Student Name Nadia Subhani

ID: 13957

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Teacher Dr. Atoofa Azmat.

Iqra National University Hayatabad Peshawar

Pages 08

Answer to Question No. 2

Liver.

Introduction; MRI is one of the most useful and rapidly developing diagnostic tools for the evaluation of liver pathologies. It is particularly good at visualizing liver tissue and is capable of detection and characterization of focal liver lesion. Fast health hold T1 and T2 sequences with smaller slice thickness and high resolution matrix are routinely used for liver imaging.

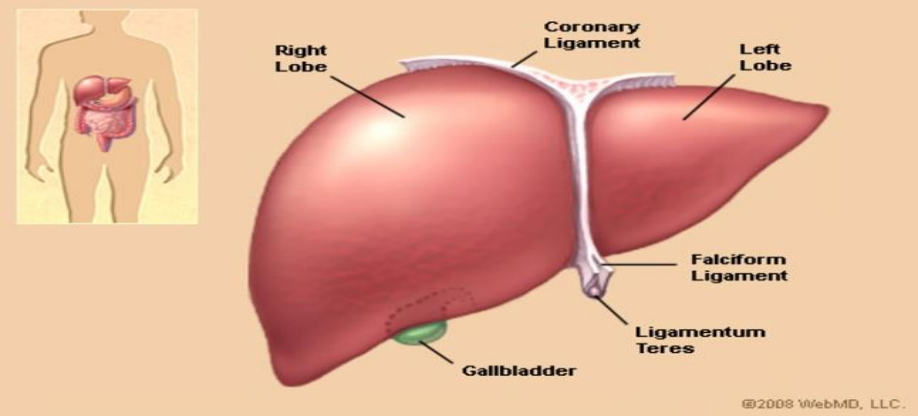
Indication for Liver MRI.

- Evaluation of diffuse liver disease such as hemochromatosis, hemochromatosis fatly infiltration
- Detection of focal hepatic lesions metastasis, focal nodular hyperplasia , hepatic adenoma
- Lesion characterization, e.g. cyst, focal fat, haemangioma, hepatocellular carcinoma.
- Classification of findings farm other imaging studies or laboratory abnormalities.
- Evaluation of known tumor response to treatment, e.g. past chemotherapy or surgery.
- Evaluation of known or suspected congenital abnormalities.
- Evaluation for known or suspected metastasis
- Liver iron content determination.
- Potential Liver donor evaluation.
- Evaluation of cirrhotic liver

Contraindications:-

- Any electrically, magnetically or mechanically activated implant (e.g. cardiac pacemaker, insulin pump Bio simulator, neuro-stimulator cochlear implant, in hearing aids
- Intracranial aneurysm clips
- Pregnancy (risk vs benefit ratio to be assist)
- Ferromagnetic surgical clips or staples.
- Metallic foreign body in the eye.
- Metal shrapnel or bullet.

Liver Anatomy Diagram

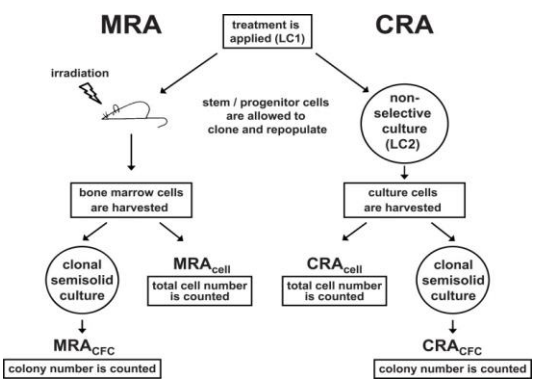


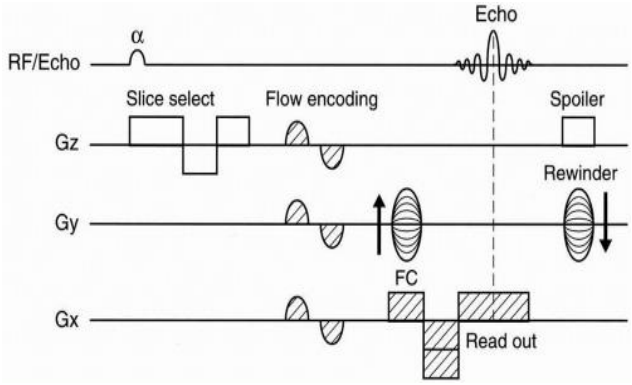
Answer to Question No. 04

MRA:-

The magnetic resonance angiogram, or MRI, is noninvasive test that has demonstrated usefulness in defining the anatomy of blood vessels of certain size in the head and nick MRA serves as a complement to traditional MRI scanning in evaluation of the brain and neck.

Diagram

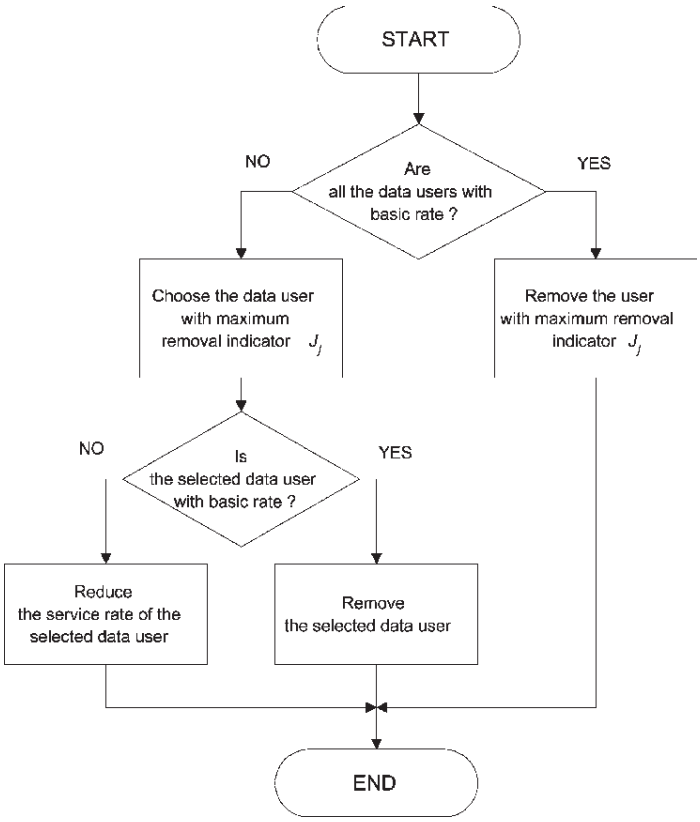


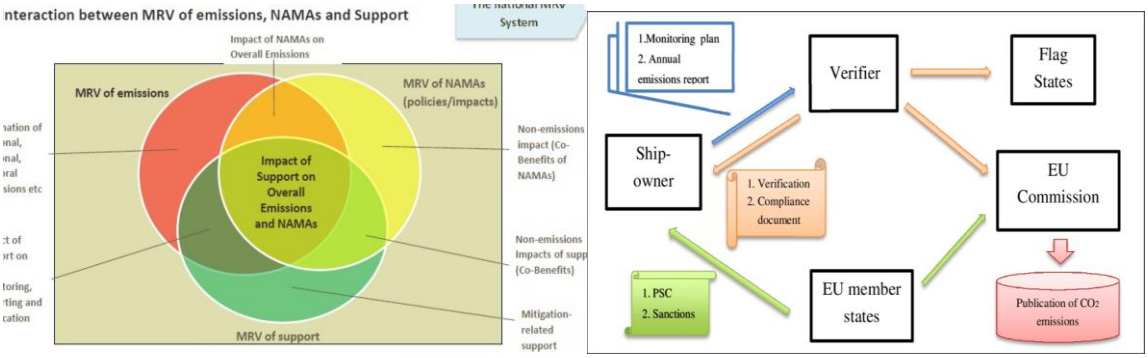


MRV:-

Magnetic resonance Venography (MRV). It is a diagnostic procedure that uses a combination of a large magnet, radio frequencies and a computer to produce detailed images of organize and structures within the body. MRV uses magnetic resonance technology and intravenous (IV) contras dye to visualize the veins.

Diagram and Flowchart





Answer to Question No. 05

Preparation plan for MRI of Knee and its procedure:-

1. Ask the patient before scanning to change dress and wear hospital gown
2. Remove all jewelry and body piercings.
3. If using a contrast dye intravenous (IV) line will be inserted into patient arm to inject the dye into the blood stream of the patient.
4. Guide the patient and give some instructions , precautions and guidance regarding the procedure
5. Ask the patient for allergic reactions, if any.

6. Give some sedative to help in relaxation of the patient
7. Ask the patient for claustrophobia

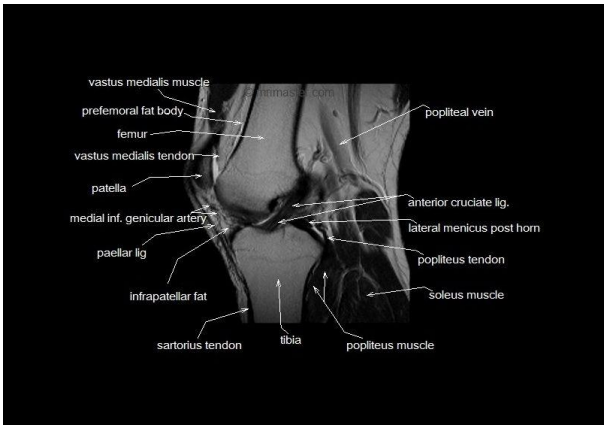
Procedure for MRI of Knee:-

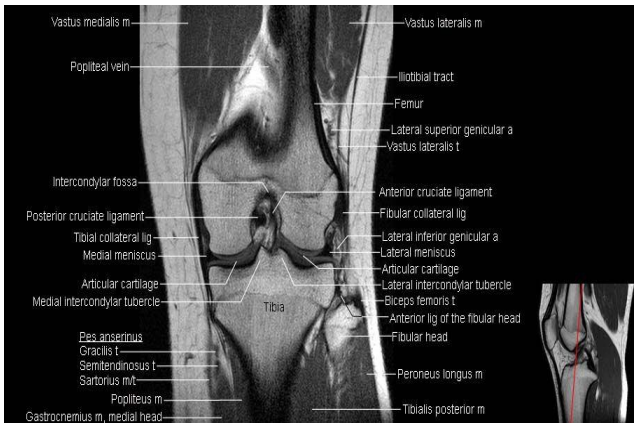
Wearing a hospital gown or loss, fitting, clothes, the patient must be advised to lie on the examination table that slides into the tube.

For a Knee MRI, the patient will go for feet first and only lower body of the patient will be in the tube.

Please expect to hold still for a round fifteen to fourty-five minutes and some times even for longer time, while the machine makes images of patient knee.

MRI for Knee (Diagram)





Answer to Question No. 03:-

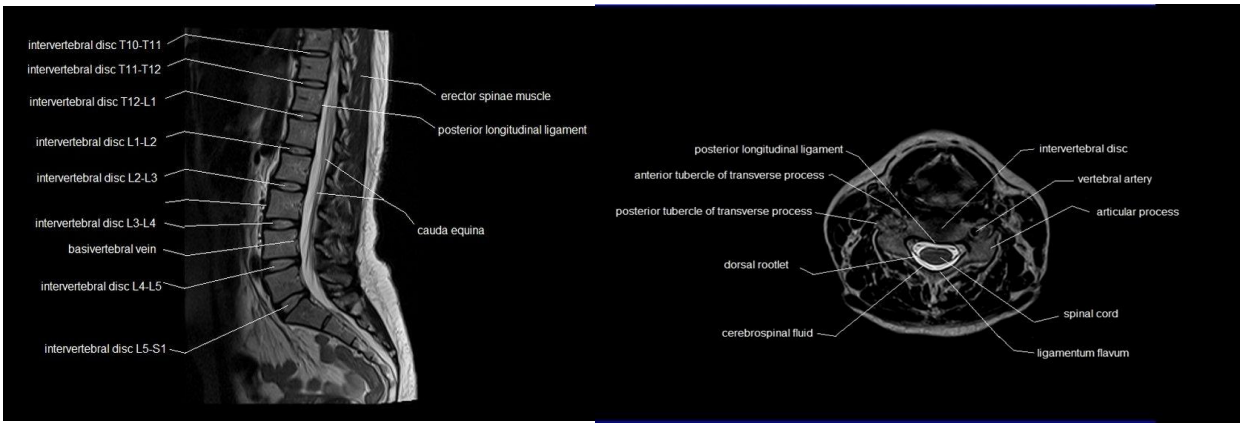
How will you explain the MRI of spine:-

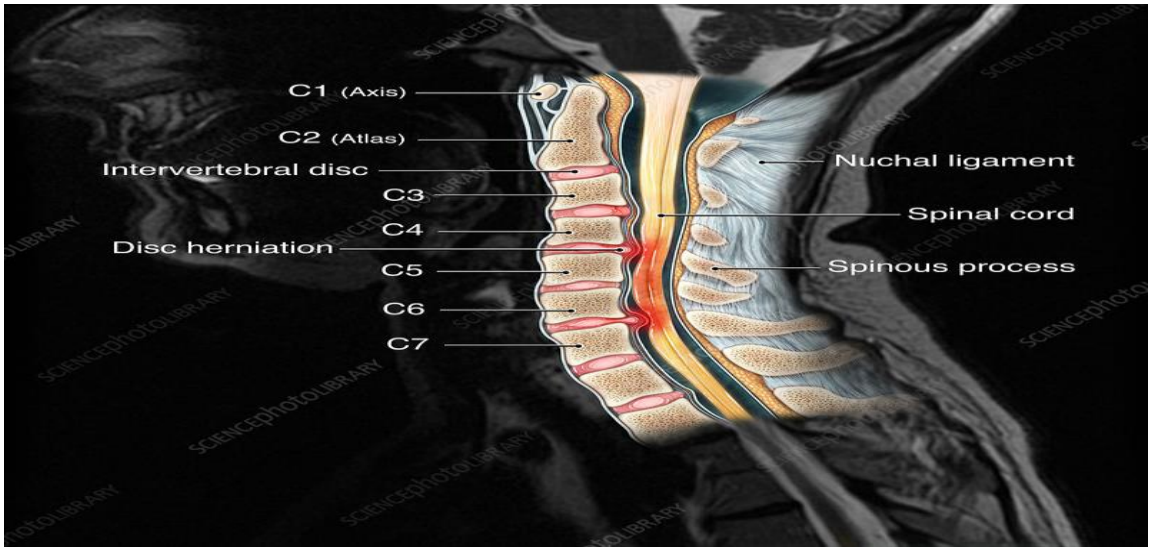
Magnetic resonance imaging (MRI) of the spine is safe and painless test that uses a magnetic field and radio waves to produce pictures of the spine (bones, disks and other structures in the lower back).

The entire examination is usually completed within thirty to sixty minutes, depending on the part of the spine to be scanned. If contrast material is used, more images will take after the injection. An MRI scan provides a different kind of image from other imaging test, like X-Rays, Ultrasound or CT scan. MRI scan represents a very sensitive and accurate assessment of spinal anatomy.

MRI can show whether there has been any damage to the bones which can occur in later stages of the disease. MRI can also provide detailed images of the surrounding tissue, which allows the doctors to detect inflammation in the soft tissues.

Diagram (MRI of Spine)





Answer to Question No. 01.

MRI of brain its important sequence and procedure: magnetic resonance imaging (MRI) are used to produce high quality two dimensional or three dimensional images of the brain and brain stem without the use of ionizing radiation.

An MRI of the brain takes thirty-forty-five minutes to perform.

MRI can detect a variety of condition of the brain such as cysts, tumors, bleeding, swelling, developmental as well as structural abnormalities, inflammatory conditions or problems with the blood vessels

Patient may receive a contrast resolution, usually gadolinium, through an IV to allow the MRI machine so as to see certain parts of patient's brain more easily, especially the blood vessels.

Sequences of brain MRI:-

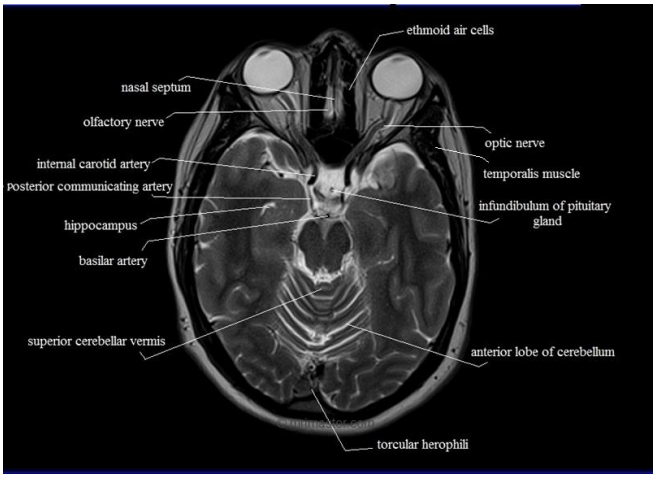
Different sequences of brain MRI may be summarized as follows

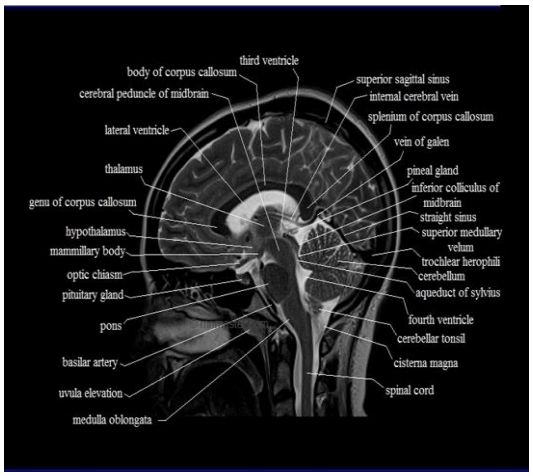
- T_1 weighted sequence
- T_2 weighted sequence
- PD sequence
- Gradient and Spine Echo sequence
- Fat sufferession
- MRI contrast
- Diffusion weighted image

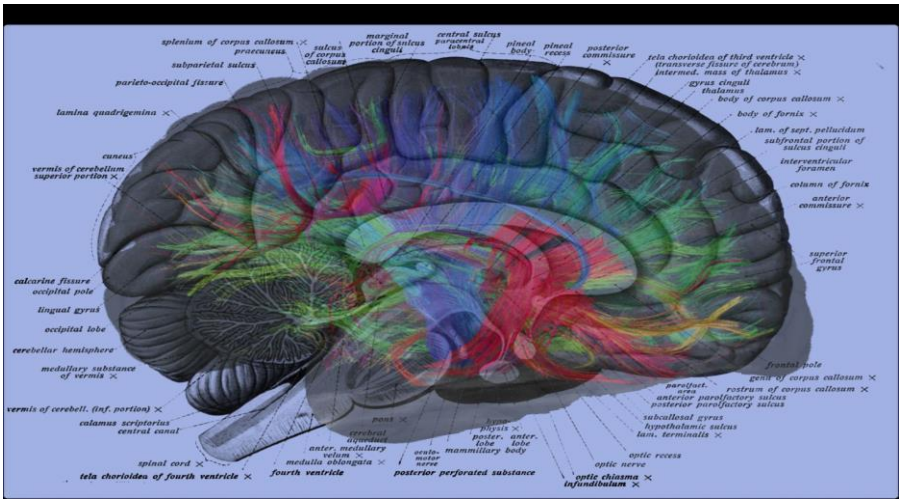
Procedure:-

The patient will lie on the moveable scanning table while the MRI technologist places the patient into position.

A special plastic device called a coil may be placed around the patient head. The table will slide into the tunnel and the technician will take images of the heads. The patient should continue medication. All the accessories such as watch, jewelry and hair pins must be removed prior to MRI.






splenium of corpus callosum
praecuneus
subparietal sulcus
parieto-occipital fissure
lamina quadrigemina
cuneus
vermis of cerebellum superior portion
calcarine fissure
occipital pole
lingual gyrus
occipital lobe
cerebellar hemisphere
medullary substance of vermis
vermis of cerebell. (inf. portion)
calamus scriptorius
central canal
spinal cord
tela chorioidea of fourth ventricle
sulcus of corpus callosum
marginal portion of sulcus cinguli
fourth ventricle
central sulcus paracentral lobule
anter. medullary velum
medulla oblongata
pineal body
pineal recess
posterior commissure
posterior perforated substance
pons
cerebral aqueduct
acusticus nerve
mammillary body
optic chiasma infundibulum
optic nerve
optic recess
lam. terminalis
tela chorioidea of third ventricle (transverse fissure of cerebrum)
intermed. mass of thalamus
gyrus cinguli
thalamus
body of corpus callosum
body of fornix
lam. of sept. pellucidum
subfrontal portion of sulcus cinguli
interventricular foramen
column of fornix
anterior commissure
superior frontal gyrus
frontal pole
genu of corpus callosum
rostrum of corpus callosum
parolfact. area
anterior parolfactory sulcus
posterior parolfactory sulcus
subcallosal gyrus
hypothalamic sulcus

The End.