***Lymphatic Drainage Flow Chart***

**1. Anterior Abdominal Wall**

* **Superficial Lymphatics**:
  + **Above umbilicus** → Axillary lymph nodes.
  + **Below umbilicus** → Superficial inguinal lymph nodes.
* **Deep Lymphatics**:
  + **Above umbilicus** → Parasternal lymph nodes.
  + **Below umbilicus** → External iliac lymph nodes.

**2. Stomach**

* Follows arteries → Left/Right gastric nodes, Left/Right gastroepiploic nodes, Short gastric nodes.
* **All lymph** → Celiac nodes (around celiac artery root).

**3. Duodenum**

* **Upper part** → Hepatic lymph nodes.
* **Lower part** → Superior mesenteric lymph nodes.
* **Pathways**:
  + Upward: Pancreaticoduodenal nodes → Gastroduodenal nodes → Celiac nodes.
  + Downward: Pancreaticoduodenal nodes → Superior mesenteric nodes.

**4. Jejunum and Ileum**

* **Mesenteric lymph nodes (3 groups)**:
  1. Near small intestine (small, numerous).
  2. Along jejunal/ileal vessels (larger, fewer).
  3. Along superior mesenteric vessels (largest, fewest).

**5. Colon**

* **Colic lymph nodes (4 groups)**:
  1. **Epicolic**: On colon wall.
  2. **Paracolic**: Along colon borders.
  3. **Intermediate**: Along branches of superior/inferior mesenteric vessels.
  4. **Terminal**: Along superior/inferior mesenteric vessels.

**6. Liver**

* **Superficial Lymphatics**:
  + Terminate in: IVC nodes, Hepatic nodes, Paracardiac nodes, Celiac nodes.
* **Deep Lymphatics**:
  + **Ascending trunk** → IVC nodes.
  + **Descending trunk** → Hepatic nodes → Celiac nodes.

**7. LYMPHATIC DRAINAGE OF HEAD & NECK**

**1. TERMINAL DRAINAGE OVERVIEW**

* **All lymph → Deep cervical nodes → Forms jugular trunk.**
  + **Left side: Thoracic duct → Left venous angle (subclavian + internal jugular).**
  + **Right side: Right lymphatic duct → Right venous angle.**

**2. HORIZONTAL RING NODES (Palpable When Enlarged)**

1. **Submental Nodes**
   * **Midline below chin.**
   * **Drains: Lower lip, floor of mouth, tongue tip.**
2. **Submandibular Nodes**
   * **In digastric triangle.**
   * **Drains: Cheek, nose, gums, anterior tongue.**
3. **Preauricular/Parotid Nodes**
   * **Over parotid gland.**
   * **Drains: Scalp, external ear, parotid.**
4. **Buccal & Mandibular Nodes**
   * **Buccal: On buccinator muscle.**
   * **Mandibular: Near facial vessels.**
5. **Mastoid (Postauricular) & Occipital Nodes**
   * **Mastoid: On mastoid process.**
   * **Occipital: Posterior triangle apex.**
6. **Superficial Cervical Nodes**
   * **Along external jugular vein.**
   * **Drains: Neck skin, ear lobule.**

**3. DEEP CERVICAL NODES**

* **Midline Group:**
  + **Prelaryngeal, pretracheal, paratracheal nodes.**
    - **Drain: Thyroid, larynx, trachea.**
  + **Retropharyngeal nodes.**
    - **Drain: Pharynx, palate, nose.**
    - **Clinical: Enlargement → Dysphagia.**
* **Lateral Group:**
  + **Upper deep cervical:**
    - **Jugulodigastric node (tonsils/tongue).**
  + **Lower deep cervical:**
    - **Jugulo-omohyoid node (tongue, bilateral drainage).**

**4. SURGICAL LEVELS CLASSIFICATION**

* **Level I: Submental/submandibular.**
* **Level II–IV: Deep cervical (along internal jugular vein).**
* **Level V: Posterior triangle (spinal accessory nerve).**
* **Level VI: Pretracheal/paratracheal (thyroid/larynx cancers).**
* **Level VII: Superior mediastinum.**
* **Key Points for Memorization**
* **Abdomen**: Follow arteries; celiac nodes are central for stomach/liver.
* **Colon/Small Intestine**: Layered node groups (epicolic → terminal).
* **Head/Neck**: Horizontal band (palpable if enlarged); deep cervical nodes are pivotal.
* **Surgical Levels**: Numeric classification (I–VII) guides oncologic dissection.

TISSUES → [Regional Nodes] → [Terminal Trunks] → CISTERNA CHYLI (abdomen) / JUGULAR TRUNK (neck) → THORACIC DUCT (left) or RIGHT LYMPHATIC DUCT → VEINS.

**Easy (Basic Recall)**

1. **Where does lymph from the stomach ultimately drain?**  
   a) Axillary nodes  
   b) Celiac nodes  
   c) Superficial inguinal nodes  
   d) Mediastinal nodes  
   **Answer: b) Celiac nodes**  
   *Explanation:* All gastric lymph drains to celiac nodes near the celiac artery root.
2. **Lymph from the anterior abdominal wall below the umbilicus drains to:**  
   a) Axillary nodes  
   b) Parasternal nodes  
   c) Superficial inguinal nodes  
   d) Hepatic nodes  
   **Answer: c) Superficial inguinal nodes**  
   *Explanation:* The superficial lymphatics below the umbilicus drain to the superficial inguinal nodes.
3. **Which lymph nodes are palpated for tonsillar infections?**  
   a) Submental  
   b) Jugulodigastric  
   c) Paratracheal  
   d) Epicolic  
   **Answer: b) Jugulodigastric**  
   *Explanation:* The jugulodigastric node (Level II) is the "tonsillar node" and enlarges in tonsillitis.
4. **The thoracic duct drains into the:**  
   a) Right subclavian vein  
   b) Left subclavian vein  
   c) Superior vena cava  
   d) Azygos vein  
   **Answer: b) Left subclavian vein**  
   *Explanation:* The thoracic duct terminates at the left venous angle (subclavian + internal jugular veins).
5. **Which node group drains the tongue bilaterally?**  
   a) Submandibular  
   b) Jugulo-omohyoid  
   c) Retropharyngeal  
   d) Mesenteric  
   **Answer: b) Jugulo-omohyoid**  
   *Explanation:* The jugulo-omohyoid node is a key drainage site for the tongue.

**Medium (Application & Integration)**

1. **A patient with gastric cancer is most likely to metastasize first to which nodes?**  
   a) Axillary  
   b) Celiac  
   c) Superficial cervical  
   d) Paracolic  
   **Answer: b) Celiac nodes**  
   *Explanation:* Gastric lymph follows arteries to celiac nodes, a common metastatic site.
2. **Lymph from the lower rectum drains primarily to:**  
   a) Superior mesenteric nodes  
   b) Inferior mesenteric nodes  
   c) Superficial inguinal nodes  
   d) External iliac nodes  
   **Answer: c) Superficial inguinal nodes**  
   *Explanation:* The lower rectum drains to inguinal nodes, unlike the upper rectum (inferior mesenteric nodes).
3. **Which structure’s enlargement may cause dysphagia due to pressure on the pharynx?**  
   a) Jugulodigastric node  
   b) Retropharyngeal node  
   c) Submental node  
   d) Celiac node  
   **Answer: b) Retropharyngeal node**  
   *Explanation:* Retropharyngeal nodes lie posterior to the pharynx; enlargement compresses it.
4. **During a neck dissection, Level III nodes are found between:**  
   a) Skull and hyoid  
   b) Hyoid and cricoid  
   c) Cricoid and clavicle  
   d) Clavicle and sternum  
   **Answer: b) Hyoid and cricoid**  
   *Explanation:* Level III = carotid bifurcation (hyoid) to omohyoid tendon (cricoid).
5. **Lymph from the liver’s bare area drains directly to:**  
   a) Hepatic nodes  
   b) Nodes around the IVC  
   c) Celiac nodes  
   d) Mediastinal nodes  
   **Answer: b) Nodes around the IVC**  
   *Explanation:* The bare area drains to caval nodes due to its direct contact with the IVC.

**Hard (Clinical & Surgical Correlation)**

1. **A radical neck dissection for malignancy would include all EXCEPT:**  
   a) Sternocleidomastoid muscle  
   b) Internal jugular vein  
   c) Accessory nerve  
   d) Thoracic duct  
   **Answer: d) Thoracic duct**  
   *Explanation:* Radical neck dissection removes Levels I-V, SCM, IJ vein, and CN XI but spares the thoracic duct.
2. **Which nodal group is NOT part of the "horizontal ring" of head/neck lymph nodes?**  
   a) Submental  
   b) Jugulo-omohyoid  
   c) Preauricular  
   d) Occipital  
   **Answer: b) Jugulo-omohyoid**  
   *Explanation:* The horizontal ring includes submental, submandibular, preauricular, mastoid, and occipital nodes.
3. **Lymph from the splenic flexure of the colon drains to:**  
   a) Superior mesenteric nodes  
   b) Inferior mesenteric nodes  
   c) External iliac nodes  
   d) Para-aortic nodes  
   **Answer: b) Inferior mesenteric nodes**  
   *Explanation:* The splenic flexure is a watershed area drained by the inferior mesenteric system.
4. **Which node is commonly biopsied in suspected Hodgkin’s lymphoma?**  
   a) Submandibular  
   b) Virchow’s (left supraclavicular)  
   c) Jugulodigastric  
   d) Buccal  
   **Answer: b) Virchow’s node**  
   *Explanation:* Virchow’s node (Troisier’s sign) drains abdominal viscera and is involved in metastases/lymphoma.
5. **A patient with esophageal cancer may metastasize to:**  
   a) Axillary nodes  
   b) Paratracheal nodes  
   c) Superficial inguinal nodes  
   d) Epitrochlear nodes  
   **Answer: b) Paratracheal nodes**  
   *Explanation:* The esophagus drains to paratracheal and mediastinal nodes (Level VI/VII).

**Answer sources:**

**1. Abdomen (Pages 2–8)**

* **Q1, Q6, Q13: Stomach/colon drainage to celiac/superior/inferior mesenteric nodes (Page 3, 6).**
* **Q2, Q7: Anterior abdominal wall (above/below umbilicus) and rectal drainage (Page 2).**
* **Q10, Q16: Liver drainage to hepatic/IVC nodes (Page 7–8).**

**2. Head & Neck (Pages 9–25)**

* **Q3, Q5, Q12, Q19: Jugulodigastric/jugulo-omohyoid nodes and tongue drainage (Pages 21–22).**
* **Q4, Q14: Thoracic duct/right lymphatic duct termination (Page 10).**
* **Q8, Q20: Retropharyngeal nodes (dysphagia) and neck dissection levels (Pages 20, 24–25).**
* **Q9, Q15, Q18: Surgical levels (Levels I–VII) and paratracheal nodes (Pages 23–24).**

**3. Clinical Correlations (File-Wide)**

* **Q11, Q17, Q20: Radical/modified neck dissection and palpable nodes (Pages 24–25).**
* **Q14: Virchow’s node (mentioned in surgical notes, Page 24).**

**Examples of Direct References**

* **Q3 (Jugulodigastric node):**

***"The most important one is called the jugulo-digastric Lymph nodes... It is concerned with the drainage of the tongue."* (Page 21).**

* **Q10 (Liver’s bare area):**

***"Ascending trunk end in the lymph nodes around the I.V.C."* (Page 8).**

* **Q13 (Splenic flexure drainage):**

***"Inferior mesenteric nodes (principal nodes)"* for descending/sigmoid colon (Page 6)**