1. Which one of the following statements regarding orbital infections is CORRECT?

A. Pre-septal cellulitis usually presents with pain and restriction of ocular motion.
B. Orbital cellulitis usually involves the intraconal space.
C. Opportunistic infection in AIDS patients usually involves the extraconal space.
D. Subperiosteal abscess usually involves the medial orbit.

Rationales:
A. Incorrect. Preseptal cellulitis generally causes painless swelling and there is no restriction of ocular motion.
B. Incorrect. Orbital cellulitis is usually confined to the extraconal space except in severe cases.
C. Incorrect. Opportunistic infections in AIDS more commonly involve the globe.
D. Correct. Orbital abscesses most commonly result from infection in the adjacent ethmoid sinus.

Citations:

2. Which of the following is a TRUE statement concerning hamartomas of the tuber cinereum?

A. They cause precocious puberty.
B. They are associated with focal motor seizures.
C. They demonstrate intense uniform contrast enhancement.
D. They are hyperintense to gray matter on T1-weighted MR imaging.

Rationales:
A. Correct. Hamartomas of the tuber cinereum do in fact produce precocious puberty secondary to secretion of luteinizing hormone-releasing hormone by the lesion.
B. Incorrect. Hamartomas of the tuber cinereum produce gelastic seizures. This may result from connections between the lesion and the limbic system.
C. Incorrect. Hamartomas of the tuber cinereum do not enhance as a rule. These lesions are immediately anterior to the mamillary bodies and may be broad based or pedunculated in configuration.
D. Incorrect. Hamartomas of the tuber cinereum are typically isointense to gray matter on T1WI and usually hyperintense to gray matter on T2WI.
3. Concerning carcinoma of the nasopharynx, which one is TRUE?

A. Nasopharyngeal carcinoma commonly spreads to level IV and V nodes in the neck.
B. Intracranial spread is usually through the hematogenous route.
C. Epstein-Barr virus infection is a risk factor.
D. Nasopharyngeal squamous cell carcinoma presents on MRI is typically not enhancing, with hypo-intense signal on T2.

Rationales:
A. Incorrect. Spread is to nodes more superiorly in the neck.
B. Incorrect. Intracranial involvement is typically from retrograde perineural spread through the skull base foramina
C. Correct. Nasopharyngeal carcinoma is common in young adult men in Southeast Asia, and is thought to be caused by EBV in this group.
D. Incorrect. Tumors mildly enhance and are hyper-intense on T2.

4. Which of the following is a TRUE statement concerning spinal dural arteriovenous fistulas?

A. The vertebral body is frequently involved.
B. Patients most commonly present with acute hemorrhage.
C. They are the most common type of spinal vascular malformation.
D. Men and women are affected equally.

Rationales:
A. Incorrect. This is a feature of the Juvenile AVM also termed type III in Spetzler classification.
B. Incorrect. Patients, most commonly elderly males, present with gradual onset of lower extremity weakness. Myelopathy as opposed to hemorrhage is identified on imaging studies in combination with subtle dilatation of spinal surface vasculature.
C. Correct. SDAVF is the most common. There is usually a single feeding radicular artery draining into pial surface veins. In most cases, treatment is endovascular unless the anterior spinal artery arises from the same level.
D. Incorrect. Males are more commonly affected than females with age of onset somewhere in the fifth to sixth decade.

5. Which one of the following is NOT usually associated with a tethered cord?

A. Spinal lipoma
B. Chiari I malformation
C. Thick filum terminale
D. Diastematomyelia
Rationales:
A. Incorrect. Spinal lipomas are frequently associated with all forms of spinal dysraphism, especially those with a low conus and tethered cord.
B. **Correct.** The Chiari I malformation is associated with syringo-hydromyelia in 20-60% but not with meningomyelocele or other forms of cord tethering.
C. Incorrect. A thick filum terminale is the rule with tethered cords.
D. Incorrect. Diastematomyelia is characterized by a sagittal clefting of the spinal cord or filum terminale. A low lying or tethered cord is present in about 40%.

6. **Progressive intracranial occlusive arteriopathy (Moyamoya syndrome) is associated with ALL of the following conditions EXCEPT:**

A. Sickle cell disease
B. Neurofibromatosis type 1
C. Tuberous sclerosis
D. Radiation therapy

Rationales:
A. Incorrect. Moyamoya is seen in sickle cell disease secondary to stenosis/occlusion within the distal internal carotid artery and proximal aspects of the middle and anterior cerebral arteries. These findings are secondary to ischemia in the vasa vasorum with subsequent intimal and medial hyperplasia.
B. Incorrect. Vascular dysplasia sometimes occurs in neurofibromatosis type 1. This most commonly consists of intimal proliferation with resultant stenosis/occlusion involving the carotid, middle cerebral and anterior cerebral arteries. Moyamoya pattern is seen in 60-70% of these patients.
C. **Correct.** Tuberous sclerosis is a neurocutaneous syndrome characterized by subependymal nodules, cortical hamartomas, giant cell astrocytomas, neuronal migration anomalies and many additional findings outside the central nervous system. There is no known association with moyamoya.
D. Incorrect. Radiation therapy can produce arterial injury including medial hyperplasia, intimal fibrosis, and endothelial degeneration. These can then produce vascular stenosis/occlusion resulting in a moyamoya pattern of collateral circulation.

7. **Which statement is TRUE concerning persistent trigeminal artery?**

A. It passes through the foramen rotundum.
B. It occurs in 5% of the population.
C. It is associated with intracranial aneurysms.
D. It is less common than a persistent hypoglossal artery.
RATIONALES:
A. Incorrect. Persistent trigeminal artery arises from the cavernous segment of the internal carotid artery and courses posteriorly following either a parasellar or intrasellar course anastomosing with the basilar artery.
B. Incorrect. Persistent trigeminal artery occurs in 0.02% to 0.6% of cerebral angiograms.
C. Correct. Persistent trigeminal artery is associated with an increased incidence of other vascular anomalies including aneurysms. Intracranial aneurysms are found in approximately 14% of cases of persistent trigeminal artery.
D. Incorrect. Persistent trigeminal artery is the most common persistent carotid-basilar anastomosis. Persistent hypoglossal artery is the second most common persistent carotid-basilar anastomosis with a prevalence of 0.027% to 0.26%.

References:
Osborn, Diagnostic Cerebral Angiography, Lippincott Williams and Wilkins, Philadelphia 1999

8. Regarding diffuse axonal injury, which of the following statements is TRUE?
A. It is responsible for coma and poor outcomes in head trauma patients.
B. CT is the diagnostic test of choice.
C. Involvement of the corpus callosum is unusual.
D. A “honeymoon” period of lucidity is encountered at the time of initial presentation.

Rationales:
A. Correct. As stated in the question, DAI is associated with axonal disruption leading to coma and poor outcome
B. Incorrect. MR is the test of choice to evaluate the White matter as CT can miss non hemorrhagic and subtle hemorrhagic shear injuries
C. Incorrect. Involvement of the corpus callosum is common
D. Incorrect. This describes patients with epidural hematomas not DAI

9. Which of the following is a TRUE statement regarding Dandy-Walker malformation?

A. The vermis is intact.
B. The falx cerebelli is present.
C. A good prognosis is frequently encountered.
D. Associated supratentorial anomalies are common.

RATIONALES:

A. Incorrect. The vermis is always absent or very hypoplastic with Dandy-Walker.
D. Correct. Supratentorial anomalies are common.
C. Incorrect. The prognosis is poor with this malformation.
B. Incorrect. The falx cerebelli is absent.