**MUSCULOSKELETAL SYSTEM BLOCK**

**Department Representative : Dr. Hisham Al-Khalidi**

**Tutors: Prof. Ammar Al-Rikabi, Dr. Hisham Al-Khalidi,**

**Dr. Maha Arafah and Dr. Hala Kfoury**

**Practical class instructors: Dr. Marei Makhashin and Dr. Shaesta Zaidi**

**Number of lectures: Five.**

**Number of practical sessions: One**

**Aim** : To teach medical students some of the common bone and joints diseases with special emphasis on their pathological features.

**LECTURE ONE: An introduction to myopathies and muscular dystrophy**

***Tutors: Dr. Hisham Al-Khalidi and Dr. Hala Kfoury***

***Objectives:***

At the end of this lecture, the students should be able to:

1. Understand the structure of the various types of muscle fibers.
2. Acquire a basic knowledge of the classification of myopathies and give examples of these disorders.
3. Understand the meaning of the term muscular dystrophy and have a basic knowledge of the incidence and clinicopathological manifestations of Duchenne's and Becker's muscular dystrophies.
4. Know the pattern of inheritance of myotonic dystrophy and its clinicopathological presentations.

***Contents:***

1. The definition of motor unit and muscle fiber types.
2. Classification of myopathies.
3. Muscle atrophy, pathological features and causes.
4. Neurogenic myopathy: definition, causes and pattern of nerve injury.
5. Duchenne and Becker Muscular Dystrophy: incidence, Clinicopathological characteristics, with special emphasis on the rule of dystrophin protein.
6. Myotonic Dystrophy: definition and main Clinicopathological features with special emphasis of inheritance pattern.

**LECTURE TWO: Congenital and developmental bone diseases.**

***Tutors: Prof. Ammar Al-Rikabi and Dr. Maha Arafah***

***Objectives:***

At the end of this lecture, the students should be able to:

1. Be aware of some important congenital and developmental bone diseases and their principal pathological features.
2. Understand the aetiology, pathogenesis and major clinical features of osteoporosis.
3. Be familiar with the terminology used in some important developmental and congenital disorders.

***Contents:***

1. Pathogenesis and main clinical manifestations of Achondroplasia and osteogenesis imperfecta (brittle bone disease).
2. Osteoporosis: definition, incidence (with special emphasis on Saudi Arabia), aetiology, pathogenesis and clinical manifestations.

**LECTURE THREE : Fracture and Bone Healing.**

***Tutors: Prof. Ammar Al-Rikabi and Dr. Maha Arafah***

***Objectives:***

At the end of this lecture, the students should be able to:

1. Appreciate the importance of road traffic accidents with resultant trauma as a major cause of death and disability in the Kingdom.
2. Be aware of the mechanisms and stages of fracture healing and understands the difference between trauma induced and pathological fractures.
3. Know the factors contributing to delayed fracture healing.

***Contents:***

1. Definition of a fracture and fracture types.
2. Stages of fracture healing and mechanism of callus formation.
3. Factors leading to an impairment in the fracture healing process and its complications like non-union and pseudoarthrosis.
4. Main clinical features of fractures and the correlation with pathological changes.

**LECTURE FOUR: Non infectious arthritis.**

***Tutors: Prof. Ammar Al-Rikabi and Dr. Maha Arafah***

***Objectives:***

At the end of this lecture, the students should be able to:

* Know the pathogenesis and clinicopathological features of osteroarthritis (degenerative joint disease), rheumatoid arthritis, gout and calcium pyrophosphate arthropathy [pseudogout].

***Contents:***

1. Osteoarthritis: incidence, primary and secondary osteoarhtitis, pathogenesis and clinical features.
2. Rheumatoid arthritis: definition, aetiology and pathological features with special emphasis on joints and bones. Clinical and major radiological features.
3. Gout: - Aetiology and causes of hyperuricemia.
   * + Clinicopathological features.
     + Structure of tophi and diagnostic tests for gouty arthritis.
4. Pseudogout: - Definition and pathogenesis.
   * + Features that help to differentiate this condition from real gout.

**LECTURE FIVE: Osteomyelitis and septic arthritis.**

***Tutors: Prof. Ammar Al-Rikabi and Dr. Maha Arafah***

***Objectives:***

At the end of this lecture, the students should be able to:

1. Understand the aetiology, pathogenesis and clinical features of osteomyelitis.
2. Be familiar with some of the terminology used in bone infections like: sequestrum, involucrum, Brodie abscess and Pott’s disease.
3. Understand the clinicopathological features of tuberculous osteomyelitis and infective arthritis.

***Content:***

1. Osteomyelitis: definition, causative and predisposing factors including sickle cell disease, pathogenesis and main clinical features with complications.
2. Tuberculous osteomyelitis: clinicopathological features – Pott’s disease.
3. Septic arthritis: causes – clinicopathological features.

* + **Practical session : Musculoskeletal system**
  + **Instructors : A] Male students: Dr. Marei Makhashin**

**B] Female students: Dr. Shaesta Zaidi**

* **Time : Two hours for each group of students.**
* **Site : Students laboratory (1st floor,) College building**

**For (Male students).**

**Pharmacology lab (3rd floor), College building**

**for (Female students).**

* **Target audience : First year medical students (new improved**

**curriculum)**

* **Format : The session consists of:**

A] Slides projection with interactive explanation of gross and histology features of the following disorders through case discussion:

(1) Osteomyelitis.

(2) Pott’s disease.

(3) Osteoarthritis.

(4) Rheumatoid arthritis.

(5) Osteochondroma.

(6) Osteosarcoma.

(7) Duchenne muscular dystrophy.

(8) Dermatomyositis.

B] The students will examine under supervision pathology jars containing examples of the above diseases.

**Methods and equipments used:**

1. Computer generated power point projection.
2. Powerpoint software.
3. Pathology museum jars.