

198 MARCH 2001 CATEGORY 3

CE Exam

CONTINUING EDUCATION EXAMINATION

Cerebral artery aneurysm clipping

Earn CE credit at home

You will be awarded one continuing education (CE) credit for recertification after reading the designated article and completing the exam with a score of 70% or better.

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Detach or photocopy the answer block, include your check or money order made payable to AST and send it to the Accounting Department, AST, 6 West Dry Creek Circle, Suite 200, Littleton, CO 80120-8031.

Members: \$6 per CE, nonmembers: \$10 per CE

- 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
- The Circle of Willis is the _____.
 - Circle of arteries in the sclera at the site of the optic nerve entrance
 - Series of circles used for the graphic recording of brain aneurysms
 - Anastomotic loop of vessels near the base of the brain
 - Circular movement patterns made by those who exhibit autistic behavior
- What is the importance of isolating the internal carotid artery prior to aneurysm clipping?
 - To reduce the risk of hemorrhage in case of aneurysm rupture
 - To reduce the size of the aneurysm
 - To reduce ICP
 - To eliminate edema
- In addition to titanium mini-plates and screws, what other methods are available to secure the bone flap?
 - Silk suture
 - Stainless steel wire
 - Both A and B
 - None of the above
- In addition to hemodynamic stress, which additional factors may be responsible for aneurysm formation?
 - Degenerative osseous lesions
 - Atherosclerosis
 - Head trauma
 - Both B and C
- The term rostral refers to the _____.
 - Area toward the oral and nasal regions
 - Superior in relation to the spinal cord
 - Anterior in relation to the brain
 - All of the above

198 MARCH 2001 CATEGORY 3

Cerebral artery aneurysm clipping

Certified Member

Certified Nonmember

Certification No _____

Name _____

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City _____ State _____ ZIP _____

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Mark one box next to each number. Only one correct or best answer can be selected for each question.

199 MARCH 2001 CATEGORY 3

CE Exam

CONTINUING EDUCATION EXAMINATION

High grade astrocytoma in the adult

Part 1: Biology and pathology

Earn CE credit at home

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- 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
- The "gate" that allows passage of nutrients and restricts potentially harmful substances to the brain is also known as the _____.
 - Blood-brain barrier
 - Blood-air barrier
 - Blood-aqueous barrier
 - Placental barrier
- Types of glial cells include _____.
 - Oligodendroglial cells (CNS)
 - Ependymal cells (PNS)
 - Schwann cells (PNS)
 - 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?
 - Rod shaped cytoplasmic organelles
 - Form of cell division that halves the chromosome number during reproduction
 - Form of cell division that produces two daughter cells identical to the parent cell
 - Contraction of the pupil
- 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
- Autocrine hormone action denotes a _____.
 - Mode of hormone function in which the hormone is secreted externally via a duct
 - Mode of hormone function that is restricted to the local environment
 - Mode of hormone function in which the hormone binds to receptors on and affects the cell the produced it
 - None of the above
- 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

199 MARCH 2001 CATEGORY 3

High grade astrocytoma in the adult Part 1: Biology and pathology

Certified Member

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200 APRIL 2001 CATEGORY 3

CE Exam

CONTINUING EDUCATION EXAMINATION

High grade astrocytoma in the adult

Part 2

Earn CE credit at home

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- Why do individuals with a tumor in the second grouping have a better prognosis?
 - The tumor has a less aggressive capacity for invading surrounding tissue
 - The tumor has a limited growth rate
 - The tumor has limited anaplastic progression
 - All of the above
- Why are tumors in the second grouping less aggressive than tumors in the first grouping?
 - They are microscopically circumscribed neoplasms
 - They are adept at infiltrating surrounding tissue
 - Both A & B
 - None of the above
- Which of the following risk factors apply to glioblastoma in the adult?
 - Race (Caucasian)
 - Gender (Male)
 - Age (50s and 60s)
 - All of the above
- Meningiomas
 - Rapidly invade brain tissue
 - Do not invade brain tissue
 - Rapidly invade the spinal cord
 - Rapidly invade the pituitary
- Tinel's sign is defined as
 - Ringing in the ears
 - Dizziness
 - A sensation of tingling
 - Nausea
- A nerve conduction study is also called a/an
 - EMG
 - CT Scan
 - MRI
 - Craniotomy
- What is contrast medium?
 - A means of maintaining clinical specimens for laboratory examination
 - Transparent tissues that allow light rays to refract
 - Radiopaque substance used to enhance visualization of internal body structures
 - None of the above
- What is the most common method of administration for a contrast agent?
 - Oral
 - Rectal
 - Inhalation
 - Intravenous
- Which of the following is an advantage of CT scan over MRI?
 - CT is faster than MRI
 - CT uses ionizing radiation; MRI does not
 - The strong magnet the CT scanner is usually located in the radiology department
 - CT uses radio waves; MRI does not
- Glioblastomas represent approximately _____ of all primary brain tumors.
 - 5%
 - 10%
 - 20%
 - 42%

200 APRIL 2001 CATEGORY 3

High grade astrocytoma in the adult Part 2

			a	b	c	d		a	b	c	d
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Telephone _____											

Mark one box next to each number. Only one correct or best answer can be selected for each question.

207 NOVEMBER 2001 CATEGORY 1

CE Exam

CONTINUING EDUCATION EXAMINATION

Autonomic nervous system

Earn CE credit at home

You will be awarded one continuing education (CE) credit for recertification after reading the designated article and completing the exam with a score of 70% or better.

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- 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 (thoracic splanchnic) 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

207 NOVEMBER 2001 CATEGORY 1

Autonomic nervous system

		a	b	c	d		a	b	c	d
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208 DECEMBER 2001 CATEGORY 3

CEExam

CONTINUING EDUCATION EXAMINATION

Cranial neurosurgery, part 1

Earn CE credit at home

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- Which is another term for the 3/4 prone position?
 - supine
 - lateral oblique
 - right lateral recumbent
 - none of the above
- When the patient is in the supine or 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

208 DECEMBER 2001 CATEGORY 3

Cranial neurosurgery, part 1

Certified Member

Certified Nonmember

Certification No _____

Name _____

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209 JANUARY 2002 CATEGORY 3

CE Exam

CONTINUING EDUCATION EXAMINATION

Cranial neurosurgery, part 2

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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 curets
 - 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. ball and socket units
 - c. tapered and rectangular spatulas
 - d. all of the above

209 JANUARY 2002 CATEGORY 3

Cranial neurosurgery, part 2

Certified Member

Certified Nonmember

Certification No. _____

Name _____

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212 APRIL 2002 CATEGORY 1

CE Exam

CONTINUING EDUCATION EXAMINATION

Creutzfeldt-Jakob Disease

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- Which is the most common form of CJD?
 - iatrogenic
 - genetic
 - sporadic
 - new variant
- In which form of CJD can doctors use tonsil tissue for diagnosis?
 - sporadic
 - genetic
 - iatrogenic
 - new variant
- PrP protein has been discovered on _____.
 - nerve cells
 - muscle cells
 - white blood cells
 - all of the above
- Prions are unlike any other pathogens in that they _____.
 - contain no DNA or RNA
 - survive routine sterilization and disinfection processes
 - are not contagious in a traditional sense
 - all of the above
- FFI and GSS are both _____.
 - prion diseases
 - inherited forms of CJD
 - new variants of CJD
 - iatrogenic
- Beta-sheet prions are _____.
 - normal PrP
 - infectious PrP
 - helical
 - none of the above
- Which is not an animal form of prion disease?
 - chronic wasting disease
 - mad cow disease
 - feline leukemia
 - scrapie
- According to Rutala & Weber, _____ devices contact mucous membranes and broken skin.
 - noncritical
 - semicritical
 - critical
 - high risk
- According to the CDC, CJD-contaminated instruments are considered sterile after _____.
 - steam autoclaving for 1 hour at 250°F
 - being soaked for 20 minutes in 5,000 ppm hypochlorite
 - using normal sterilization methods
 - all instruments must be incinerated
- Which type of human tissue is NOT considered high risk?
 - brain
 - heart
 - eye
 - spinal chord

212 APRIL 2002 CATEGORY 1

Creutzfeldt-Jakob Disease

Certified Member

Certified Nonmember

Certification No. _____

Name _____

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4	<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"/>
5	<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"/>

Mark one box next to each number. Only one correct or best answer can be selected for each question.

220 OCTOBER 2002 CATEGORY 1

CE Exam

CONTINUING EDUCATION EXAMINATION

Glioblastoma multiforme

Earn CE credit at home

You will be awarded one continuing education (CE) credit for recertification after reading the designated article and completing the exam with a score of 70% or better.

If you are a current AST member and are certified, credit earned through completion of the CE exam will automatically be recorded in your file—you do not have to submit a CE reporting form. A printout of all the CE credits you have earned, including Journal CE credits, will be mailed to you in the first quarter following the end of the calendar year. You may check the status of your CE record with AST at any time.

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Detach or photocopy the answer block, include your check or money order made payable to AST and send it to the Accounting Department, AST, 6 West Dry Creek Circle, Suite 200, Littleton, CO 80120-8031.

Members: \$6 per CE, nonmembers: \$10 per CE

- What percentage does glioblastoma multiforme account for in all primary intracranial tumors?
 - 30%
 - 40%
 - 75%
 - 60%
- Which is characteristic of glioblastoma multiforme?
 - Arises from astrocyte cells
 - Grey, white, yellow, red, or brown appearance
 - Enlarged and irregular cell nuclei
 - All of the above
- Which of the following is NOT a symptom of increase intracranial pressure?
 - Nausea
 - Headache
 - Optic papilla
 - Papilledema
- A growth in the _____ of the brain would produce psychomotor seizures.
 - Temporal lobe
 - Cerebral lobe
 - Midline
 - Frontal lobe
- How long is the prognosis in a patient with untreated glioblastoma multiforme?
 - 12 weeks
 - 30 days
 - 1-2 years
 - 18 weeks
- Glioblastoma most commonly arises from white matter of the _____.
 - Cerebral hemispheres
 - Pons
 - Midbrain
 - Vermis
- In what age range does GBM most commonly occur?
 - Under 30 years old
 - 30-40 years old
 - 40-50 years old
 - 50-60 years old
- Which type of treatment is affected by the blood brain barrier?
 - Gamma Knife
 - Ultrasonic aspiration
 - Chemotherapy
 - Stereotactic surgery
- Polifeprosan 20 with carmustine is what type of drug?
 - Antibiotic
 - Diuretic
 - Chemotherapeutic
 - Steroid
- Approximately how many cases of glioblastoma multiforme are diagnosed annually?
 - 20,000
 - 5,000
 - 7,500
 - 12,000

220 OCTOBER 2002 CATEGORY 1

Glioblastoma multiforme

		a	b	c	d	a	b	c	d
<input type="checkbox"/> Certified Member	<input type="checkbox"/> Certified Nonmember	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Certification No _____		2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Name _____		3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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City _____ State _____ ZIP _____		5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Telephone _____									

Mark one box next to each number. Only one correct or best answer can be selected for each question.

CEExam

255 APRIL 2005 1 CE CREDIT IN CATEGORY 1

Microvascular decompression for control of trigeminal neuralgia

Earn CE credit at home

You will be awarded one continuing education (CE) credit for recertification after reading the designated article and completing the exam with a score of 70% or better.

If you are a current AST member and are certified, credit earned through completion of the CE exam will automatically be recorded in your file—you do not have to submit a CE reporting form. A printout of all the CE credits you have earned, including Journal CE credits, will be mailed to you in the first quarter following the end of the calendar year. You may check the status of your CE record with AST at any time.

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Detach or photocopy the answer block, include your check or money order made payable to AST and send it to the Accounting Dept, AST, 6 West Dry Creek Circle, Suite 200, Littleton, CO 80120.

Members: \$6 per CE, nonmembers: \$10 per CE

- Which is the trigeminal nerve?
 - IV
 - V
 - VI
 - X
- Who created a nondestructive technique to decompress the trigeminal nerve?
 - Andre Douloureux
 - Walter Dandy
 - Peter Janetta
 - Antonio Valsalva
- Which is mismatched?
 - V₁: eyes, upper eyelids and forehead
 - V₂: cheeks, lower eyelids, nostrils, upper lips, gums
 - V₃: jaw, lower lip, gums, chewing muscles
 - None are mismatched
- The most common form of treatment for TN is:
 - medication
 - open surgery
 - ablative procedures
 - endoscopic surgery
- Which is not a symptom of TN?
 - brief, lancinating pain
 - sensory loss in the distribution of the nerve
 - decreased corneal reflex
 - decreased estrogen production
- TN causes _____, making the patient susceptible to increased pain sensations.
 - pulsation of the vessel
 - denyelination of the axons
 - transmission of facial sensations.
 - none of the above
- Which drug used to treat TN has had the best results and fewest side effects?
 - baclofen
 - carbamazepine
 - gabapentin
 - oxcarbazepine
- When is the Valsalva maneuver performed?
 - when nerve exposure is achieved
 - once the nerve has been decompressed
 - prior to craniectomy
 - after cranioplasty
- The most common ablative procedure for TN is:
 - percutaneous rhizotomy by glycerol injection
 - percutaneous rhizotomy by balloon
 - radio frequency rhizotomy
 - knifeless surgery
- The _____ decompression procedure prevents brain retraction and provides enhanced visualization, lighting and magnification.
 - endoscopic
 - gamma probe
 - CyberKnife®
 - radio frequency rhizotomy

255 APRIL 2005 1 CE CREDIT IN CATEGORY 1

Microvascular decompression for control of trigeminal neuralgia

Certified Member Certified Nonmember

Certification No _____

Name _____

Address _____

City _____ State _____ ZIP _____

Telephone _____

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1	<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"/>
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5	<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"/>

Mark one box next to each number. Only one correct or best answer can be selected for each question.

CE Exam

269 MAY 2006 1 CE CREDIT

Type II odontoid process fractures

Earn CE credits at home

You will be awarded continuing education (CE) credit(s) for recertification after reading the designated article and completing the exam with a score of 70% or better.

If you are a current AST member and are certified, credit earned through completion of the CE exam will automatically be recorded in your file—you do not have to submit a CE reporting form. A printout of all the CE credits you have earned, including Journal CE credits, will be mailed to you in the first quarter following the end of the calendar year. You may check the status of your CE record with AST at any time.

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Detach or photocopy the answer block, include your check or money order made payable to AST, and send it to the Accounting Department, AST, 6 West Dry Creek Circle, Suite 200, Littleton, CO 80120-8031.

Members: \$6 per CE, nonmembers: \$10 per CE

- The most common cause of cervical spine injuries is
 - diving accidents
 - motor vehicle accidents
 - football accidents
 - climbing mishaps
- The most distinguishing feature on C1 is
 - two lateral masses and two arches
 - large odontoid process
 - absence of a vertebral body
 - cruciate ligament
- The most distinguishing feature of C2 is
 - transverse ligaments
 - apical ligaments
 - alar ligaments
 - dens
- The _____ is shaped like a cross and helps stabilize the _____.
 - cruciate ligament, odontoid process
 - transverse ligament, dorsal aspect
 - alar ligament, medial aspect
 - apical ligament, basion
- Type I odontoid fractures usually involve
 - a fracture at the base of the odontoid
 - an avulsion of the tip of the odontoid process
 - a fracture through the body of C2
 - an anterior displacement of the dens
- Type II odontoid fractures usually involve
 - a fracture through the body of C2
 - anterior displacement of the dens
 - a fracture at the base of the odontoid
 - both b and c
- Type II odontoid fractures have several treatment options, including
 - halo traction
 - posterior C1-2 fusion
 - anterior odontoid screw fixation
 - all of the above
- The reason for a transverse skin incision at C4-5 is
 - aligning the drill guide with the process
 - creating a plane to the vertebral bodies
 - exposing the anterior longitudinal ligament
 - retracting the carotid sheath
- A _____ retractor is used to facilitate exposure of the body of C2.
 - Weitlaner
 - Apfelbaum
 - Hohmann
 - Bennett
- Factors to be considered in treatment of odontoid fractures are
 - the level and direction of the fracture line
 - the rotation of the fracture fragments
 - the presence of any neurological impairment
 - all of the above

269 MAY 2006 1 CE CREDIT

Type II odontoid process fractures

Certified Member Certified Nonmember

Certification No. _____

Name _____

Address _____

City _____ State _____ ZIP _____

Telephone _____

		a	b	c	d		a	b	c	d
1	<input type="checkbox"/>	<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"/>
2	<input type="checkbox"/>	<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"/>
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Mark one box next to each number. Only one correct or best answer can be selected for each question.

Answers

CE CREDIT PKG 3: 10 CONTINUING EDUCATION CREDITS

Certified Member

AST Member No: _____

Name: _____ Certification No: _____

Address: _____ City: _____ State: _____ ZIP: _____

Telephone: _____ Email: _____

CE CREDIT PKG 3: 10 CONTINUING EDUCATION CREDITS

The fee is \$15. This package is only available to AST members.

Check Enclosed

Yes, I want to pay by credit card: Visa MasterCard AmEx

Card # _____ Expiration Date _____ Signature _____

Cerebral artery aneurysm clipping: Anatomy, approach and technique explored

<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>				
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3.	<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"/>	9.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					

High grade astrocytoma in the adult: Biology, pathology, diagnostics and treatment, Part 1

<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>				
1.	<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"/>	7.	<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"/>
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High grade astrocytoma in the adult: Biology, pathology, diagnostics and treatment, Part 2

<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>				
1.	<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"/>	7.	<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"/>
2.	<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"/>	8.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Mark one box next to each number. Only one correct or best answer can be selected for each question.</i>				
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The autonomic nervous system

<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>				
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General principles and instrumentation for cranial neurosurgery, Part 1

<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>				
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General principles and instrumentation for cranial neurosurgery, Part 2

<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>				
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Creutzfeldt-Jakob disease

<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>				
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Glioblastoma multiforme: From biology to treatment

<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>				
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Microvascular decompression for control of trigeminal neuralgia

<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>				
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3.	<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"/>	9.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					

Type II odontoid process fractures

<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>				
1.	<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"/>	7.	<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"/>
2.	<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"/>	8.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Mark one box next to each number. Only one correct or best answer can be selected for each question.</i>				
3.	<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"/>	9.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					

Directions: Complete all 10 answer keys for the exams. Include your check or money order made payable to AST or complete credit card information with the appropriate amount and mail to AST, Attn: CE credits, 6 West Dry Creek Circle, Suite 200, Littleton, CO 80120-8031. If paying by credit card, you can fax in the answer keys and credit card payment to AST at 303-694-9169.