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Tomography using x-ray transmission and a computer algorithm to reconstruct the image. This imaging modality uses low-dose radiation to create detailed images of internal structures, allowing for precise diagnosis and treatment planning.paraphrased text hereparaphrased text hereThe importance of infarction Day 3 subacute infarction practice reading CT scans cannot be overstated. In the first few hours after a stroke, CT scans are usually normal, but may show subtle signs such as blurring of the gray-white junction and sulcal effacement.By day two, however, CT scans can reveal dark areas with mass effect, which can compress surrounding structures. This is a critical moment in the evaluation of intracranial emergencies such as trauma, stroke, SAH, and ICH.The role of head CT scans in emergency medicine cannot be overstated. Despite their importance, many practitioners have limited experience with interpretation, and emergency physicians often must interpret and act on CTs without specialist assistance.Studies have shown that this can lead to a significant "miss rate" on cranial CT interpretation. To address this issue, medical school teaches a systematic technique for interpreting ECGs, which emphasizes reviewing all aspects of the image.The intention of this session is to introduce a similar systematic method for cranial CT interpretation, based on the mnemonic "Blood Can Be Very Bad". This mnemonic helps practitioners remember to evaluate blood, cisterns, brain, ventricles, and bone in sequence.CT scans were first introduced in 1974 by Sir Jeffrey Hounsfield. They work by passing x-rays through the subject and measuring the transmitted radiation. The denser an object is, the more it absorbs radiation, resulting in a whiter appearance on the CT image.Bone appears white because it is the densest tissue, while air appears black. This is represented by a scale of Hounsfield Units, with bone being +1000 and air being -1000.The CT scan also relies on windowing to focus the spectrum of gray-scale used on a particular image. Window settings can help highlight specific features such as cisterns or ventricles.In sagittal view, cisterns are visible in the posterior fossa, brainstem, cerebellum, and skull base. In lateral view, the brainstem is seen at the level of the cerebral peduncles.The third key level sagittal view reveals cisterns at the high mid-brain level, while ventricles can be identified in suprasellar cisterns. The CSF production rate is approximately 500-700 cc's per day.Understanding the basics of CT scans and how to interpret them is crucial for emergency physicians. By mastering the systematic approach outlined in this session, practitioners can improve their accuracy and confidence when interpreting head CT scans.Looking for blood First decision: Is it present? Second decision: If so, where is it located Third decision: If so, what effect is havingBlood types Blood from a fresh injury is bright white on CT (once it clots). After two weeks, the blood becomes less dense. This changes again after one week. Looking at blood Blood in the cisterns and cortical surface - Aneurysms are responsible for SAH in 75-80% of cases. Vasculitis is also a cause. Blood is found in some cases but no source is discovered in othersBlood types The human brain weighs about three pounds (1.5 kg) with a volume of around 1130 cubic centimeters (cm3). Our brains give us self-awareness and processing information from our environment. It controls muscles, gland secretions, breathing, body temperature, thoughts and feelingsOur brain The cerebrum is the largest part of the mature brain and consists of two large masses - cerebral hemispheres. It's responsible for higher brain functions, including interpreting sensory impulses, muscle movements and reasoning.Brain lobes The cerebrum has a folded surface called the cortex with nerve cells that are grey-brown in color. Beneath the cortex is white matter made up of long connecting fibers between neuronsOur brain The cerebellum is located behind the brain stem and maintains posture, balance and movement coordination. It also accounts for 11% of the brain's weight.Brain structures The brain is divided into several lobes - frontal, parietal, occipital and temporal. These lobes are responsible for various functions such as personality, emotions, language and visionBrain functions Hypothalamus regulates hunger, thirst, sleep, body temperature and hormones. Pineal gland regulates the internal clock and circadian rhythms. Thalamus serves as a relay station for sensory information. Basal ganglia coordinate fine movements and balance.Brain functions The brain is divided into several lobes - frontal, parietal, occipital and temporal. These lobes are responsible for various functions such as personality, emotions, language and visionThe human brain and skull are complex systems that require protection and maintenance. The brain is a vital organ that controls various bodily functions, and the skull provides a protective barrier against injury.The brain's emotional and learning systems are comprised of various structures, including the cingulate gyri, hypothalamus, amygdala, and hippocampus. These structures work together to regulate emotions, learning, and memory.The skull, on the other hand, is composed of several bones that fuse together to form a protective barrier around the brain. The bones of the skull include the frontal, parietal, temporal, sphenoid, occipital, and ethmoid bones. The face is also formed by 14 paired bones, including the maxilla, zygoma, nasal, palatine, lacrimal, inferior nasal conchae, mandible, and vomer.Computed Tomography (CT) scans are used to detect and diagnose various conditions affecting the brain and skull. CT scans use X-rays and computer technology to produce detailed images of the brain and skull.CT scans are commonly used to detect bleeding, brain injury, and skull fractures in patients with head injuries. They are also used to diagnose conditions such as brain tumors, hydrocephalus, and diseases of the skull.In addition, CT scans are used to evaluate the extent of bone and soft tissue damage in patients with facial trauma. They are also used to diagnose diseases of the temporal bone, which can cause hearing problems.Before undergoing a CT scan, patients should inform their doctor about any medical conditions, allergies, or medications they are taking. Patients should also avoid eating or drinking anything for a certain period before the scan.During the CT scan, patients will lie on a table that slides into a large, circular opening of the scanning machine. The technologist will be in another room, and the patient will be in constant communication with the technologist.The CT scan uses X-rays to produce detailed images of the brain and skull. The images are then interpreted by a radiologist to diagnose any conditions or injuries.Overall, CT scans are a valuable diagnostic tool for detecting and treating various conditions affecting the brain and skull.You may need to hold your breath during some parts of the test. If contrast dye is used for your procedure, you will be taken out of the scanner after the first set of scans has been done. A second set of scans will be taken after the contrast dye has been put into your vein.#### You might feel some effects when the dye is given to you through an IV line. These include a flushing feeling, a salty or metallic taste in your mouth, a brief headache, or nausea and vomiting. This usually lasts for just a few moments.If you are taking any medications that could interact with the contrast dye, such as metformin, you will need to have blood work done before you can start taking it again.#### You should tell the technologist if you feel any trouble breathing, sweating, numbness, or a fast heart rate. When the test is finished, you will be taken out of the scanner. If an IV line was put into your vein for the contrast dye, it will be removed.If contrast dye was used during your procedure, you may need to have blood work done later on to check if there were any side effects.#### You should call your doctor if you feel any pain, redness, or swelling at the place where the IV line went into your vein.Otherwise, you do not need special care after the test. However, you can usually eat and resume normal activities unless your doctor tells you otherwise.#### Your doctor may give you different instructions based on what is best for your specific situation.Traumatic brain injury can occur when blood accumulates between the dura mater and arachnoid mater, causing a high-density hematoma. Hemorrhagic stroke is caused by the rupture of a cerebral blood vessel, leading to bleeding into or around the brain. Hematoma in the cerebellum can also be seen. Meningiomas are extra-axial neoplasms that commonly occur in middle-aged women and are usually isointense to gray matter on CT scans.The most frequent locations of meningiomas include:A. Frontal LobeB. Frontal Bone C. Dorsum SellaeD. Basilar ArteryE. Temporal LobeF. Mastoid Air Cells G. Cerebellar HemisphereFor accurate diagnosis, CT imaging is essential as it enables the direct visualization of soft tissue structures such as liver and lung tissue.CT scans are useful in detecting tumors, blood clots, and other abnormalities, including those affecting nerves or muscles of the eye. They also provide high-resolution images for orthopedic medicine, including fractures and prolapses of vertebral discs.In addition to its diagnostic capabilities, CT imaging is used in interventional procedures such as biopsy and minimally invasive therapy. Furthermore, CT scans can be used to follow up on cancer treatment and determine how the tumor is responding to treatment. The use of 3D surface reconstruction and multi-planar reconstructions enhances the value of CT imaging for surgeons.The anatomy of the brain is an intricate network of interconnected structures that work together to enable various functions such as movement, sensation, perception, cognition, and emotion. The pituitary gland plays a crucial role in regulating these functions by secreting hormones that stimulate or inhibit the activity of other glands.## ####ARTICLEDiagnostic Imaging Procedures in Gastroenterology for Colorectal Cancer ScreeningColorectal cancer screening is a crucial aspect of maintaining gut health. The American College of Radiology recommends that individuals begin screening at age 50 and continue until age 75. Regular screenings help detect polyps, which can potentially develop into colorectal cancer.Recent guidelines from the U.S. Multi-Society Task Force on Colorectal Cancer suggest that adults with an average risk should start screening at age 45. However, certain individuals may need to begin screening earlier or more frequently, such as those with a family history of colon cancer or inflammatory bowel disease.Imaging procedures play a vital role in diagnosing and monitoring colorectal cancer. Some common methods include barium studies of the small intestine, colonoscopy, and endoscopic ultrasound. Biopsy techniques are also essential for obtaining tissue samples for further analysis.Clinical procedures in emergency medicine and acute care involve various diagnostic techniques, including ultrasound, which plays a vital role in guiding treatment decisions.Radiation therapy and you: support for people with cancer looking at brain with CT scandifferentiating edh from sdh does not cross the sutures whereas edh can cross midline while sdh cannot cross the sutures due to being bound by falx cerebri boundarieshydrocephalus features include narrowing of ventricular angle less than 40 degrees and dilated third ventricle which may present with periventricular perilesional oedema and rounded third ventriclehydrocephalus also presents with frontal horns lateral ventricles with open temporal horn the correct fh id ratio is greater than 50 percent whereas normal fh id ratio ranges below 40 percent

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