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| **Paper** | **Anatomy II** |
| **Discipline** | **Radiology 4th** |

**QUESTION NO 01:**

**NOTE ON FOLLOWING:**

1. **TUBERCLE**

**Definition:** It’s a round, warty out growth and small eminence found on the external and internal organ in an animal.

In the human body, there are several regions where these tubercles are present.

**For-Example:**

On bones, they are mostly used as an attachment site for connective tissues or muscles.

Greater and Lesser Tubercle of Humerus.

Similarly, the tubercle is found on various other place beside of bone that are Mouth, Ear, Brain, Genitals, and Lungs etc.

1. **TUBEROSITY**

**Definition:** It is a large prominence, an elevation found on the bone, which act as an attachment site for various muscles and ligaments.

The main difference between the tubercle and tuberosity if the size. The tubercle is a small round while the tuberosity has a large prominence and both serves a site for muscles or ligaments to attach on it.

**For-Example:** Tibial Tuberosity, Deltoid Tuberosity etc.

1. **CONDYLE**

**Definition:** It is a large prominence which also provide a structural support to the hyline cartilage overlying on it.

The condyles bears the force exerted on the joint whenever a person runs or jump and provides a support.

It also articulates in the joint and provide a mark or feature to the bone.

**For-Example:** Knee joint – Formed by Lateral and Medial Condyles of Femur and Tibia.

1. **EMINENCE**

**Definition:** An eminence is a projection or a protuberance on the body different part, especially on the bone.

It refers to numerous structures present in the human body.

**There are many eminence namely:**

Parietal eminence: Present in the parietal bone of Skull.

Ilio-pubic eminence: Present in the pelvis.

Medial eminence: Rhomboid Fossa.

Frontal eminence: Present on frontal bone.

Thenar Eminence: Present on the thumb.

Median eminence: Hypothalamus.

1. **MALLEOLUS**

**Meaning:** Derived from a Latin word which mean “Small Hammer”.

**Definition**: It is a bony prominence or projection on both medial and lateral side of the ankle joint.

**Number:** Every human have two malleolus on each leg.

**Namely:** Medial Malleolus and Lateral Malleolus.

**Medial Malleolus:** The medial malleolus is the prominence on the medial side of the ankle joint and is the lower part of tibia.

**Lateral Malleolus:** The lateral malleolus is the prominence on the lateral side of ankle joint and is the lower part of fibula.

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**QUESTION NO 02:**

**TENNIS ELBOW:**

It is the inflammation of the tendons which joins or attaches the fore-arm to the elbow.

It mostly occurs because of the excessive or overuse of the muscles of elbow joint or the muscles of fore-arm.

It’s one of the fact that half of the tennis players gets this tennis elbow in their whole life or career.

**Symptoms:**

* Recurring Pain.
* Pain can felt in the rest of the arm.
* Pain can also be felt while doing something like writing, playing or using those muscles of fore-arm.
* Pain with extending the arm and twisting it.

**Causes:**

* Incorrect movement of the arm.
* Gardening.
* Cutting tough materials.
* Swimming.
* Sport Activities.
* Work with repetitive lifting and turning wrist.

**Treatment:**

Several treatments at home or recommended by physicians can help.

* Steroid Injection.
* Rest.
* Taping of fore-arm.
* Physical Therapy.
* Ice-Massage.
* Surgery.

**MALLET FINGER**

It’s an injury to the tendon which basically straighten the tip of the finger or thumb. This injury is known as mallet finger.

It is also known as Baseball finger.

Signs of a Mallet Finger:

* The fingertip will be Drop.
* Swollen.
* Bruised.
* Finger will hurt.

Here the thing is, you won’t be able to straighten your mallet finger. Because your tendon may become detached from the finger bone.

Mallet finger is a very common finger injury. This injury can occur in any of your finger.

**Causes:**

* In sports, a direct hit by any object to your extended finger (e.g football/baseball) can detach your tendon and can make your finger straighten.
* This mallet finger is mostly occurs in sport men.
* In young one, mallet fingers mostly occurs because of a direct hit.
* In children, this mallet finger mostly occur, when they crush their finger in the door hinge.
* Mallet finger can also be caused by a lower impact like in older women, when they try put on socks.

**Symptoms:**

* Droop fingertip.
* Pain.
* Swelling.
* Inability to strengthen your finger.

**Diagnosis:**

Physician will conduct an examination of your mallet finger.

MRI, X-ray or Ultrasound would be taken also if required. X-rays will show the ruptured tendon. And also the bone fracture. But MRI and Ultrasound are not preferred that much as X-rays.

**Treatment:**

In order to relieve the pain and swellings. The following things are done.

* Ice is applied.
* Elevating the hand.
* NSAIDS are used.

A mallet finger usually doesn’t require any surgery. But in chronic case surgery is one of the choice of doctor.

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**QUESTION NO 03:**

It’s the **“Cephalic Vein”** from which the medical student is trying to take blood. The Cephalic Vein is large vein which run along the length of the whole hand that is from the hand to the shoulder with the outer edge of bicep muscle and it drains blood into the axillary vein.

It is very easy for a person to take blood from this vein, because you can easily enter a cannulas in this vein and also due to its large size. This vein is also used to administer drugs.

**Anatomical Location:** Its anatomical location is Cuboidal Fossa or Median Cuboidal Vein.

This vein is also known as **Superficial Vein of fore-arm**, and it can be seen through the skin (visibility).

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**QUESTION NO 04:**

If a jockey fell from his horse and no pulse was found after examining his arm from the axilla downward, then it would be “**the fracture of clavicle or the dislocation of shoulder joint**” have caused this injury of axilla.

We know this that **the Axillary Neuropathy involves Axillary Nerve**.

**Blood Supply:** Subclavian artery at the posterior of clavicle

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**QUESTION NO 05:**

**TEAR OF CRUCIATE LIGAMENTS:**

A sudden change in the direction while movie can cause a tear or injury to your cruciate ligament. It can happen really quickly than you think. Mostly injury to these ligaments occurs in sports settings and it doesn’t mean that it can’t occurs in our everyday tasks.

**Number:**

Each knee have two cruciate ligaments.

**Names:** Anterior cruciate ligament and posterior cruciate ligament.

**Causes:**

Cruciate Ligaments connect the femur with the tibia. A cruciate ligament tear occur when one of the ligament get ripped partially or completely.

1. Falls from a height.
2. Traffic accident.
3. Sport Injuries.
4. Abrupt change in the direction of motion.
5. Posterior ligament can also tear when someone is hit by the dashboard of a car with a bent knee.
6. External forces.

**Symptoms:**

1. Clear audible sound can be heard while the ligaments tears.
2. Pain in Knee.
3. Pain becomes severe if someone put weight on his knee.
4. Loss of functional ability of the knee.
5. Unstable Knee.
6. Knee bends at side.
7. Swelling.

**Diagnosis:**

A diagnosis is made on the symptoms appeared in the patient. Physicians conducts various examinations to know whether which cruciate ligament is affected. X-ray and MRI can also help in diagnosis to ensure that knee joint is damaged that much or not.

In very rare cases, arthroscopy is also used.

**Treatment:**

The main focus of the treatment is on stabilizing the joint and making the person able to walk properly or normally.

The very first aid measure includes:

1. Applying a pressure bandage.
2. Cooling down to the main or affected area.
3. Elevating the leg.

The treatment is also depend on the patient, that how much severe is the injury and how much he is athletically active.

Surgery is preferred in case of anterior cruciate ligament and it is performed after the sic weeks of tear. The person must have to do rest and will have stay away from any mechanical stress work which can affect his injured knee. A special device called Orthosis should be used, it basically provide support to the knee.

**Stabilizing Knee Joint:**

After the operation, the knee joint would be very unstable. In this case, a special Orthosis is used. It will help them in stabilizing the knee joint and also will help in healing process in ones who did a knee operative or usually have pain in knee.

Using Orthosis, mechanical stress reduces and the knee is stabilized and also it help in relieving in pain. That is why these orthosis are much appreciated in this scenario.

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**QUESTION NO 06:**

**FRACTURE OF META-TARSAL BONES:**

Meta-Tarsal Fracture is a break in one of the five meta-tarsals. Which forms the mid-section of the foot.

**Location:**

Meta-tarsals are bones of fore foot. They are total 5 in number in each foot. They are long bones and runs from the cuneiforms to the base of the toes.

**Types of Fracture in Meta-Tarsals:**

1) Acute

2) Stress

**Acute:**

Those breaks or fracture in meta-tarsals which are caused by an immediate accident or injury. Sudden forceful injury. Dropping something on the foot can cause injury.

This type of fracture have two sub-types:

A) Open or Closed

B) Displaced or Un-displayed

1. **Open or Closed:**

Open fracture are those where the skin surface becomes rupture over the area of fracture. As the ruptures, it makes a path for the outside viruses or bacteria to enter and cause any infection.

Open Fracture is one of the most complicated and serious type of fracture. Because there is a high chance of infection, high amount of soft tissue loss and very slow healing process.

Closed fracture refers to the fracture where there is no such breakage of skin surface over the fracture area.

1. **Displaced or Un-displayed:**

A displayed fracture is one where the bone parts on both sides of break slips (following the fracture or break). It requires a specialist because it is necessary for the bone to be stabilize and properly lined up in order to be healed.

Un-displayed refers to the fracture where there is no slippage of bone occurs at the area of break or fracture.

2) **Stress:**

Fracture occurred in meta-tarsal over a period of time. It can be caused repetitive stress. It’s like a hairline fracture. It’s a crack over the bone. It do not goes the full thickness of the bone like the acute one. Stress fracture aren’t displaced and they can occur more than one at same area of meta-tarsal.

**Symptoms of Meta-Tarsal Fracture:**

**Acute:**

* You may hear an audible sound at the time of breakage.
* You will not be able to put weight on broke/fractured area.
* Immediate pain
* Foot movement will be limited due to fracture.
* Swelling at the breakage area.
* Pinpoint pain.

**Stress:**

* This have mostly similar symptoms like acute.
* Have swellings but not that much like acute.
* You will feel pain while exercising.
* Pain will tends to diffuse over the rest of the foot.
* Swelling but not like acute.

**Causes:**

**Acute:**

* Can be occurred by any direct injury to the foot. For example: kicking a hard object etc.
* Twisting your foot too much can cause a fracture in your shaft of meta-tarsal.
* Ankle twisting can results in fracturing the base of the fifth Meta-tarsal.
* Jumping from a height and landing with force.

**Stress:**

* Due to repeated stress.
* If someone, runs in a poor quality footwear.
* In person, maybe in a sport-man mostly, if he increases his speed or intensity while running.
* Continuing the exercise despite of knowing this that you are having pain in the foot.

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