Anatomy

PRACTICAL GUIDE BOOK

for

GENERAL AND MUSCULOSKELETAL MODULES

Haszianaliza Haslan
Choy Ker Woon
Muhammad Fairuz Azmi
Nurul Hannim Zaidun
Nurul Raudzah Adib Ridzuan
Syed Baharom Syed Ahmad Fuad

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PREFACE

This practical guide is primarily intended for undergraduate and postgraduate students in medical, dental and health sciences. It also is beneficial to educators, instructors and clinicians.

Learning anatomy requires both lectures as well as laboratory sessions, to ensure students gain the fundamental knowledge needed for safe clinical practice. This practical guide was designed to be used as the main resource to facilitate students during their laboratory sessions. It also can be used as a complementary for any anatomy textbooks and atlases.

This practical guide includes two main modules in anatomy subjects.

General module provides a guideline on learning the histology of basic human tissue.

Features:

- List of histology slides in each practical session
- Specific learning outcomes for each slide
- Histological features in low and high magnifications serve as guide
- Spaces were provided for additional learning points in order to motivate self-learning in students

Musculoskeletal module provides a guideline on learning gross anatomy of musculoskeletal system including the bones, muscles, joints and their neurovascular supply.

Features:

- List of stations in each practical session
- Specific learning outcomes for each station
- Key points provide concise description serve as guide
- Spaces were provided for additional learning points in order to motivate self-learning in students

GENERAL MODULE

General module provides fundamental knowledge on the normal structure and organization of the human body. Understanding this basic knowledge is vital in order to grasp comprehensive understanding of how the human body works and diseases that arise following various insults.

The cell is a basic functional unit that is organized into four basic types of tissue, namely the epithelial, connective, muscle and nervous tissue. A collection of these tissues in various morphology and proportion formed an organ, for example the heart and stomach.

Epithelial tissue is the tissue covers and lines interface surface and body cavities. It regulates exchange of molecules involves in absorption and secretion. It is characterized by:

- Composed of closely aggregated polyhedral cells.
- Exhibit functional and morphological polarity.
- Basal surface attached to the basement membrane.
- Have strong adhesion to each other.

Epithelium can be classified into surface epithelia and glands, in which there are epithelium that mainly involves in secretion.

Connective tissue composed of cells and extracellular matrix. The extracellular matrix is its major component formed by the ground substance and fibres, namely collagen and elastin. Connective tissue connects different types of tissue in the organ and provides volume and mechanical strength. Connective tissue can be classified into:

- Embryonic connective tissue: Mesenchyme, mucous connective tissue.
- Connective tissue proper: Loose, dense irregular and dense irregular.
- Specialized connective tissue: Reticular tissue, adipose tissue, bone, cartilage and blood.

Bone composed of cells and calcified extracellular material that provides a strong endoskeleton, protects vital organs and harbors cavities for blood formation. It can be divided into compact, composed of mainly the Haversian canals and cancellous, formed a fine network