Case 1

A 45 year old woman had severe headaches, nausea, dizziness, and a roaring sound in the left ear. She had difficulty walking. The physician found her alert and communicative, the external auditory canals were clear but her blood pressure was high. Strength in her extremities was normal. Her speech was fluent and full of meaning through dysarthric. Nystagmus was present. The entire left face was paralyzed and it had diminished sensation. There was impaired pain and temperature sense from the right side of the body. At rest, her eyes deviated toward the right; on command, there was paralysis of left horizontal conjugate gaze. Hearing was diminished on the left, the left eye drooped and the left pupil was constricted.

Assume a lesion at a single location in the nervous system caused the above symptoms. What is the most likely the position and level of this lesion (if possible show a cross-sectional diagram picture) showing a damaged area of the nervous system that would produce these symptoms. Mention the SIDE of the lesion, the POSITION and NAMES of structures (tracts or nuclei) damaged.

Case 2

A 15 year old boy was referred to a neurologist when he complained of difficulty in running and developed a staggering gait and clumsiness in the hands during an 8 month period. The physical exam revealed an unsteady broad-based stance and a "slapping" sound made by the feet when walking. Loss of vibratory and position sense was observed bilaterally in all extremities. There was a tremor of the upper extremity as the patient reached for objects. Hyporeflexia was present but there was only a slight indication of muscle atrophy though there were bilateral Babinski signs.

Assume a lesion at a single location in the nervous system caused the above symptoms. What is the most likely the position and level of this lesion (if possible show a cross-sectional diagram picture) showing a damaged area of the nervous system that would produce these symptoms. Mention the SIDE of the lesion, the POSITION and NAMES of structures (tracts or nuclei) damaged.

Case 3 :

Ahmed noticed that his left foot has felt clumsy lately and he has missed several goals when he plays soccer because of it. A neurological exam showed that he could not describe the position of his left foot and toes when they were passively flexed or extended. Vibratory sense was absent from his left foot also. Position and vibratory senses were normal in his right foot and elsewhere on his body. Pin prick sensation in his left foot was felt but it was not sharp or well localized. Response to pin prick was normal over the rest of his body.

Assume a lesion at a single location in the nervous system caused the above symptoms. What is the most likely the position and level of this lesion (if possible show a cross-sectional diagram picture) showing a damaged area of the nervous system that would produce these symptoms. Mention the SIDE of the lesion, the POSITION and NAMES of structures (tracts or nuclei) damaged.

Case 4

Chief Complaint

An 8-year-old girl was brought to her family physician by her mother because the child has become "unsteady" when walking .

History of Chief Complaint

Seven months earlier, she had begun complaining of nausea frequently. She is still complaining of nausea, but she is also vomiting frequently. In the past 3 months, the child has begun walking unsteadily with a broad-based gait. When seated, she swayed from side to side and occasionally fell over. Her head rotated from side to side as her body swayed. The mother also noted that the child had recently become extremely irritable.

Developmental and Medical History

The mother had had an uneventful pregnancy and delivery. At birth the child weighed 3.25 kg; by 5.5 months she could maintain a seated, upright posture, and she could roll over at 6 months of age. She could rise to a standing position and take several steps by 15months and could climb stairs by 20 months. By 3 years of age she could stand on one foot, unassisted. For the next 4 years she was active in outdoor play. All of her immunizations were current.

General Physical Examination

This was an awake, oriented child who was complaining of headaches and dizziness. Face and personality appeared the stated age, but she was underweight and lacked appropriate muscle mass. Edges of optic discs were blurred, but lacked cotton wool patches or papilledema. Nystagmus was evident on lateral gaze to either side. Her chest and abdomen were normal; blood pressure, pulse rate, temperature, and respirations were physiologic. Peripheral pulses were intact, with normal tissue turgor, and no cervical, axillary, or inguinal lymphadenopathy was detected.

Neurologic Examination

Mental Status: The child was awake and oriented with respect to time and place. Memory and knowledge were appropriate for her age. However, response time to questions was protracted and she appeared preoccupied with her headache pain.

Cranial Nerves. She had a full range of eye and facial movements. However, nystagmus was present on horizontal gaze to either side. Hearing was normal in both ears. Corneal, jaw-jerk, and gag reflexes were normal. The facial expressions were complete, the eyes were closed tightly, and the forehead was wrinkled symmetrically when frowning. Uvula and tongue protruded on the midline.

Motor Exam. Strength was normal in all extremities; deep tendon reflexes were physiologic in all extremities. In the seated position, the child swayed from side to side and could not maintain her torso in a vertical position. Her gait was broad-based and reeling. However, finger-to-nose and heel-to-shin testing were grossly abnormal except if her torso was supported in a vertical position.

Sensory Exam. Pinprick, thermal, vibratory, two-point discrimination, and proprioceptive senses were normal throughout the body and face.

Discuss this case in term of CNS location and causes of these manifestation

Case 5

An 82-year-old, right-handed man with a long history of illness, was brought to the emergency room by his family; he was in acute distress with back pain and unable to walk.

History of Complaint

Patient experienced severe back pain radiating into both legs that remitted promptly when lying down. The next day he experienced similar transient pain in the back and the legs. Later that day, while experiencing an episode of severe back pain, his legs became paralyzed and he was rushed to the hospital.

Medical History

The patient had a previous history of transurethral prostatectomy and bilateral orchiectomv for carcinoma of the prostate, left hemicolectomv for adenocarcinoma of the rectum, and arteriosclerotic heart disease and congestive heart failure.

General Physical Examination

He was awake, cooperative, and afebrile and appeared older than his stated age. Funduscopic examination revealed bilateral ocular opacities obscuring visualization of the fundi. External auditory canals were patent. No cervical lymphadenopathy was detected. Blood pressure was 160/90 mmHg, pulse rate was 48 beats per minute with occasional premature beats. There was a grade 2 blowing apical systolic murmur. Bilateral basilar crackles were present in the lungs on inspiration and bilateral jugular venous distention was demonstrable in the neck. Peripheral pulses were intact and equal at the wrists and ankles. Pitting pretibial edema was present. A colastomy stoma was present in the lower left quadrant of the abdomen. Otherwise the abdomen was soft to palpation with normal bowel sounds and no aortic bruits.

Neurologic Examination

Mental Status. He was alert and oriented to person, place and time; memory and affect were appropriate for his age. Speech was clear and meaningful. He was a good historian.

Cranial Nerves. His visual fields were intact and eve movements were full; hearing, to finger rub, was diminished bilaterally. His pupillary, corneal, and gag reflexes were intact: facial expressions were appropriate; uvula elevated symmetrically and tongue protruded on the midline. When asked, he could elevate his shoulders symmetrically with appropriate strength.

Motor Systems. His strength and muscle tone were absent in both lower extremities and deep tendon reflexes were absent at the knee and ankle. His strength and reflexes in the upper extremities were appropriate for his age. His urinary bladder was neurogenic, however, this had been present since his last surgery.

Sensory Exam. There was a well-defined sensory level at T10, below which he had lost sensation to pinprick and temperature. Touch, vibratory, and position sense were intact throughout his body and face.

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Discuss this case in term of CNS location and causes of these manifestations

Case 6

Chief Complaint

This 52-year-old, right-handed male with confusion and weakness

History of Chief Complaint

was brought to the emergency room by ambulance after losing consciousness in a restaurant on a Sunday afternoon. Although he maintained vital signs, he remained unconscious for 2 days, after which he began responding to external stimuli. Over a 2-week period be gradually regained consciousness. At this point he was re-examined for evaluation of future course.

Medical History

He had been in good health up until the apoplectic episode.

Family History

His father had died of cerebrovascular disease 10 years before, at the age of 64, his mother was living and in good health.

General Physical Examination

The patient was a well-nourished, well-hydrated male with male-pattern baldness and appeared his stated age. He was awake and fully cooperative but was disoriented for time and place. He had difficulty recognizing family members and hospital staff. He was overweight and appeared anxious. His optic discs were clear and sharp, and visual acuity was good. The neck was supple, with no bruits or lymphadenopathy. The chest was clear to percussion; the abdomen was soft, with no masses or tenderness. Peripheral pulses were intact at the wrist and ankle. Skin was moist and warm.

Neurologic Examination

Mental Status: The patient was an awake, fully cooperative, but disoriented male. His volitional speech was extremely nonfluent, consisting of several short phrases, such as, "no… no... no... no... no" or "tat... tat.., tat." He repeated these phrases many times when attempting to answer questions. He could, however, repeat complicated phrases following the examiner's lead, such as "no ifs, ands, or buts." Yet he could not recite the days of the week or months of the year when asked. Although he could understand simple commands (e.g., "Point to the door"), his comprehension of language was extremely poor. He never understood two- or three-step commands. He could read a few words aloud but could not comprehend what he had read; he could not write or draw even simple figures.

Cranial Nerves: He had a full range of eye movements but tended to keep his eyes positioned to the left when resting. Visual acuity was difficult to test, but he was capable of reading 8-point type. Both pupils were reactive to light, direct, and consensual. Hearing could not be tested accurately. Corneal, jaw-jerk, and gag reflexes were intact. There was a mild weakness in the right lower quadrant of his face. The uvula was elevated on the midline, and the tongue protruded on the midline. Snout, grasp, and suck reflexes were not present.

Motor Systems: Strength was diminished on the right, more so in the leg than in the arm. Deep tendon reflexes were elevated on the right compared to the left. A Babinski sign was present on the right, lie was incontinent for urine and feces and was visibly upset when this occurred.

Sensory Exam: The sensory exam was difficult due to the patient's poor mental status. Pinprick, temperature, vibratory, and proprioceptive senses appeared intact throughout the body and face, with the exception of some loss in the lower extremity on the right.

Discuss this case in term of CNS location and causes of these manifestation

Case 7

A usually alert 80 year old man lost consciousness. Upon awakening he complained of double vision and a tremor in his left arm. Mental status was good and speech was articulate and appropriate. The right eye had a dilated pupil and a lateral strabismus. On attempted lateral gaze to the left, the right eye would not proceed across the midline. Although vision was normal the right pupil did not constrict in either the direct or consensual pupillary light reflexes. Hearing was normal as were CN 5-12. Pain and temperature sensation from the body and face were normal bilaterally. There was diminished vibratory sense and muscle strength on the left. The left arm showed an intention tremor, dysmetria and occasional involuntary movement

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Case 8

A 52 year old woman became aware that she could not feel the pressure of her mascara pencil on her right eye lid although she had experienced facial pain. She was already aware that her hearing was better on the left; there was "ringing" in the right ear. She was troubled by dizziness. Upon examination the woman had difficulty standing without swaying when her heels were together whether her eyes are open or closed; her gait was slightly unsteady. She had a flat nasolabial fold on the right as well as a weakness in wrinkling her forehead on that side. Nystagmus was elicted when looking to the right and she showed a loss of the right corneal reflex. All other sensory and motor functions of the body and cranial nerve functions were within normal limits.

Assume a lesion at a single location in the nervous system caused the above symptoms. What is the most likely the position and level of this lesion (if possible show a cross-sectional diagram picture) showing a damaged area of the nervous system that would produce these symptoms. Mention the SIDE of the lesion, the POSITION and NAMES of structures (tracts or nuclei) damaged

Case 9

Chief Complaint

A 67-year-old, right-handed, male who has personality changes and a tremor.

History of Chief Complaint

The patient is a retired city worker was brought to you by his wife because of "shaking" and "weakness." The wife reported that not only did his hands shake; but there had been changes in his personality. She also complained that he had become very slow or "weak" in his movements and often sat motionless with an expressionless face. He had difficulty getting up and moving about the house. She admitted that this had been going on for over a year and was getting worse, but she had resisted seeking treatment since she felt that he had just grown lazy after retirement. He had recently suffered several falls, one of which had resulted in a skin laceration on his forehead. She was seeking a physician at this time because he had started to make "funny noises with his mouth."

Medical History

Until now he had been in good health except for an appendectomy at age 18.

Family History

At the time of examination the patient had been retired for 2 years. He had three children, who were living independently; none had attended college.

General Physical Examination

This was an alert, cooperative, well hydrated, and well-nourished individual, oriented for place and time and appearing his stated age. He was seated quietly and did not offer much information during the examination, letting his wife provide most of the history. Optic discs were clear with sharp borders. Chest was clear to auscultation and percussion. Blood pressure was normal; peripheral pulses were intact; respirations and temperature were normal. Abdomen was soft to palpation, with no masses or tenderness present. Skin was of normal texture and turgor; a recent skin laceration, 2 cm in length, was present on his forehead.

Neurologic Examination

Mental Status: The patient was alert, oriented for time and place, and cooperative. Memory and knowledge were appropriate for his age. Speech was clear and meaningful, but soft and low in volume; his comprehension of language was good. He was capable of writing, but his letters were noticeably reduced in size when compared with a previous sample of 10 years ago provided by his wife.

Cranial Nerves: His range of movement for the extraocular eye muscles was full, and visual fields were complete to confrontation. The corneal, jaw-jerk, and gag reflexes were intact; palate and uvula elevated symmetrically; tongue protruded midline; and shoulder shrug was symmetric. A three-per-second resting tremor was present in the orofacial musculature that diminished on speaking and swallowing or when he opened his mouth. There was a detectable high-frequency hearing loss, more in the right ear than in the left.

Motor Systems: His strength was intact, and deep tendon reflexes were normal in all extremities. He had a three-per-second tremor in both upper and lower extremities that was ameliorated with movement and returned upon resting. There was cogwheel rigidity upon passive movement of the limbs. He had no dysmetria or past-pointing present in any extremity. With his arms extended, the

tremor diminished and there was no pronator drift. The tremor returned when his arms were relaxed. His gait was slow, with many shuffling steps. Postural reflexes were compromised; if given an abrupt push, he retropulsed, with many short steps and was at risk for falling. The patient could not stand from a seated position in a low, soft-padded chair, but he could, after one or two attempts, rise from a higher chair with a stiffer seat.

Sensory Exam: Discrimiative touch and proprioception were intact throughout the body and face.

Discuss this case in term of CNS location and causes of these manifestation