1. INTRODUCTION

Food passes from the mouth and pharynx through the esophagus to the stomach. Here it mixes with gastric secretions. Digestion mostly occurs in the stomach and duodenum. Peristalsis is a series of ring-like contraction waves. Peristaltic waves occur in the esophagus, stomach, and intestines. Peristalsis is responsible for mixing the masticated (chewed) food mass with gastric juices. It is also responsible for emptying the contents of the stomach into the duodenum.

Absorption of chemical compounds occurs principally in the small intestine. It is a 5- to 6-m-long tube. It is shorter in life, when tonus is present, than in the cadaver. It consists of the duodenum, jejunum, and ileum. Peristalsis also occurs in the jejunum and ileum. However, it is not forceful unless an obstruction is present. The stomach is continuous with the duodenum. The duodenum receives the openings of the ducts from the pancreas and liver. These two are the major glands of the digestive tract.

The large intestine consists of the cecum, appendix, colon (ascending, transverse, descending, and sigmoid), rectum, and anal canal. Most reabsorption of water occurs in the ascending colon. Feces form in the descending and sigmoid colon and accumulate in the rectum before defecation.

2. SKELETAL ANATOMY OF THE ORAL & NECK REGIONS

The oral cavity is inferior to the nasal cavities. It has a roof and floor, and lateral walls, opens onto the face through the oral fissure. It is continuous with the cavity of the pharynx at the oropharyngeal isthmus. Bones that contribute to the skeletal framework of the oral cavity or are related to the anatomy of structures in the oral cavity include:

- paired maxillae, palatine and temporal bones; and
- unpaired mandible, sphenoid, and hyoid bone.

In addition, the cartilaginous parts of the pharyngotympanic tubes on the inferior aspect of the base of the skull are related to the attachment of muscles of the soft palate.

The styloid process and inferior aspect of the petrous part of the temporal bone provide attachment for muscles associated with the tongue and soft palate, respectively.

The mandible is the bone of the lower jaw. It consists of a body of right and left parts, which are fused anteriorly in the midline, and two rami. The hyoid bone is a small U-shaped bone in the neck between the larynx and the mandible.

The neck is a tube providing continuity from the head to the trunk. It extends anteriorly from the lower border of the mandible to the upper surface of the manubrium of sternum, and posteriorly from the superior nuchal line on the occipital bone of the skull to the intervertebral disc between the CVII and TI vertebrae.

3. SKELETAL ANATOMY OF THE ABDOMINAL REGION

The abdomen is a roughly cylindrical chamber extending from the inferior margin of the thorax to the superior margin of the pelvis and the lower limb.

The inferior thoracic aperture forms the superior opening to the abdomen, and is closed by the diaphragm. Inferiorly, the deep abdominal wall is continuous with the pelvic wall at the pelvic inlet. Superficially, the inferior limit of the abdominal wall is the superior margin of the lower limb.

4. SKELETAL ANATOMY OF THE PELVIC REGION

The pelvis and perineum are interrelated regions associated with the pelvic bones and the terminal parts of the vertebral column. The pelvis is divided into two regions:

- superior region related to upper parts of the pelvic bones and lower lumbar vertebrae is the false pelvis (greater pelvis) and is generally considered part of the abdomen;
- true pelvis (lesser pelvis) is related to the inferior parts of the pelvic bones, sacrum, and coccyx, and has an inlet and an outlet.

The bowl-shaped pelvic cavity enclosed by the true pelvis consists of the pelvic inlet, walls, and floor. This cavity is continuous superiorly with the abdominal cavity. It contains elements of the urinary, gastrointestinal, and reproductive systems.
The pelvic inlet forms a complete ring. Posteriorly, the inlet is bordered by the body of vertebra SI. The diamond-shaped pelvic outlet is formed by both bone and ligaments. It is limited anteriorly in the midline by the pubic symphysis.

The bones of the pelvis consist of the right and left pelvic (hip) bones (ilium+ischium+pubis), the sacrum, and the coccyx. The sacrum articulates superiorly with vertebra LV at the lumbosacral joint.

**Iliac crest** is the rim of the fan-shaped ilium. There is a small **iliac tubercle** on the iliac crest. The iliac crest finishes anteriorly as a thorn-like bone marking: **anterior superior iliac spine** (ASIS).

The pelvic bone is irregular in shape and has two major parts separated by an oblique line on the medial surface of the bone:
- pelvic bone above this line is the lateral wall of the false pelvis. It is part of the abdominal cavity;
- pelvic bone below this line represents the lateral wall of the true pelvis. It contains the pelvic cavity.

## 5. ABDOMINAL REGIONS

Visualization of the position of abdominal viscera is fundamental to a physical examination. Some of these viscera or their parts can be felt by palpating through the abdominal wall. Surface features can be used to establish the positions of deep structures.

Topographical divisions of the abdomen are used to describe the location of abdominal organs and the pain associated with abdominal problems. **The two schemes most often used are:**
- a four-quadrant pattern; and
- a nine-region pattern.

### Four-quadrant pattern

A horizontal transumbilical plane passing through the **umbilicus** and the **intervertebral disc between vertebrae LIII and LIV (third and fourth lumbar vertebrae)** and intersecting with the vertical median plane divides the abdomen into four quadrants:

1. right upper
2. left upper
3. right lower
4. left lower quadrants.

### Nine-region pattern

The nine-region pattern is based on two horizontal and two vertical planes.

The superior horizontal plane (**subcostal plane**) is immediately inferior to the costal margins. It is at the lower border of the costal cartilage of rib X. It passes posteriorly through the body of vertebra LIII.

The inferior horizontal plane (**intertubercular plane**) connects the tubercles of the iliac crest. It passes through the upper part of the body of the fifth lumbar vertebra. They are palpable structures 5 cm posterior to the anterior superior iliac spines. This plane passes through the upper part of the body of the fifth lumbar vertebra.

The vertical planes pass from the midpoint of the clavicles inferiorly to a point midway between the anterior superior iliac spine and pubic symphysis.

These four planes establish the topographical divisions in the nine-region organization. **The following designations are used for each region:**

**Superiorly** right hypochondrium, the epigastric region, and the left hypochondrium.

**Inferiorly** right groin (inguinal region), pubic region, and left groin (inguinal region).

**In the middle** right flank (lateral region), the umbilical region, and the left flank (lateral region).