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Assignment:- Radiological And
Cross Sectional Anatomy

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Radiology 6th Semester

Questions/Answers

Q1) Write about the
MRI of Human Heart.

Ans:- MRI of Human Heart

Magnetic resonance imaging

(2)

MRI is performed to help the physician to detect or monitor cardiac disease by evaluating the anatomy and function of the heart chambers, heart valves, size and blood flow through major vessels, the surrounding structures such as the pericardium, heart tumors, congenital heart disease, cardiomyopathy, and the surrounding blocked arteries.

Patient Preparation:

Before the test, tell the doctor if patient have a pacemaker. Some pacemaker models can be reprogrammed before

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an MRI so they are not
disrupted during the exam.
Because an MRI uses magnets,
it can attract metals.

Alert the doctor if you have
any type of material (metal)
implant from previous surgeries,
such as artificial heart
valves, clips, etc.

Procedure:

MRI machine
made up of a bench
that slowly glides into a
large tube attached to a
 doughnut-shaped opening.

Follow the doctor instructions
and remove all metal,

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Such as body jewelry, watches, and earrings.

The technician will ask the patient to lie back on the bench. The technician will control the movement of the bench using a remote control from another room.

They will communicate with patient through a microphone. The machine will make loud whirring and thumping noises as it takes pictures of the patient's body. Many hospitals offer earplugs. The technician will ask the patient to hold their breath for a

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few seconds as the
pictures are being taken.

MRI Scanning Time:

Depending on the problem
being investigated, the scan
time vary from 20 to 45

minutes. Particularly, complex

heart conditions can require

up to an hour of scanning.

Importance of A

Heart MRI:

Magnetic resonance
imaging is a diagnostic

technique that uses harmless

radio waves rather than X-rays

to create images. Cardiac

magnetic resonance imaging

(C)

is currently the most accurate and reproducible technique for imaging the heart. It has outstanding image resolution and intrinsic tissue contrast. CMR is safe, non-invasive and does not expose patients to ionising radiation. Sometimes a contrast dye is injected into the veins to highlight certain features that would not otherwise be visible.

Q2) Write about the bones of upper limb.

Ans: The upper limb is divided into three regions.

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These consist of the arm, located between the shoulder and elbow joints, the forearm, which is between the elbow and wrist joints, and the hand, which is located distal to the wrist. There are 30 bones in each upper limb. The 64 upper extremity bones consist of 10 shoulder and arm, 16 wrist and 38 hand bones. The 10 shoulder and arm bones are the clavicle, scapula, humerus, radius and ulna on each side.

The bones of upper limb

- Clavicle
- Scapula
- Humerus
- Radius

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- Ulna
- Carpus
- Metacarpus
- Phalanges

The upper limb is divided into three regions. These consist of the arm, located between the shoulder and elbow joints, the forearm, which is between the elbow and wrist joints, and the hand, which is located distal in each upper limb. The nerves of the arm are supplied by one of the two major nerve plexuses of the human body, the brachial plexus.

(9)

The primary purpose of the upper limb is to move the hand around the body during the activities of life. The shoulder girdle provides a wide range of motion - exceeding a hemisphere so that the hand may reach in all directions.

(Q?) What are the protocols used while performing CT Abdomen?

Ans: Computed tomography is a noninvasive diagnostic imaging procedure that uses a combination of X-rays and computer technology to produce

(10)

horizontal or axial images of the body. A CT scan shows detailed images of any part of the body, including the bones, muscles, fat, organs and blood vessels. CT scans of the abdomen can provide more detailed information about abdominal organs and structures, thus providing more information related to injuries and/or diseases of the abdominal organs.

The abdomen contains organs of the gastrointestinal, urinary, endocrine and reproductive systems. A CT scan of the abdomen

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may be performed to assess the abdomen and its organs for tumours and other lesions, injury into abdominal bleeding, infections, unexplained abdominal pain, obstructions or other conditions. Peritoneum when altered type of examination, such as type of physical examination, is not conclusive.

Preparation:

The patient may asked the patient to change into a patient gown. Remove all the piercings and leave all jewelry and valuables at home. CT scan are most frequently done

with or without a contrast media. The contrast media improves the radiologist's ability to view the images of the inside of the body.

Procedure

The patient will lie on a scan table that slides into a large circular opening of the scanning machine. The technologist will be in another room where the scanner controls are located. The technologist will be watching you at all times and will be in constant communication. The X-rays absorbed by the body's tissues will be detected by the scanner.

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and transmitted to the
Computer. The Computer will
transform the information
into an image to be
interpreted by the Radiologist.

Scanning

Times:

A CT scan
of the abdomen, liver
and pancreas with
contrast takes about 40
minutes. This includes 20
minutes for the test and
20 minutes for preparation.

Q5) Takrite a metal nail on
Cervical Spine?

Cervical Spine:

The neck
is part of a long flexible
column, known as the

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Spinal Column of backbone, which extends through most of the body. The Cervical Spine (neck region) consists of seven bones (C₁-C₇ Vertebrae) which are separated from one another by intervertebral discs. The Cervical Spine, or neck, begins at the base of the skull and through a series of seven vertebral segments connects to the thoracic, or chest, region of the spine. The first cervical vertebra is unique as it is a ring, called the atlas, that rotates around part of the second vertebrae, the axis.

The neck is part of a long flexible column, known as the Spinal Column or backbone, which extends through most of the body. The Cervical spine consists of seven vertebrae. The cervical nerves are the spinal nerves from the cervical vertebrae in the cervical segment of the spinal cord. There are eight cervical nerves C1 - C8.

The neck is part of a long flexible column. The most common form of cervical spine deformity is cervical kyphosis. These patients most commonly present with neck pain, but may also have

Myelopathy, and sensorimotor deficit due to compression of the neural elements and impaired cord perfusion from an overstretched spinal cord.

Q5) What are the planes used in cross sectional anatomy? Explain them.

The Anatomical planes in a human. There are three basic planes in zoological anatomy sagittal, coronal and transverse. A human in the anatomical position, can be

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described using a Cartesian

System with the Z-axis going from front to back, the X-axis going from left to right, and the Y-axis going from up to down.

The anatomical planes are four imaginary flat surfaces or planes that pass through

the body in the anatomical position. They are the Median (Sagittal) Plane, Coronal (Frontal) Plane and horizontal (Transverse) Plane. A plane can be defined as the imaginary line, which divides the body.

• Frontal plane:

A Vertical Cut that Separates the front from the back of the specimen. Also known as a Coronal Plane.

• Transverse plane:

A horizontal Cut that Separates the top from the bottom of the specimen. Also known as a cross-sectional plane.

• Midsagittal Plane:

A Vertical Cut along the exact center line of the specimen that Separates the left half from the right half.

Parasagittal Plane:-

A Vertical Cut that is off-center that separates the left of the specimen from the right in unequal portions. It does not matter whether it is the left side of the right side that is larger, as long as they are not equal.



"The End"