

Cerebral Artery Aneurysm Clipping

- Cerebral aneurysms are most likely the result of ____.**
 - Birth defects
 - Hypertension
 - Hypotension
 - Subarachnoid hemorrhage
- The brain requires a blood flow of ____, making the brain sensitive to even a few seconds of reduced vascular flow.**
 - 600 ml/min
 - 750 ml/hr
 - 750 ml/min
 - 500 cc/min
- Which of the following medications is used to decrease vasospasm?**
 - Heparin
 - Papaverine
 - TPA
 - Thrombin
- The two arteries that give rise to the Circle of Willis are the ____ and the ____.**
 - Vertebral, aorta
 - Vertebral, external carotid
 - Innominate, superior thyroid
 - Vertebral, internal carotid
- The term pterional refers to the ____.**
 - Frontotemporal suture line
 - Transphenoidal approach
 - Junction of the frontal, parietal, temporal, and sphenoid bones
 - Parietotemporal suture line
- Which of the following is an artery that comprises the Circle of Willis?**
 - Superior cerebellar
 - Anterior spinal
 - Anterior communicating
 - Right vertebral artery
- At which junction are aneurysms most common?**
 - ICA-PCA
 - ECA-ICA
 - Right & left vertebral arteries
 - Basilar & superior cerebellar
- What is used to secure the replaced bone flap?**
 - 4-0 braided Neurolon
 - Raney clips
 - Titanium plates and screws
 - Polymethylmethacrylate
- In addition to hemodynamic stress, which additional factors may be responsible for aneurysm formation?**
 - Degenerative osseous lesions
 - Atherosclerosis
 - Head trauma
 - Both B and C
- Which of the following is an approach that can be used to access aneurysms of the Circle of Willis?**
 - Posterotemporal
 - Midline
 - Frontolateral
 - Pterional

High Grade Astrocytoma in the Adult, Part 1: Biology and Pathology

- Histology is the ____.**
 - Study of History
 - Study of the minute structure, composition, and function of tissues
 - Development of tissues from the undifferentiated germ layer of the embryo
 - Development of a tumor containing histocytes
- Which of the following is one of the gene classes that coordinates the life cycle of a cell?**
 - Tumor suppressor
 - Oncogenes
 - Glial-cell progenitor
 - Fibroblast growth factor
- Types of glial cells include ____.**
 - Oligodendroglial cells (CNS)
 - Ependymal cells (PNS)
 - Astrocytes
 - All of the above
- During which phase of the normal cell cycle does DNA replication occur?**
 - G1
 - S phase
 - Gap two
 - Mitotic phase
- What is mitosis?**
 - Metastasis of cancer cells
 - Glial cell oncogenesis
 - Form of cell division
 - Chromosomal mutation
- What is the most malignant of all types of brain tumors?**
 - Glioblastoma multiforme
 - Anaplastic astrocytoma
 - Schwannoma
 - Meningioma
- In addition to the tumor type and grade, which of the following factors influence the individual prognosis?**
 - Gender
 - Age
 - Vascular proliferation
 - All of the above
- Which phase of mitosis is autocrine growth factors involved?**
 - M
 - S
 - G1
 - G2
- In relation to the normal cell cycle, CDKs are ____.**
 - Oncogenes
 - Growth factors
 - Cyclin dependent kinases
 - Cyclins
- The “go/no-go” point in mitosis ____.**
 - Is also referred to as the restriction point
 - Occurs during the S phase of the cell cycle
 - Occurs during the mitotic (M) phase of the cell cycle
 - Occurs during the G2 phase of the cell cycle

High Grade Astrocytoma in the Adult, Part 2: Biology, Pathology, Diagnostics and Treatment

- 1. Why do individuals with a tumor in the second grouping have a better prognosis?**
 - a. The tumor has a less aggressive capacity for invading surrounding tissue
 - b. The tumor has a limited growth rate
 - c. The tumor has limited anaplastic progression
 - d. All of the above
- 2. Why are tumors in the second grouping less aggressive than tumors in the first grouping?**
 - a. They are microscopically circumscribed neoplasms
 - b. They are adept at infiltrating surrounding tissue
 - c. Both A & B
 - d. None of the above
- 3. Which of the following risk factors apply to glioblastoma in the adult?**
 - a. Race (Caucasian)
 - b. Gender (Male)
 - c. Age (50s and 60s)
 - d. All of the above
- 4. Meningiomas**
 - a. Rapidly invade brain tissue
 - b. Do not invade brain tissue
 - c. Rapidly invade the spinal cord
 - d. Rapidly invade the pituitary
- 5. Tinel's sign is defined as**
 - a. Ringing in the ears
 - b. Dizziness
 - c. A sensation of tingling
 - d. Nausea
- 6. A nerve conduction study is also called a/an**
 - a. EMG
 - b. CT Scan
 - c. MRI
 - d. Craniotomy
- 7. Which of the following is subcategory of astrocytoma tumors?**
 - a. Ependymoma
 - b. Medulloblastoma
 - c. Gemistocytic
 - d. Choroid plexus
- 8. What is the most common method of administration for a contrast agent?**
 - a. Oral
 - b. Rectal
 - c. Inhalation
 - d. Intravenous
- 9. Which of the following is an advantage of CT scan over MRI?**
 - a. CT is faster than MRI
 - b. CT uses ionizing radiation; MRI does not
 - c. The strong magnet the CT scanner is usually located in the radiology department
 - d. CT uses radio waves; MRI does not
- 10. Glioblastomas represent approximately___of all primary brain tumors.**
 - a. 5%
 - b. 10%
 - c. 20%
 - d. 42%

The Autonomic Nervous System

- The nervous system along with the ___system controls many bodily activities.**
 - Cardiovascular
 - Respiratory
 - Endocrine
 - Urogenital
- The peripheral nervous system consists of___.**
 - 10 pairs of cranial nerves; 28 pairs of spinal nerves
 - 11 pairs of cranial nerves; 29 pairs of spinal nerves
 - 12 pairs of cranial nerves; 31 pairs of spinal nerves
 - 13 pairs of cranial nerves; 32 pairs of cranial nerves
- The autonomic nervous system (ANS) primarily innervates all of the following except___.**
 - Glands
 - Skeletal muscle
 - Smooth muscle
 - Cardiac muscle
- The autonomic nervous system (ANS) is activated mainly by centers located in all of the following except___.**
 - Cerebellum
 - Hypothalamus
 - Brain stem
 - Spinal cord
- Which of the following is not a response to sympathetic nervous system (SyNs) impulses?**
 - Increase blood pressure
 - Speed up force/rate of heart beat
 - Increase blood sugar concentration
 - Constrict bronchioles
- Both pre-and postganglionic neurons of the parasympathetic nervous system (PaNS) utilize the neurotransmitter___.**
 - Epinephrine
 - Norepinephrine
 - Cholinesterase
 - Acetylcholine
- When stimulated by preganglionic sympathetic (thoracicsplanchnic) nerve fibers, the chromaffin cells of the adrenal glands release large quantities of ___directly into the blood stream.**
 - Acetylcholine
 - Epinephrine
 - Norepinephrine
 - Both B and C
- Which of the following branches of the aorta does not have a collateral ganglion (plexus) located next to it?**
 - Celiac
 - Renal
 - Superior mesenteric
 - Inferior mesenteric
- Preganglionic fibers originate from cell bodies in the ___gray horn of all the thoracic and first two or three lumbar segments of the spinal cord.**
 - Anterior
 - Lateral
 - Medial
 - Posterior
- ___receptor sites for acetylcholine (cholinergic) occur at the junction between preganglionic and postganglionic fibers of both the sympathetic and parasympathetic divisions of the ANS.**
 - Nicotinic
 - Muscarinic
 - Adrenergic
 - Oxidase

General Principles and Instrumentation For Cranial Neurosurgery, Part 1

- Which is another term for the $\frac{3}{4}$ prone position?
 - Supine
 - Lateral oblique
 - Right lateral recumbent
 - None of the above
- When the patient is in the supine or $\frac{3}{4}$ position, the CST should be ____.
 - Seated at the head of the table
 - In front of the patient's face
 - Behind the patient's back
 - At the patient's feet
- The ____ is the site of a bony prominence that overlies the torcular and the attachment of the tentorium to the inner table of the skull.
 - Frontozygomatic point
 - Sylvian fissure
 - Nasion
 - Inion
- The ____ separates the motor and sensory areas of the cerebrum.
 - Frontozygomatic point
 - Nasion
 - Sylvian fissure
 - Rolandic fissure
- The ____, the site on the temple, is located 3 cm behind the frontozygomatic point on the Sylvian fissure line.
 - Pterion
 - Inion
 - Orbital rim
 - Tentorium
- ____ interfere with CT or MRI scans, so are only used with aneurysms.
 - Pinion head clamps
 - Rongeurs
 - Metallic clips
 - Bone wax
- ____ is/are used to close small openings in the mastoid air cells and sinuses.
 - Silk suture
 - Pericranial grafts
 - Metallic clips
 - Bone wax
- The greatest accuracy and control of the drill is achieved ____.
 - At high speeds
 - Through constant pressure
 - With low speeds
 - Using minimal irrigation
- Bipolar coagulation will not occur if ____.
 - Tips are too far apart
 - Tips are touching
 - A and b
 - None of the above
- In which areas would unipolar coagulation be hazardous?
 - Brain stem
 - Fourth ventricle
 - Near cranial nerves
 - All of the above

General Principles and Instrumentation For Cranial Neurosurgery, Part 2

- 1. Round-handle forceps with fine serrations inside the tips are called ____.**
 - a. Needle holding forceps
 - b. Dura forceps
 - c. Dressing forceps
 - d. Coagulation forceps
- 2. 9.5 cm bayonet forceps are used for which tissues?**
 - a. Circle of Willis
 - b. Cerebellopontine angle
 - c. Sellar region
 - d. All of the above
- 3. The smallest Penfield dissector is ____ wide.**
 - a. 2 mm
 - b. 3 mm
 - c. 2 cm
 - d. 3 cm
- 4. Jewelers forceps are too short for ____.**
 - a. Tying superficial microsuture
 - b. Handling microneedles near the surface
 - c. Deep intracranial operations
 - d. None of the above
- 5. Which suction tube would be best for use at the front of the brain stem?**
 - a. 5-French
 - b. 8 cm shaft
 - c. 10 cm shaft
 - d. 13 cm shaft
- 6. In suction tube sizes, how many French units equals 1 mm?**
 - a. One
 - b. Two
 - c. Three
 - d. Five
- 7. ____are used to elevate the surface of the brain away from the cranial base.**
 - a. Suction tubes
 - b. Elevators
 - c. Bayonets
 - d. Spatulas
- 8. ____are used for removing the last shell of bone between a drill surface and neural or vascular structures.**
 - a. Brain spatulas
 - b. Bone currettes
 - c. Cup forceps
 - d. Shell removers
- 9. Which allows the surgeon to reach around a corner to grasp tissue or remove tumors?**
 - a. Angled microcup forceps
 - b. 1-2 mm cup forceps
 - c. 3-4 mm corner forceps
 - d. 45 ° angle curets
- 10. The retraction system should include____.**
 - a. Flexible arms
 - b. Clamps and bars
 - c. Tapered and rectangular spatulas
 - d. All of the above

Creutzfeldt-Jacobs Disease

- 1. Which is the most common form of CJD?**
 - a. Iatrogenic
 - b. Genetic
 - c. Sporadic
 - d. New variant
- 2. In which form of CJD can doctors use tonsil tissue for diagnosis**
 - a. Sporadic
 - b. Genetic
 - c. Iatrogenic
 - d. New variant
- 3. PrP protein has been discovered on ____**
 - a. Nerve cells
 - b. Muscle cells
 - c. White blood cells
 - d. All of the above
- 4. Prions are unlike any other pathogens in that they ____.**
 - a. Contain no DNA or RNA
 - b. Survive routine sterilization and disinfection processes
 - c. Are not contagious in a traditional sense
 - d. All of the above
- 5. FFI and GSS are both ____.**
 - a. Prion diseases
 - b. Inherited forms of CJD
 - c. New variants of CJD
 - d. Iatrogenic
- 6. Beta-sheet prions are ____.**
 - a. Normal PrP
 - b. Infectious PrP
 - c. Helical
 - d. None of the above
- 7. Which form of CJD has the lowest percentage of cases?**
 - a. Iatrogenic
 - b. Sporadic
 - c. Inherited
 - d. vCJD
- 8. According to Rutala & Weber, ____ devices contact mucous membranes and broken skin.**
 - a. Noncritical
 - b. Semicritical
 - c. Critical
 - d. High risk
- 9. According to the CDC, CJD contaminated instruments are considered sterile after ____.**
 - a. Steam autoclaving for 1 hour at 250° F
 - b. Being soaked for 20 minutes in 5,000 ppm hypochlorite
 - c. Using normal sterilization methods
 - d. All instruments must be incinerated
- 10. Which type of human tissue is NOT considered high risk?**
 - a. Brain
 - b. Heart
 - c. Eye
 - d. Spinal cord

Glioblastoma Multiforme: From Biology to Treatment

1. **CRPS is more common in:**
 - a. men
 - b. women
 - c. children
 - d. the elderly

2. **Which is mismatched?**
 - a. Type I; cases with no known nerve injury
 - b. Type I: reflex sympathetic dystrophy
 - c. Type I: distinct major nerve injury
 - d. Type II: causalgia

3. **Which clinical feature is considered the hallmark of CRPS?**
 - a. pain
 - b. swelling
 - c. stiffness of joints
 - d. muscle spasms

4. **Which is false about symptoms of CRPS?**
 - a. Joints become stiff and muscles can atrophy.
 - b. Burning pain and localized swelling occurs at the site of injury.
 - c. Pain is unaffected by emotional distress or stress.
 - d. Rashes may appear on the extremities.

5. **Extreme sensitivity to touch is called:**
 - a. causalgia
 - b. paroxysmal pain
 - c. allodynia
 - d. hyperalgesia

6. **Which is not a type of spread in CRPS?**
 - a. independent
 - b. malignant
 - c. continuity
 - d. mirror image

7. **A TENS unit may be used for:**
 - a. muscle stimulation
 - b. biofeedback
 - c. muscle strengthening
 - d. desensitization

8. **Which is not considered a treatment option for CRPS patients?**
 - a. occupational therapy
 - b. physical therapy
 - c. casting and immobilization
 - d. pain psychology

9. **Which of the following is the method for measuring the heat emission of a limb?**
 - a. Doppler studies
 - b. sympathetic nerve blocks
 - c. thermograms
 - d. spinal cord stimulators

10. **Which type of block may affect the recurrent laryngeal nerve?**
 - a. stellate ganglion block
 - b. lumbar sympathetic block
 - c. epidural block
 - d. limbic block

Microvascular Decompression For Control of Trigeminal Neuralgia

1. Which is the trigeminal nerve?
 - a. IV
 - b. V
 - c. VI
 - d. X
2. Who created a nondestructive technique to decompress the trigeminal nerve?
 - a. Andre Douloureux
 - b. Walter Dandy
 - c. Peter Janetta
 - d. Antonio Valsalva
3. Which is mismatched?
 - a. V : eyes, upper eyelids and forehead
 - b. V : cheeks, lower eyelids, nostrils, upper lips, gums
 - c. V : jaw, lower lip, gums, chewing muscles
 - d. None are mismatched
4. The most common form of treatment for TN is:
 - a. Medication
 - b. Open surgery
 - c. Ablative procedures
 - d. Endoscopic surgery
5. Which is not a symptom of TN?
 - a. Brief, lancinating pain
 - b. Loss of sensation in the facial nerve
 - c. Decreased corneal reflex
 - d. Decreased estrogen production
6. TN causes __, making the patient susceptible to increased pain sensations.
 - a. Pulsation of the vessel
 - b. Demyelination of the axons
 - c. Transmission of facial sensations
 - d. None of the above
7. Which drug used to treat TN has had the best results and fewest side effects?
 - a. Baclofen
 - b. Carbamazepine
 - c. Gabapentin
 - d. Oxcarbazepine
8. When is the Valsalva maneuver performed?
 - a. When nerve exposure is achieved
 - b. Once the nerve has been decompressed
 - c. Prior to craniectomy
 - d. After cranioplasty
9. The most common ablative procedure for TN is:
 - a. Percutaneous rhizotomy by glycerol injection
 - b. Percutaneous rhizotomy by balloon
 - c. Radio frequency rhizotomy
 - d. Knifeless surgery
10. The ___decompression procedure prevents brain retraction and provides enhanced visualization, lighting and magnification.
 - a. Endoscopic
 - b. Gamma probe
 - c. CyberKnife®
 - d. Radio frequency rhizotomy

Anterior Internal Fixation of Type II Odontoid Process Fractures

1. **The most common cause of cervical spine injuries is**
 - a. Diving accidents
 - b. Motor vehicle accidents
 - c. Football accidents
 - d. Climbing mishaps
2. **The most distinguishing feature on C1 is**
 - a. Two lateral masses and two arches
 - b. Large odontoid process
 - c. Absence of a vertebral body
 - d. Cruciate ligament
3. **The most distinguishing feature of C2 is**
 - a. Transverse ligaments
 - b. Apical ligaments
 - c. Alar ligaments
 - d. Dens
4. **The ____ is shaped like a cross and helps stabilize the ____.**
 - a. Cruciate ligament, odontoid process
 - b. Transverse ligament, dorsal aspect
 - c. Alar ligament, medial aspect
 - d. Apical ligament, basion
5. **Type I odontoid fractures usually involve**
 - a. A fracture at the base of the odontoid
 - b. An avulsion of the tip of the odontoid process
 - c. A fracture through the body of C2
 - d. An anterior displacement of the dens
6. **Type II odontoid fractures usually involve**
 - a. A fracture through the body of C2
 - b. Anterior displacements of the dens
 - c. A fracture at the base of the odontoid
 - d. Both b and C
7. **Type II odontoid fractures have several treatment options, including**
 - a. Halo traction
 - b. Posterior C1-2 fusion
 - c. Anterior odontoid screw fixation
 - d. All of the above
8. **The reason for a transverse skin incision at C4-5 is**
 - a. Aligning the drill guide with the process
 - b. Creating a plane to the vertebral bodies
 - c. Exposing the anterior longitudinal ligament
 - d. Retracting the carotid sheath
9. **A _____ retractor is used to facilitate exposure of the body of C2.**
 - a. Weitlaner
 - b. Apfelbaum
 - c. Hohmann
 - d. Bennett
10. **Factors to be considered in treatment of odontoid fractures are**
 - a. The level and direction of the fracture line
 - b. The rotation of the fracture fragments
 - c. The presence of any neurological impairment
 - d. All of the above

Answers CE CREDIT PKG 3A: 10 CONTINUING EDUCATION CREDITS

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Cerebral Artery Aneurysm Clipping

| a | b | c | d | a | b | c | d | |
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High Grade Astrocytoma in the Adult, Part 1: Biology and Pathology

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High Grade Astrocytoma in the Adult, Part 2: Biology, Pathology, Diagnostics and Treatment

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The Autonomic Nervous System

| a | b | c | d | a | b | c | d | |
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General Principles and Instrumentation For Cranial Neurosurgery, Part 1

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General Principles and Instrumentation For Cranial Neurosurgery, Part 2

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Creutzfeldt-Jakob Disease

| a | b | c | d | a | b | c | d | | |
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Glioblastoma Multiforme: From Biology to Treatment

| a | b | c | d | a | b | c | d | | | |
|----|--------------------------|--------------------------|--------------------------|--------------------------|-----|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------------------------------------------------------------------------|
| 1. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 7. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Mark one box next to each number. Only one correct or best answer will be selected for each question. |
| 2. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 8. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 9. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 10. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | | | | |
| 6. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | | | | |

Microvascular Decompression For Control of Trigeminal Neuralgia

| a | b | c | d | a | b | c | d | | | |
|----|--------------------------|--------------------------|--------------------------|--------------------------|-----|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------------------------------------------------------------------------|
| 1. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 7. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Mark one box next to each number. Only one correct or best answer will be selected for each question. |
| 2. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 8. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 9. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 10. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | | | | |
| 6. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | | | | |

Anterior Internal Fixation of Type II Odontoid Process of Fractures

| a | b | c | d | a | b | c | d | | | |
|----|--------------------------|--------------------------|--------------------------|--------------------------|-----|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------------------------------------------------------------------------|
| 1. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 7. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Mark one box next to each number. Only one correct or best answer will be selected for each question. |
| 2. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 8. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 9. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 10. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | | | | |
| 6. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | | | | |