass. The brainstem and cerebellum were normally formed. Coronal sectioning showed a soft, solid, centrally located mass which measured 12.0 x 8.0 x 6.0 cm. The mass was tan-brown with central necrosis. Dark punctate areas suggestive of vascular congestion were seen at the edge of the necrosis. The basal ganglia and thalamus could not be recognized. The cerebral cortex was attenuated to 0.2 - 0.4 cm in thickness. The left ventricle contained a large blood clot.

Material submitted: Kodachrome of coronal section of brain
One H&E section
One unstained section

Points for discussion: 1. Diagnosis
2. Cell of origin

CASE 1995-10

Submitted by: Caterina Giannini and Bernd W Scheithauer, Dept of Pathology, Mayo Clinic, Rochester, MN

Case reference number: HR93-23552

Clinical History: The patient is a 14-year-old girl, exceptionally small in stature, who presents with a progressive history of headaches over the last 1-2 years. Her headaches occur in the morning, 3-4 times per week and are often associated with vomiting. Over the past several months she has become involved with volleyball and has noticed that she is quite uncoordinated. She had been the most coordinated and athletic of her siblings, but over the past several years her disability had slowly progressed to the point where she could barely run. During this period she also noted that her eyes have started "jumping".

A medical evaluation five years ago disclosed no problem. At present her height is 140.3 cm and her weight 29.5 Kg (both under the 1st percentile for age). She is prepubertal (Tanner Stage I). Her head circumference is 55 cm (well above the 75th percentile for a person of her age). Neck motion is full range with no pain. Her hairline is normal without scalp abnormalities. Her pupils are equal, round and reactive to light; vertical and horizontal nystagmus is evident in all directions of gaze. Cranial nerves are intact. Sensation is normal. Motor examination shows increased muscle tone in the lower extremities; deep tendon reflexes are 2+ UE, 3+ knees, 4+ ankles. Her toes are down-going to plantar stimulation bilaterally. She has minimal dysmetria on finger to nose testing, exhibits poor balance, walks with wide based gait, and is unable to perform tandem gait maneuver.

MRI: large posterior fossa mass (see Kodachrome).

At surgery a large fibrous tumor was removed. It was primarily intradural but extended through the dura into the epidural space wherein it indented the base of the occipital bone. Dense arachnoid adhesions separated the tumor from the underlying cerebellar parenchyma, which appeared grossly atrophic, partially hemorrhagic, and necrotic. No cerebellar invasion was identified. Superiorly in the midline the tumor involved the torcula thus causing severe bleeding at resection. Resection was near total with the exception of a small amount of tumor being left at the torcula.

Material submitted: Kodachrome of MRI of posterior fossa tumor, and an H&E section of the tumor

CASE 1995-11

Submitted by: Kenneth Aldape and Richard L. Davis
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Case Reference Number: SP94-15358

HISTORY: The patient is a 21 year old left handed woman who fell off a horse in September, 1994, and suffered a concussion. Skull x-ray and CT scan were obtained to rule out a subdural hematoma, and were negative for this; however, there was a large bilateral occipital extra-axial mass with hyperostosis of the overlying bone. A subsequent MRI revealed invasion of the calvarium and extracalvarial extension of this lesion. There was also a 2 centimeter enhancing cystic mass in the right posterior parietal lobe adjacent to the extra-axial mass. A needle aspiration was obtained; the patient was referred to UCSF for further treatment.

In retrospect, the patient had noted increasingly frequent headaches for the last one and a half years, with occasional episodes of dizziness. She had no witnessed seizures, and had had a decrease in her peripheral vision, but denied diplopia. The patient had also noted increasing proptosis for the last year.

The patient had had a thyroid scan which was negative several months ago. There was no history of radiation.

PHYSICAL EXAMINATION: The physical examination revealed a tall, well developed, well nourished woman in no apparent distress. Neck, chest, cardiovascular, and extremities: Normal. HEENT: Obvious bilateral proptosis; right occipital bony and soft tissue protuberance which was nontender. NEUROLOGICAL EXAMINATION: Normal.

The patient was admitted in October, 1994, underwent cerebral angiography and successful PVA embolization of her right middle meningeal artery, right occipital artery, and left middle meningeal artery. Also noted during this procedure was occlusion of her superior sagittal sinus at the tumor site. The anterior superior sagittal sinus drained via the anterior cortical veins to the ophthalmic veins via transosseous emissary veins. The patient tolerated this procedure well. On A few days later she had a bilateral parietooccipital craniectomy for tumor excision and methyl methacrylate cranioplasty. Recovery from these procedures were uneventful.

MATERIAL SUBMITTED: Kodachrome of gross specimen, Kodachrome of imaging study, and H&E section of resected lesion.