Facial Region. Infraorbital Region. Zygomatic, Mental and Buccal Regions

Infraorbital Region
Boundaries
➢ Superiorly - infraorbital margin
➢ Inferiorly - gingivobuccal fold
➢ Medially - nasolabial sulcus
➢ Laterally - zygomatic region

Surface Anatomy
➢ Skin - thin
➢ Subcutaneous tissue containing infraorbital (sensory) and buccal (motor nerves), facial artery and vein
➢ Muscle layer - orbiculus oculi, caninus, levator labii superioris, levator superioris alaeque nasi
➢ Canine fossa with infraorbital foramen (infraorbital artery, vein and nerve)

Mental Region
Boundaries
➢ Superiorly - gingivobuccal fold
➢ Inferiorly - mandibular base

Surface Anatomy
➢ Skin - thick and hairy with sebaceous glands
➢ Subcutaneous tissue - arranged in lobules with fibrous bundles or muscle bundles
➢ Muscle layer - depressor anguli oris, depressor labii inferioris, mentalis
➢ Facial artery (gives rise to the inferior labial artery), mental artery (branch of mandibular artery) and vein, lymph nodes, mental nerve
➢ Mandible

Zygomatic Region
Boundaries
➢ Superiorly - boundaries of the zygomatic bone

Surface Anatomy
➢ Skin - thin
➢ Subcutaneous tissue
➢ Muscle layer - orbiculus oculi, zygomaticus major and minor
➢ Infraorbital nerve, zygomaticofacial nerve
➢ Zygomatic bone
Pariteomasseteric Region

Boundaries

➢ Superiorly - zygomatic arch
➢ Inferiorly - mandibular base and angle
➢ Anteriorly - anterior border of masseter
➢ Posteriorly - external acoustic porus and mastoid process

Surface Anatomy

➢ Skin - relatively **thick and hairy**
➢ Subcutaneous tissue - abundant **fat tissue**, has **branches of auricular magnus nerve** and superficial and deep parotid lymph nodes
➢ **Parotid and masseter fascia**
➢ **Superficial temporal artery and vein** and **auricotemporal nerve**
➢ **Posterior auricular artery** and **facial nerve**
➢ **Parotid duct**
➢ **Facial nerve** → **plexus intraparotideus**
➢ **Carotid bifurcation - end branches**
➢ **Masseter artery, vein and nerve**
Axillary Region

Pyramidal space inferior to the glenohumeral joint. Provides a passageway for the neurovascular structures that innervate the upper limb

Boundaries

- Apex - cervicoaxillary canal bounded by the 1st rib, clavicle and superior border of scapula
- Base - formed by the concave skin, subcutaneous tissue and axillary fascia. It forms the axillary fossa
- Anterior wall - formed by the pectoralis major, minor and the pectoral fascia. The anterior axillary fold is the most inferior part
- Posterior wall - formed by the subscapularis, teres major and latissimus dorsi. The posterior axillary fold is the most inferior part
- Medial wall - formed by the thoracic wall and serratus anterior
- Lateral wall - formed by intertubercular groove

Surface Anatomy

- Skin - hairy
- Subcutaneous tissue
- Superficial axillary fascia
- Axillary lymph nodes in fat (central, lateral, pectoral, subscapular and apical)
- Lateral thoracic artery (medial wall)
- Thoracoepigastric vein (medial wall)
- Long thoracic nerve and lateral branches of intercostal nerves (medial wall)
- Thoracodorsal artery (posterior wall)
- Thoracodorsal nerve (posterior wall)
- Neurovascular bundle in deep axillary sheath (axillary artery, vein, cords of brachial plexus)

Quadrangular Space

- Superiorly - teres minor
- Inferiorly - teres major
- Medially - long head of triceps
- Laterally - humerus
- Into this space passes the axillary nerve and posterior circumflex humeral artery

Triangular Space

- Superiorly - teres minor, subscapularis
- Medially - long head of triceps
- Inferiorly - teres major
- Into this space passes the circumflex scapular artery
Middle layer – Arachnoid Matter
- Lays directly underneath dura matter
- Between dura and arachnoid = subdural space
- It consists of layers of connective tissue, is avascular and doesn’t receive any innervation

Innermost layer – Pia Matter
- Arachnoid + Pia = Leptomeninges
- Pia matter is located underneath the sub-arachnoid space
- It is very thin and tightly adhered to surface of brain
- Highly vascularized, with blood vessels perforating through membrane to supply underlying tissue
- Between pia matter and arachnoid matter is the subarachnoid space which contains trabeculae and cerebrospinal fluid

Spinal Dura Matter
- Dura is made up of tough longitudinal collagen fibres interwoven with circular elastic fibres
- External surface is rough and blends with loose connective tissue in epidural space
- Internal surface, facing into subdural space is smooth and covered by a layer of mesoepithelium
- Inferiorly, dural sac ends at sacral canal, usually at S2–S3 or sometimes S1
- Dura continues caudally as a fibrous thread named the filum terminalis externum, coccygeal ligament, which blends with the posterior longitudinal ligament over coccyx.
- Dura is also attached to spaces in PLL

Epidural Space
- The epidural/ extradural space is a space outside the dura matter
- The nerve roots transverse the space as they extend into intervertebral foramen
- Space is occupied by loose connective tissue and fat
- Epidural space ends at the sacral hiatus, sealed by the posterior sacrococcygeal ligament
Abdominal Regions. Anterior Abdominal Wall. Inguinal Canal

Abdominal Regions
The abdominal cavity is split into 9 regions by the following planes to describe the organs in their locations.

➢ Epigastrium - bounded by the midclavicular planes on the side and the subcostal plane inferiorly, costal arch superiorly - contain stomach, liver, duodenum and pancreas

➢ Umbilical - bounded by the midclavicular planes on the side, subcostal plane superiorly and the transtubercular plane inferiorly - contains small intestine, transverse colon, duodenum, head of pancreas

➢ Hypogastric (public) - bounded by the midclavicular planes on the side, transtubercular plane superiorly - contains sigmoid colon, small intestine, urinary bladder and uterus

➢ Right hypochondriac - lateral to the right midclavicular plane and the subcostal plane inferiorly - contain right liver lobe and gallbladder

➢ Left hypochondriac - lateral to the right midclavicular plane and the subcostal plane inferiorly - contain left liver lobe, stomach, spleen and left colic flexure

➢ Right lateral - lateral to the right midclavicular plane, subcostal plane superiorly, and the transtubercular plane inferiorly - contain ascending colon and small intestine

➢ Left lateral - lateral to the left midclavicular plane, subcostal plane superiorly, and the transtubercular plane inferiorly - contain descending colon and small intestine

➢ Right inguinal - lateral to the right midclavicular plane, the transtubercular plane superiorly - contain cecum, vermiform appendix and small intestine

➢ Left inguinal - lateral to the left midclavicular plane, the transtubercular plane superiorly - contain sigmoid colon and small intestine

Quadrants
Formed by the medial plane and the umbilical plane (passing through the umbilical region)

➢ Right upper quadrant
➢ Left upper quadrant
➢ Right lower quadrant
➢ Left lower quadrant

Midclavicular plane - from midpoint of clavicle to the midinguinal points
Subcostal plane - passing through inferior border of 10th costal cartilage
Bulbospongiosus
- Perineal body
- Fascia of bulb of penis and corpus spongiosum and cavernosum
- Perineal branch of pudendal nerve
- Compresses urethra and helps in erection of penis

Female
Ischiocavernosus – covers crus of clitoris
- Ischial tuberosity
- Fascia covering corpus cavernosum
- Perineal branch of pudendal nerve
- Erection of clitoris

Bulbospongiosus – surrounds orifice of vagina and covers vestibular bulbs
- Perineal body
- Fascia of corpus cavernosum
- Perineal branch of pudendal nerve
- Sphincter of vagina and assists in erection of clitoris

Ischioanal Fossa
- On each side of the anal canal
- Large fascia lined, wedge shaped space between the skin of the anal region and the pelvic diaphragm
- The ischioanal fossae widen inferiorly
- Communicate by deep postanal space over the anococcygeal ligament
- Filled with connective tissue and fat bodies which support the anal canal
- Fat bodies are traversed by inferior anal vessels and nerves, cutaneous nerves of S2 - S3, and the perineal branch of S4 nerve

Boundaries
- Laterally - ischium and obturator fascia
- Medially - external anal sphincter and levator ani
- Posteriorly - sacrotuberous ligament and gluteus
- Anteriorly - bodies of pubic bones (anterior recesses)
Gluteal Region

Boundaries

➢ Superiorly - level of iliac crests
➢ Inferiorly - gluteal fold
➢ Laterally - line through anterior superior iliac spine
➢ Medially - intergluteal cleft

Surface Anatomy

➢ Skin
➢ Subcutaneous tissue with cutaneous superior, medial and inferior cluneal nerves
➢ Gluteal fascia
➢ Gluteal muscles
➢ Gluteal bursa
➢ Superior gluteal artery, vein, nerve (passing through greater sciatic foramen superior to piriformis muscle)
➢ Inferior gluteal artery, vein, nerve / sciatic nerve, inferior cluneal nerve (passing through greater sciatic foramen inferior to piriformis muscle)
➢ Internal pudendal artery and nerve (emerging from the greater sciatic foramen and passing through lesser sciatic foramen to enter pudendal canal)
Anterior Region of Leg

➢ Dorsiflexor (extensor) compartment
➢ Bounded anteriorly by deep fascia of leg and skin
➢ Deep fascia overlying the anterior compartment is dense superiorly, providing part of proximal attachment of muscle immediately deep to it
➢ Inferiorly, 2 band-like thickenings of the fascia for retinacula that bind the tendons of anterior compartment muscles before and after they cross ankle joint, preventing them from bowstringing anteriorly during dorsiflexion of joint

1. **Superior Extensor Retinaculum** - strong, broad band of deep fascia, passing from fibula to tibia, proximal to malleoli
2. **Inferior Extensor Retinaculum** - Y-shaped band of deep fascia, attaches laterally to anterosuperior surface of calcaneus. Forms a strong loop around tendons of fibularis tertius and extensor digitorum muscles

Muscles of Anterior Compartment of Leg
➢ **Tibialis anterior**
➢ **Extensor digitorum longus**
➢ **Extensor hallucis longus**
➢ **Fibularis tertius**
Heel Region

Medial Malleolar Region

Borders

➢ Superiorly - horizontal line, 2cm superior to medial malleolus
➢ Inferiorly - medial margin of foot sole
➢ Posteriorly - midline
➢ Anteriorly - line along the anterior margin of tibia and medial margin of foot sole

This region contains tarsal tunnel that is bounded by:

➢ Medial malleolus
➢ Talus
➢ Calcaneus
➢ Flexor retinaculum

It’s passed by tendons of long flexor muscles and by neurovascular bundle supplying the foot sole

Anterior to the medial malleolus ascends great saphenous vein that’s accompanied by saphenous nerve

Muscles, arteries and nerves are covered by the flexor retinaculum, arranged in anterior to posterior:

➢ Tibialis posterior - tendon is surrounded by synovial sheath
➢ Flexor digitorum longus
➢ Posterior tibial artery - gives off calcaneal branches and divides into medial and lateral plantar artery
➢ Tibial nerve - divides into medial and lateral plantar nerve
➢ Flexor hallucis longus

Surface Anatomy

➢ Calcaneal tuberosity
➢ Posterior tibial artery
➢ Great saphenous vein

Lateral Malleolar Region

Borders

➢ Superiorly - horizontal line 2cm superior to lateral malleolus
➢ Inferiorly - lateral margin of foot sole
➢ Anteriorly - curved line from anterior margin of fibula and lateral malleolus to tuberosity of 5th metatarsal
➢ Posteriorly - midline

Posterior to lateral malleolus ascends small saphenous vein
Sural nerve accompanies small saphenous vein - gives rise to calcaneal branches and continues then into the lateral dorsal cutaneous nerve of the foot
Dorsum of Foot

Superficial Layer

Borders
- Superiorly - horizontal line between both malleoli
- Laterally and medially - margins of the foot

Vessels
- Thin subcutaneous tissue contains well-developed dorsal venous network
- It’s connected via the dorsal venous arch with great saphenous vein that ascends anterior to medial malleolus, and with the small saphenous vein that begins posterior to lateral malleolus

Nerves
- Medial dorsal cutaneous nerve and intermediate dorsal cutaneous nerve descend proximally and divide into the proper dorsal digital nerves
- At lateral margin of the foot occurs the lateral dorsal cutaneous nerve that ends at the lateral surface of the 5th toe
- The deep fibular nerve pierces the fascia between 1st and 2nd metatarsals and divides into the proper digital nerves for contiguous toes of 1st and 2nd toes
- Terminal branch of saphenous nerve reaches down to base of 1st metatarsal

Middle Layer
- Tendons of extensor digitorum longus and extensor hallucis longus become visible after removing of the fascia
- They are covered by inferior extensor retinaculum
- Dorsal pedis artery runs lateral to tendon of extensor hallucis longus in the direction of the 1st interdigital space - it’s distally crossed by tendon extensor hallucis brevis
- Dorsal metatarsal arteries lie between the tendons of the extensor digitorum brevis - they divide into proper dorsal digital arteries at level of metatarsophalangeal joints

Deep Layer
- Course of dorsal pedis artery becomes available after dissection of extensor hallucis brevis
- It gives off to arcuate artery at the level of the base of the metatarsals that give rise to dorsal metatarsal arteries
- Terminal branch of the dorsalis pedis artery - deep plantar artery - pierces the 1st dorsal interosseous muscle and joins lateral plantar artery forming deep plantar arch