General Surgery

Oral Exam Questions

EDITOR

Hakan SÖZEN
Ekmel TEZEL

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Editors
Hakan SÖZEN
ORCID iD: 0000-0002-1282-3413
Ekmel TEZEL
ORCID iD: 0000-0001-5192-9475

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Tel: 0312 431 16 33
siparis@akademisyen.com

www.akademisyen.com

CONTENTS

I. BASIC SCIENCE

II. GENERAL SURGERY CLINICAL SCIENCE QUESTIONS

AUTHORS

Prof. Murat AKIN, M.D.
Gazi University, Department of Surgery
ORCID iD: 0000-0003-0001-1036

Prof. Nusret AKYÜREK, M.D.
Gazi University, Department of Surgery
ORCID iD: 0000-0002-1877-355X

Prof. A. Ziya ANADOL, M.D. PhD, FACS
Gazi University, Department of Surgery
ORCID iD: 0000-0003-0913-2600

Prof. Bülent AYTAÇ, M.D.
Gazi University, Department of Surgery
ORCID iD: 0000-0003-2326-9531

Prof. Abdülkadir BEDİRLİ, M.D.
Gazi University, Department of Surgery
ORCID iD: 0000-0002-6480-3203

Prof. Hasan BOSTANCI
Gazi University, Department of Surgery
ORCID iD: 0000-0002-3160-1488

Prof. Aydın DALGIÇ, M.D., PhD,
Gazi University, Department of Surgery
ORCID iD: 0000-0002-5872-6096

Assoc. Prof. Kürşat DİKMEN, M.D.
Gazi University, Department of Surgery
ORCID iD: 0000-0002-9150-9499

Assoc. Prof. Hüseyin GÖBÜT, M.D.
Gazi University, Department of Surgery
ORCID iD: 0000-0003-0127-7039

Prof. Ahmet KARAMERCAN, M.D.
Gazi University, Department of Surgery
ORCID iD: 0000-0002-1155-3634

Prof. Mustafa KEREM, M.D.
Gazi University, Department of Surgery
ORCID iD: 0000-0002-1797-6291

Assoc. Prof. Ramazan KOZAN, M.D., FACS
Gazi University, Department of Surgery
ORCID iD: 0000-0002-3835-8759

Prof. Osman KURUKAHVECİOĞLU, M.D.
Gazi University, Department of Surgery
ORCID iD: 0000-0002-3074-5199

Prof. Sezai LEVENTOĞLU, M.D.
Gazi University, Department of Surgery
ORCID iD: 0000-0003-0680-0589

Prof. M. Hakan SÖZEN, M.D.
Gazi University, Department of Surgery
ORCID iD: 0000-0002-1282-3413

Prof. Ömer ŞAKRAK, M.D.
Gazi University, Department of Surgery
ORCID iD: 0000-0002-8834-0928

Prof. Mustafa ŞARE, M.D.
Gazi University, Department of Surgery
ORCID iD: 0000-0003-0534-1157

Prof. Ferit TANERİ, M.D.
Gazi University, Department of Surgery,
ORCID iD: 0000-0002-6790-2071

Prof. Ekmel TEZEL, M.D., PhD
Gazi University, Department of Surgery
ORCID iD: 0000-0001-5192-9475

Assoc. Prof. Aydın YAVUZ, M.D.
Gazi University, Department of Surgery
ORCID iD: 0000-0003-0091-7997

Prof. Mehmet Akif TÜRKOĞLU, M.D.
Gazi University, Department of Surgery
ORCID iD: 0000-0002-7511-8201

Prof. Osman YÜKSEL, M.D.
Gazi University, Department of Surgery
ORCID iD: 0000-0003-4784-908X

Chapter 1

ENDOCRINE AND METABOLIC RESPONSE TO TRAUMA

Aydın YAVUZ [1]

1. What are the main stimuli in the organism's response to trauma?

- Decrease or increase in circulating blood volume
- Hypoxia, hypercapnia or acidosis
- Pain
- Increase or decrease in body temperature
- Wound formation
- Changes in energy substrate
- Emotional warnings

2. Which hormones increase and decrease after trauma?
Increased hormones:

- Somatostatin
- Dopamine
- Adrenaline-Noradrenaline
- Cortisol
- Glucagon
- Vasopressin (ADH)
- Growth hormone
- prolactin
- ACTH
- Renin-Angiotensin II
- Aldosterone

[1] Assoc. Prof., MD., Gazi University, Department of Surgery, aydinyavuz@yahoo.com, ORCID iD: 0000-0003-0091-7997

- It increases the phagocytic activities of immune cells and the proliferation of T cells.

8. What are the role of catecholamines after trauma?

- Catecholamine release directly primes the body for the 'fight or flight' response.
- It achieves this through well-defined effects on the metabolism, cardiovascular and pulmonary systems.

These effects:

1. Increased heart rate
2. Increase in myocardial contractility
3. Increase in transmission speed
4. Increase in blood pressure
5. Directing blood circulation to skeletal muscles
6. Acceleration of cell metabolism
7. Increased release of glucose from the liver via gluconeogenesis, lipolysis, ketogenesis and glucogenolysis.
8. It is a direct stimulation of inflammatory cytokine production.

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Chapter 2

SHOCK

Hüseyin GÖBÜT [1]

1. What is shock and how is it classified?

It is a condition that occurs due to the inability to meet the metabolic needs of the cells as a result of inadequate tissue perfusion that develops for various reasons.

Shock Classification

- Hypovolemic
- Cardiogenic
- Septic (vasogenic, vasodilator)
- Neurogenic
- Traumatic
- Obstructive

2. What is the classification of hemorrhagic shock (Table 1)?

STAGE 1:

- Blood loss: 750 mL (15%)
- Heart rate1: <100/min
- Blood pressure: Normal
- Central nervous system findings: Normal

STAGE 2:

- Blood loss: 750-1500 mL (15-30%)
- Heart rate: >100 / min
- Blood pressure: Orthostatic hypotension
- Central nervous system findings: Anxiety

[1] Assoc. Prof., M.D. Gazi University, Department of Surgery, drhuseyingobut@gmail.com, ORCID iD: 0000-0003-0127-7039

- **Clinical findings:**

    1. Bradycardia
    2. Hypotension
    3. Dry, warm extremities due to vasodilation
    4. Motor and sensory losses (spinal cord trauma)
    5. Radiological findings of possible vertebral fracture

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Chapter 3

NUTRITION IN THE SURGICAL PATIENT

Mustafa ŞARE [1]

1. In which patient group malnutrition is more common?

- 50% in the elderly
- 45% in those with respiratory system disease
- 80% in inflammatory bowel disease
- 85% of patients with malignant tumors

2. What are the primary consequences of malnutrition in patients with moderate or severe malnutrition?

- Increased risk of infection
- Delay in wound healing
- Hypoproteinemic edema formation
- Decreased intestinal motility
- Susceptibility to hemorrhagic shock
- Bone marrow depression

3. What are the secondary consequences of malnutrition in patients with moderate or severe malnutrition?

- Increase in morbidity rates
- Increase in mortality rates
- Prolongation of hospital stay
- Treatment cost increase

[1] Prof. M.D. Gazi University, Department of Surgery, mustafasare@gmail.com, ORCID iD: 0000-0003-0534-1157

Advantages:

- It is a physiological method,
- It is low cost
- Complication rate is low
- It is easy to apply.

11. What are the ways we can perform enteral nutrition?

- Orally
- Nasogastric tube (tube)
- Nasoduodenal catheter (tube)
- Nasojejunal tube (catheter)
- Gastrostomy tube
- Jejunostomy tube

12. What are the complications of Enteral Nutrition?

Technical:

- Catheter malposition
- Perforation
- Aspiration
- Gastroesophageal reflux (feeding via gastrostomy and nasogastric tube is observed more frequently)

Metabolic:

- Diarrhea
- Hypovolemia
- Electrolyte imbalance
- Hyperglycemia
- Hyperglycemic nonketotic coma

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Chapter 4

BLEEDING/CLOTTING DISORDERS AND TRANSFUSION

Kürşat DİKMEN [1]

1. What is hemostasis?

Hemostasis is a complex system that minimizes blood loss from the injured vessels.

2. What are the physiological mechanisms involved in the process of hemostasis?

1. Vascular construction
2. Platelet clot formation
3. Fibrin formation
4. Fibrinolysis

3. What are the transfusion reactions?

a. Non-hemolytic reactions:

- Allergic reactions (rash, urticaria, facial redness and rarely anaphylaxis may occur. It is most commonly seen with Fresh Frozen Plasma FFP and platelet suspension.)
- Bacterial contamination (the most common agent is Gram (-) bacteria).
- Disease transmission (Malaria, Chagas disease, brucella, syphilis, CMV, HBV, HCV, HIV, and rarely HAV).
- Pulmonary complications: Transfusion related acute lung injury (TRALI), usually seen 2 hours after transfusion. The most common after platelet suspension and plasma administration.

[1] Ascoc. Prof. M.D. Gazi University, Department of Surgery, kursatdikmen@yahoo.com, ORCID iD: 0000-0002-9150-9499

- Replacing platelets (1 unit of platelet suspension contains $5.5x10^{10}$ platelets. In a 70 kg person, 1 unit of platelet suspension increases the platelet count by 10000.)
- Replacement of coagulation factors (the most commonly used is Fresh Frozen Plasma).

13. What is Massive Transfusion? What are the complications?

- It is the administration of 10 units of erythrocyte suspension in 24 hours or more than 4 units of erythrocyte suspension in 1 hour.
- Complications:

1. Coagulopathy
2. Thrombocytopenia
3. Thrombotic complications
4. Acute respiratory distress syndrome (ARDS)
5. Transfusion-related overload
6. Transfusion related acute lung injury (TRALI)
7. Death

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Chapter 5

FLUID AND ELECTROLYTE IMBALANCE DISORDERS

Ramazan KOZAN [1]

1. What are the main causes of volume deficiency in the surgical patient?

1. Gastrointerstinal losses (most common cause)

- Excessive vomiting
- Diarrhea
- Prolonged, unreplaced nasogastric aspiration.
- It is caused by high-flow enterocutaneous fistula.
- Insufficient fluid intake is another important problem in this patient group.

2. Either due to surgical disease or as part of the treatment, **if adequate intravenous fluid replacement cannot be provided** in case of cessation or reduction of oral intake, volume depletion is inevitable.
3. **Loss to the third compartment** also plays an important role in volume deficiency in surgical patients: Peritonitis, mechanical intestinal obstruction, pancreatitis, crush trauma, bleeding or hematoma are the main causes.
4. Fluid loss in burns occurs both due to loss from the damaged skin area and increase in capillary permeability which end up local and systemic edema (in distant tissues and organs). In severe burn cases, burn shock with a hypovolemic shock pattern may develop as a result of this mechanism.
5. Soft tissue infection and sepsis are other causes of volume deficiency.
6. Especially in patients who have undergone open surgery volume deficit occurs in prolonged surgery (causes intestinal wall edema), peritoneal

[1] Ascoc. Prof. M.D., FACS Gazi University, Department of Surgery, dr.kozan@hotmail.com, ORCID ID: 0000-0002-3835-8759

19. How should fluid therapy be performed during surgery and what parameters should be taken into consideration?

The **4-2-1** rule for fluid replacement during surgery is an approach frequently applied in practice. Accordingly, the hourly infusion amount for an adult patient's weight is;

- 4 mL/kg/hour for the first 10 kg
- 2 mL/kg/hour for the second 10 kg
- 1 mL/kg/hour is given after first 20 kg
- However, this is only for maintenance fluid and does not include replacement for blood loss and loss to third compartment.
- To compensate for fluid losses to the third compartment 2-7 mL/kg/hour extra fluid infusion is required, depending on the severity of the surgery (i.e., for inguinal hernia repair, 2 mL/kg/hour should be administered, while for hemicolectomy, 6 mL/kg/hour should be administered).
- If there are any preoperative volume deficits, should also be included in the calculation.
- In many surgical patients, especially emergency patients, are always in dehydration during hospitalization.
- In addition to these reasons; oral intake restriction, loss of appetite, vomiting, diarrhea, fistula, ileus and also bowel cleansing, (which is frequently used today before colonoscopy or surgery), are also effective in this hypovolemia situation.
- Bowel cleansing causes approximately 1-2 liters of extra volume loss, and the key point is to replace this loss immediately after the procedure.

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Chapter 6

ACID AND BASE BALANCE DISORDERS

Osman YÜKSEL [1]

1. What are the mechanisms that maintain acid balance in the body?

1. Acid production: H^+ ion production via metabolic pathways (Protein, carbohydrates etc. as a result of metabolism)
2. Buffering of H^+ ion: Reduction of H^+ ion by buffering proteins in vital organs such as the brain and heart
3. Interaction of H^+ ion with bicarbonate (Reaction occurs with interstitial or intracellular bicarbonate ion, especially in the capillary network in muscle tissue at low pCO_2)
4. Addition of bicarbonate ion to the body by the kidney: Occurs with increasing excretion of ammonium in the urine.

2. What are the mechanisms that regulate proximal tubular reabsorption of bicarbonate ion?

- Intraluminal bicarbonate ion concentration
- Intraluminal H^+ ion concentration
- H^+ ion concentration in proximal tubular cells
- Peritubular bicarbonate ion concentration.
- Peritubular pCO_2
- Angiotensin II
- Parathyroid hormone

[1] Prof. M.D. Gazi University, Department of Surgery, osmanyuksel1971@yahoo.com, ORCID ID: 0000-0002-3074-5199

- As a result of these, triple acid-base disorders may sometimes develop. It is necessary to distinguish which is the primary acid-base disorder, which is the compensation mechanism, or which is the acid-base disorder that developed as a result of the patient's additional problems.

12. What are the causes of respiratory acidosis?

- Nervous system: Medications (morphine, sedatives, etc.), Stroke, Infections
- Respiratory system: Obstruction, Asthma
- Lungs: Amphysema, Pneumoconiosis, Bronchitis, ARDS, Barotrauma
- Neuro muscular system (NMS): Poliomyelitis, Kyphoscoliosis, Myasthenia gravis, Muscular dystrophy
- Other: Obesity, Hypoventilation, Permissive hypercapnia

13. What are the causes of respiratory alkalosis?

- CNS stimulation: Pain, Anxiety, Fever, Encephalitis, Tumor, Trauma
- Hypoxemia or tissue hypoxia: Pneumonia, Pulmonary edema, Aspiration, Severe anemia
- Medicine and hormones: Pregnancy, Progesterone, Salicylate
- Stimulation of receptors in the lung: Hemothorax, Sailor's chest, Heart failure, Pulmonary embolism
- Other: Sepsis, Liver failure, Mechanical hyperventilation, Correction of metabolic acidosis

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Chapter 7

WOUND HEALING

Ömer ŞAKRAK [1]

1. What is wound healing? What are the phases included in normal wound healing?

Wound healing is the result of successive cellular and biochemical events resulting in the formation of new tissue in a post-traumatic wound.

Wound healing phases:

- Hemostasis and inflammation
- Proliferation
- Remodeling

2. When do neutrophils peak in number after injury and what is their role in wound healing?

- They reach their highest levels in the 24th-48th hours after the injury.
- Main functions:
    1. They digest bacteria and dead tissues in the wound environment by phagocytosis.
    2. They are the source of many cytokines that play a role in angiogenesis and collagen synthesis, especially TNFα.
    3. During the early healing period, they release collagenase and protease for the degradation of granular substance in the matrix.
    4. They have a delaying role in the closure of the epithelial surfaces of wounds.

[1] Prof. M.D. Gazi University, Department of Surgery, omersakrak@gazi.edu.tr
ORCID iD: 0000-0002-8834-0928

Local factors:

- Mechanical damage
- Infection
- Edema
- Ischemia
- Topical agents
- Ionizing radiation
- Low O_2 pressure
- Foreign body in the wound

7. What are hypertrophic scars and keloids?

Hypertrophic scar and keloid are abnormal healing sequelae resulting in excessive fibroplasia during the dermal healing process.

- Hypertrophic scar: It is the expression of tissue development that remains above the skin level but does not exceed the original wound border and regresses over time (within 1 year).
- Keloid: It is a scar tissue that remains above the skin level but also extends beyond the original wound boundaries and never regresses and requires treatment.

8. What are the treatments currently available for keloids?

- Excision (45%-100% relapses)
- Excision and intralesional steroid application
- Topical silicone application
- Radiation
- Pressure application
- Intralesional gamma interferon administration
- Intralesional 5-fluorourase
- Topical/intralesional cortisone application

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Chapter 8

BLUNT AND PENETRATING ABDOMINAL TRAUMAS

Osman YÜKSEL [1]

1. What are the life-threatening problems that should be evaluated at first glance in a patient with trauma?

- Airway; obstruction or damage
- Respiration;
  - Tension pneumothorax
  - Open pneumothorax
  - Massive air leak from tracheobronchial injury
  - Pulmonary contusion with Pigeon chest
- Circulation;
  - Hemorrhagic shock; massive hemothorax, massive hemoperitoneum, bleeding and unstable pelvic fracture, blood loss from extremity.
  - Cardiogenic shock; cardiac tamponade
  - Neurogenic shock
- Damage; intracranial hemorrhage, cervical vertebra fracture damage

2. What are the classification of shock in a patient with penetrating or blunt trauma, and what are the fundamental principles of fluid resuscitation in the initial management?

- If systolic blood pressure is 60 mmHg in the carotid artery, it should be 70 mmHg in the femoral artery and 80 mmHg in the radial artery.

[1] Prof. M.D. Gazi University, Department of Surgery, osmanyuksel1971@yahoo.com, ORCID iD: 0000-0003-4784-908X

18. What are the pathological changes that occur in organs in abdominal compartment syndrome?

- Increase in intracranial pressure
- Decrease in renal blood flow and urine output
- Venous return decrease; cardiac output, decrease in ventricular end-diastolic volume and stroke volume, increase in systemic vascular resistance
- Decrease in blood flow to the extremities and splanchnic area
- Increased intrathoracic pressure; airway, pulmonary artery and central venous pressure increase, decrease in compliance.

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Chapter 9

COMMON POSTOPERATIVE COMPLICATIONS IN SURGERY

Mehmet Akif TÜRKOĞLU [1]

1. What is postoperative ileus? Explain the causes and treatment?

It develops as a result of dysfunction in the neural reflex axis of the intestines.

Etiology:

- Abdominal operation
- Peritonitis
- Electrolyte imbalance (Hypokalemia)
- Ischemia (silent abdomen, grave silence)
- Retroperitoneal bleeding
- Abdominal trauma
- Neural reflex (Renal colic)
- Spinal fracture

Imaging:

- The small intestines are centrally located, have a smooth wall, and the valvulae conniventes can be seen on the standing abdominal X-Ray.
- The colon is located peripherally, has haustral markings, and is wider in diameter.
- In small bowel obstruction, the colon is empty (no gas is present).
- In colonic obstruction, if the ileocecal valve is intact, there is no gas in the small intestines.
- Standing upright or lateral decubitus X-rays show air-fluid levels.
- In paralytic ileus, gas is distributed equally in the stomach, small intestines, and colon.

[1] Prof. M.D. Gazi University, Department of Surgery, makturko@gmail.com, ORCID iD: 0000-0002-7511-8201

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Chapter 10

SURGICAL INFECTIONS

Kürşat DİKMEN [1]

1. What is the definition of surgical site infection (SSI) and how is it classified?

Infections observed in the organs and areas that are in situ and where surgical intervention was performed or manipulated during the first 30 days following the operation are called surgical site infections (SSI).

These infections are divided into three groups:

1. Superficial SSI: Infections involving the skin and subcutaneous tissue
2. Deep SSI: Infections involving muscle and fascial planes
3. Infections involving organs or spaces (Intra-abdominal abscess, empyema, mediastinitis)

2. What are the factors related to the patient that contribute to the development of surgical site infection?

a. Patient related systemic factors:

- Age
- Diabetes Mellitus: It has been reported that blood glucose levels above 200 mg/dL in the perioperative and postoperative first 48-hour period increase the incidence of SSI.
- Smoking
- Obesity
- Use of steroids and immunosuppressive drugs

[1] Assoc. Prof. M.D. Gazi University, Department of Surgery, kursatdikmen@yahoo.com, ORCID iD: 0000-0002-9150-9499

- Marked Edema or positive fluid balance (>20 ml/kg/24 hours)
- CRP is at least 2 times normal
- Procalcitonin should be at least 2 times normal.

5. What are the principles of prophylactic antibiotic use?

- It must be in the appropriate spectrum
- Must be bactericidal effective
- Must be given intravenously
- 0-1 hour before surgery
- Single dose (24 hours). In patients whose surgery duration lasts more than 3 hours additional dose given.
- Non-toxic / Non-allergic
- It should be affordable

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Chapter 11

SURGICAL PATIENT MONITORING

Murat AKIN [1]

1. What are the indications for central venous catheterization?

- Central venous pressure measurement
- Long-term IV therapy: weeks, months or years
- Administration of highly concentrated fluids and medications:
  - Total parenteral nutrition
  - Chemotherapy
  - Highly concentrated antibiotic solutions
- Recurrent use of blood and blood products
- Hemodialysis, plasmapheresis
- Peripheral venous pathways damage caused by previous intensive treatment, surgery and tissue damage.

2. What are the potential complications of central vein catheterization?
Early complications

- Arterial puncture
- Bleeding
- Cardiac arrhythmias
- Thoracic duct damage
- Adjacent nerve damage
- Air embolism
- Catheter embolism
- Pneumothorax

[1] Prof. M.D. Gazi University, Department of Surgery, drmuratakin@gmail.com, ORCID ID: 0000-0003-0001-1036

- Tunneled central catheters are made of silicone and polyurethane. They can be used for months.
- Implanted ports can remain in place for months to years (typically throughout the course of treatment).

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Chapter 12

TUMOR MARKERS

Abdülkadir BEDİRLİ [1]

1. **What is definition of tumor markers, and explain potential use the fields.**
   Tumor markers are indicators of cellular, biochemical, molecular or genetic changes that allow recognition of neoplasia.

   Potential areas of use;

   - Diagnostic (in the presence of a mass)
   - Benign - malignant distinction
   - Amount of tumor present ("tumor burden")
   - To classify patients more accurately, subtype classifications
   - Prognostic
   - Can guide treatment selection.
   - May indicate response to treatment.

2. **What are the characteristics of an ideal tumor marker?**

   - Must be expressed only by a specific tumor.
   - The test sample should be easy to collect.
   - The test itself must be repeatable, rapid and inexpensive.

3. **Explain the clinical uses of carcinoembryogenic antigen (CEA).**
   It is mainly clinically used in patients with colon and rectum cancer.

   Screening: CEA is not useful as a screening test due to its low sensitivity in early-stage disease. High CEA levels occur in only 5-40% of patients with localized disease.

[1] Prof. M.D. Gazi University, Department of Surgery, bedirlia@gazi.edu.tr, ORCID ID: 0000-0002-6480-3203

6. Explain clinical uses of Carbohydrate Antigen 125 (CA 125).

- Patients with ovarian cancer high levels are detected in 80%.
- In patients with ovarian mass, high CA 125 level has a sensitivity of 75% and 90% specificity for malignancy.
- It can also be detected in a high percentage of patients with fallopian tube, endometrial and cervical cancer and in non-gynecological malignant neoplasms of the pancreas, colon, lung and liver.
- Benign conditions in which CA125 increases include endometriosis, adenomyosis, uterine fibroids, pelvic inflammatory disease, cirrhosis and ascites
- In patients with pancreatic cancer, CA 125 can also be spontaneously detected like CA 19-9. It helps in diagnosis rather than making a complete diagnosis.

Screening: Due to poor specificity, CA 125 alone, is not useful as a screening tool for ovarian cancer.

Prognosis: Patients with high CA 125 levels at diagnosis have a worse prognosis compared to patients with normal levels.

Monitoring response to treatment: CA 125 is valuable in monitoring the course of the disease. Partial or complete response to treatment is associated with a decrease in CA 125 in more than 95% of patients. Increased CA 125 levels are associated with disease relapse.

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Chapter 13

ACUTE ABDOMEN

Ömer ŞAKRAK [1]

1. Please define Acute Abdomen? In this context give information about clinical processes with examples.

- The term acute abdomen refers to signs and symptoms of abdominal pain and tenderness, a clinical presentation that often requires urgent surgical treatment.
- This challenging clinical scenario requires a comprehensive and rapid workup to determine the need for surgical intervention and initiate appropriate treatment.
- Many diseases, some of which are non-surgical and even non-intra-abdominal, can cause acute abdominal pain and tenderness.
- Acute abdomen is not a disease in itself, but a clinical syndrome that may develop due to various diseases.
- Acute abdomen is identical to acute abdominal pain and does not last long. However, it involves a pain process that is reaching its crescendo.
- Acute abdominal pain develops within 6-48 hours for acute appendicitis, 4-5 hours for acute cholecystitis, and 1 week for acute pancreatitis.
- The most appropriate definition is abdominal pain that lasts less than a week and has not been diagnosed before. Therefore, every attempt should be made to make a correct diagnosis so that the chosen treatment (e.g. laparoscopy, laparotomy) is appropriate.
- Despite advances in laboratory and imaging studies, history and physical examination form the basis of accurate diagnosis and appropriate and timely treatment.

[1] Prof. M.D. Gazi University, Department of Surgery, omersakrak@gazi.edu.tr
ORCID iD: 0000-0002-8834-0928

13. Does the decision for surgical intervention in acute abdominal require a specific diagnosis? What should be the approach to follow?

The decision for surgical intervention in acute abdominal discomfort **does not require** a specific diagnosis, but it is based on an action plan. The sequence to follow is as follows:

- Possible diagnosis
- Indication for surgery
- Timing
- Approach

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Chapter 14

ACUTE APPENDICITIS

Hasan BOSTANCI [1]

1. What is the incidence of acute appendicitis? Explain its etiology and clinical presentation.

- Acute appendicitis is the acute inflammation of the appendix vermiformix.
- It is observed in approximately 8.6% of males and 6.7% of females.
- Fecalith (the most common cause), foreign bodies (food particles), parasites (especially Ascaris), lymphoid hyperplasia (in children), and impaired circulation (especially in the elderly) play a role in the development of acute appendicitis.
- The most commonly encountered bacteria are B. fragilis and E. coli.
- Initially, visceral pain starts as a dull pain around the umbilicus. Later, a well-localized sharp pain (McBurney's Point) occurs due to involvement of the parietal peritoneum.
- In clinical presentation, loss of appetite is generally the first symptom (90%), followed by visceral pain around the umbilicus. After 4-6 hours, the pain transitions to the somatic phase and becomes localized at McBurney's point in the lower right quadrant. Nausea and vomiting may occur after the onset of pain. Fever and tachycardia may accompany the condition.

2. What are the physical examination findings in acute appendicitis?

Tenderness, involuntary guarding, and direct rebound are detected in the right lower quadrant.

[1] Prof. M.D. Gazi University, Department of Surgery, hasanbostanci@yahoo.com, ORCID iD: 0000-0002-3160-1488

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Chapter 15

ESOPHAGEAL TUMORS

Osman YÜKSEL [1]

1. What are the etiological features of esophageal cancer?

- In Eastern societies, additives added to local foods (nitrous compounds in pickled vegetables and smoked meats) and mineral deficiencies (zinc and molybdenum) are blamed
- In Western societies, smoking and alcohol consumption are associated with the development of squamous cell cancer.
- Long-term achalasia, stenosis due to corrosive burns, tylosis and Human Papilloma Virus, Bloom syndrome and Fanconi anemia are more common

2. What are the etiological features of oesophageal adenocarcinoma?

- It is more common than squamous cell cancer in most western societies.
- Especially Barrett's metaplasia is important in the development of adenocarcinoma.
- Obesity, gastroesophageal reflux disease, smoking, and low intake of fruits and vegetables can contribute to the development of Barrett's esophagus.
- It can be seen less in consumption of folate and vitamin C.

3. What are the risk factors in the development of esophageal cancer (Table 1)?

	Adenocarcinoma	**Squamous Cell Cancer**
Achalasia	↑	↑
Age	↑	↑

[1] Prof. M.D. Gazi University, Department of Surgery, osmanyuksel1971@yahoo.com, ORCID iD: 0000-0003-4784-908X

13. What are the esophageal non-epithelial tumors and characteristics?

- Sarcoma: Sarcomas constitute approximately 0.1-1.5% of all esophageal tumors. They can be located in the cervical or thoracic esophagus. Epidermoid carcinoma (carcinosarcoma) and true sarcomas (leiomyosarcoma, fibrosarcoma, rhabdomyosarcoma) can be observed.
- Leiomyoma: Leiomyoma accounts for more than 50% of benign esophageal tumors.
- Esophageal cyst: Enteric or bronchogenic cysts arise as a result of developmental anomalies.

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2. Shackelford's Surgery of the Alimentary Tract 8th ed, Chapter 35.
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Chapter 16

GASTRIC TUMORS

Osman YÜKSEL [1]

1. What are malignant tumors of the stomach?

- Primary gastric tumors; Adenocarcinoma (95%), Lymphoma and GIST, NET, Angiosarcoma, Carcinosarcoma and Squamous cell cancer
- Tumors that spread to the stomach by hematogenous metastasis; Melanoma and breast cancer
- Tumors that spread to the stomach by direct invasion; Pancreas, Colon
- Tumors that spread to the stomach via peritoneum; Ovary, Appendix

3. What are the factors that increase and decrease the risk of stomach cancer?
Increasing factors

- Family history; In the presence of stomach cancer in a first degree relative, the risk increases 2-3 times increases
- Diet (Nitrate, salt, fat)
- Familial polyposis
- Gastric adenomas
- Hereditary nonpolyposis colorectal cancer
- Helicobacter pylori (HP) infection
- Atrophic gastritis, intestinal metaplasia, dysplasia
- Previous gastric resection or gastrojejunostomy (>10 years)
- Tobacco or cigarette use
- Menetrier's disease

[1] Prof. M.D. Gazi University, Department of Surgery, osmanyuksel1971@yahoo.com
ORCID iD: 0000-0003-4784-908X

- Suppression of gastric acid leads to increased gastrin levels, which have a trophic effect on ECL cells.
- Gastric NETs are classified into three subtypes:
    - Type I: Develops in the presence of pernicious anemia or atrophic gastritis with secondary hypergastrinemia. It consists of multiple small lesions and has a low malignant potential.
    - Type II: Associated with multiple endocrine neoplasia type I (MEN I) or Zollinger-Ellison syndrome (ZES). It also consists of multiple small lesions, but the malignant potential is higher (10%).
    - Type III: Sporadic occurrence, typically solitary (often >2 cm), with normal gastrin levels.
- Surgical treatment is applied to type I and II tumors, with endoscopic treatment often used.
- Somatostatin analogs are used in the treatment of gastric NETs.

21. What are the causes of gastroparesis (gastric motility disorders)?

- Idiopathic
- Endocrine or metabolic disorders
- Post-gastric surgery
- Central nervous system disorders
- Peripheral neuromuscular diseases
- Electrolyte imbalances
- Connective tissue disorders
- Diffuse gastrointestinal motility disorders
- Other

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1. Schwartz's Principles of Surgery (11th edition); F. Charles Brunicardi, Dana K. An- dersen, Timothy R. Billiar, David L. Dunn, John G. Hunter Jeffrey B. Matthews, Raphael E. Pollock; McGraw-Hill, New York, 2019. Chapter 2.

Chapter 17

PEPTIC ULCER DISEASE

Mehmet Akif TÜRKOĞLU [1]

1. What does Peptic Ulcer Disease (PUD) mean? Which causes damage to the mucosa in ulcer formation, What are the factors that protect the mucosa and repair the damaged mucosa?

- Peptic ulcers are focal defects in the gastric or duodenal mucosa that extend into the submucosa or deeper
- Factors causing damage to the mucosa; Acid, Pepsin, NSAIDs and H. pylori
- Factors that protect the mucosa; Bicarbonate, blood intake, mucus, intercellular connections and apical resistance
- Factors that enable the repair of the mucosa; Restoration of the mucosa, proliferation of mucosal cells, growth factors and mucus covering the surface

1. How many types of gastric ulcers are there according to the modified Johnson classification and what is the acid secretion level according to the types?

- Acid secretion is variable in patients with stomach ulcers.
- Five types of stomach ulcers series are described:

    1. Type I gastric ulcers (most common) are typically located near the incisura angularis in the lesser curvature. It has decreased acid secretion.
    2. Type II gastric ulcer is associated with active or silent duodenal ulcer disease. Both type II and type III, there is normal or increased gastric acid secretion

[1] Prof. M.D. Gazi University, Department of Surgery, makturko@gmail.com
ORCID iD: 0000-0002-7511-8201

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Chapter 18

MORBID OBESITY SURGERY AND POSTGASTRECTOMY SYNDROMES

Nusret AKYÜREK [1]

1. What are the indications and contraindications for bariatric surgery?
Indications

- Body mass index (BMI) > 40 k/m^2
- BMI > 35 kg/m^2 with at least one obesity-related component of following disease:
  - Type 2 Diabetes
  - Hypertension
  - Dyslipidemia
  - Sleep apnea
  - Obesity-hypoventilation syndrome
  - Non-alcoholic steatohepatitis
  - Arthritis affecting daily life
  - Venous stasis disease

In addition to these indications, the following characteristics should also be sought in patients:

- Prior unsuccessful attempts with non-surgical weight loss methods
- Psychiatric stability
- Absence of alcohol and drug dependence
- Good motivation of the patient, being aware of the surgery and its consequences
- Absence of uncontrolled psychotic and depressive disorders
- Full support from family and social environment

[1] Prof. M.D. Gazi University, Department of Surgery, nusreta@gazi.edu.tr, ORCID iD: 0000-0002-1877-355X

Medical Treatment: Cholestyramine, codeine, or loperamide may be used in the treatment of diarrhea following gastric surgery. Another cause of post-gastric surgery diarrhea is the development of fat malabsorption due to the inability of pancreatic enzymes to activate due to hypochlorhydria.

Surgical Treatment:

- Surgical intervention is required in some cases where medical treatment is ineffective.
- One technique is jejunal interposition, in which a 10 cm jejunal segment is placed in reverse order 100 cm distal to the ligament of Treitz.
- Another technique is antiperistaltic ileal "loop."
- Both of these operations can potentially cause obstruction and/or bacterial overgrowth.

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Chapter 19

INTESTINAL OBSTRUCTIONS

Bülent AYTAÇ [1]

1. Classify and provide examples of the causes of intestinal obstruction based on the anatomical structure of the intestinal wall.

Intraluminal

a. Foreign body
b. Gallbladder stones
c. Meconium

Intramural

d. Tumor
e. Inflammatory conditions due to Crohn's disease

Extrinsic

f. Adhesions
g. Hernias
h. Carcinomatosis

2. List the commonly seen causes of intestinal obstruction in terms of etiology.

- Adhesions
- Neoplasms
- Primary small intestine tumors
- Secondary small intestine tumors (Melanoma-derived metastases)
- Local invasion of intra-abdominal tumors (Desmoid tumors)
- Carcinomatosis

[1] Prof. M.D. Gazi University, Department of Surgery, baytac@gazi.edu.tr, ORCID iD: 0000-0003-2326-9531

address vomiting and distension, a nasogastric tube is inserted. A urinary catheter is also inserted to monitor input and output. Regular abdominal examinations are performed.

- A contrast agent dissolved in 100 mL of water is administered through the nasogastric tube. After 8 hours, if the contrast agent has passed into the colon on upright abdominal X-ray, symptoms have decreased, and gas and stool passage have begun, it is considered that the patient does not require surgery, and interventions are minimized.
- If 24 hours have passed and the patient's symptoms persist, and the contrast agent has not reached the colon on abdominal X-ray, continued follow-up is necessary.
- If 72 hours have passed since the patient's presentation and despite treatment and monitoring, the symptoms persist, surgical evaluation of the patient will be necessary.

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Chapter 20

MESENTERIC VASCULAR DISEASE

Abdülkadir BEDİRLİ [1]

1. What are the causes of acute mesentery ischemia (AMI)?

- AMI can have 4 different causes:
  1. Arterial embolism
  2. Arterial thrombosis
  3. Non-occlusive mesenteric ischemia
  4. Venous thrombus
- Embolism is the most common cause of acute mesenteric ischemia and occurs in 95% of patients. There is a history of cardiac disease. Superior mesenteric artery (SMA) embolism accounts for 50% of all arterial emboli cases.
- Between 5-15% of AMI cases are caused by mesenteric venous thrombosis, and it develops in 95% of patients in the SMA.
- Regardless of the etiology, mucosal infarction occurs within 3 hours, while transmural intestinal infarction occurs within 6 hours in AMI.

2. What is the clinical presentation of mesenteric vascular diseases?

- Acute mesenteric ischemia:
  a. Severe abdominal pain (typically colicky in nature and felt most intensely in the mid-abdomen)
  b. General abdominal tenderness on physical examination.
  c. Nausea, vomiting, and diarrhea may accompany other symptoms.
  d. With the onset of bowel infarction, abdominal distension, peritonitis, and bloody stool may be observed.

[1] Prof. M.D. Gazi University, Department of Surgery, bedirlia@gazi.edu.tr, ORCID ID: 0000-0002-6480-3203

- The superior mesenteric artery supplies arterial circulation to the midgut (from the jejunum to the middle of the colon).
- The inferior mesenteric artery supplies arterial circulation to the hindgut (from the middle of the colon to the rectum).
- The mesenteric arterial system has rich collateral connections. These include:

    a. Superior and inferior pancreaticoduodenal arteries between the celiac artery and the superior mesenteric artery.
    b. The marginal artery of Drummond and the Riolan's arch, which provide collateral flow between the inferior mesenteric artery and the superior mesenteric artery.

5. How are mesenteric vascular diseases treated?

- The initial treatment for acute mesenteric ischemia includes:

    a. Fluid resuscitation
    b. Systemic anticoagulation therapy
    c. Placement of a central venous catheter, peripheral arterial catheter, and Foley catheter for correction of metabolic acidosis.
    d. Prophylactic antibiotics are initiated.

- The goal of surgical treatment in mesenteric ischemic disease due to embolism is:

    a. Removal of the embolus within the vessel
    b. Restoration of arterial perfusion

- Endovascular treatments used in mesenteric ischemia include:

    a. Thrombolytic therapy
    b. Stent placement
    c. Balloon dilatation
    d. Vasodilator therapy

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Chapter 21

GASTROINTESTINAL BLEEDING

Aydın YAVUZ [1]

1. What should be done in a patient presenting with acute gastrointestinal bleeding in the emergency department?
Initial evaluation and resuscitation:

a. Assessment of the patient's airway, breathing, and circulation (ABC).
b. Evaluation of the extent of bleeding.
c. Patient monitoring.
d. Laboratory tests are ordered.
e. If there is an airway problem, intubation should be performed.
f. Establish intravenous access and initiate treatment based on the patient's hemodynamics.

History and physical examination: Assessment of risk factors, past surgical history, and medications used.

To determine the localization of bleeding:

- Evaluation of aspirated content after nasogastric tube placement.
- Endoscopy.
- Colonoscopy.
- Scintigraphy.
- CT angiography.
- Digital subtraction angiography (DSA).
- Angiography.
- Capsule endoscopy and other methods are used to attempt to locate the bleeding source.
- If imaging methods are unsuccessful, enterotomy may be performed during surgery to localize the bleeding.

[1] Assoc. Prof., MD., Gazi University, Department of Surgery, aydinyavuz@yahoo.com
ORCID iD: 0000-0003-0091-7997

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Chapter 22

COLORECTAL PRECANCEROUS LESIONS

Sezai LEVENTOĞLU [1]

1. What are the types and subclasses of colonic polyps?

Colonic polyps are classified into non-neoplastic and neoplastic types.

1. Non-neoplastic polyps:

- Hyperplastic polyp
- Juvenile polyp
- Peutz-Jeghers syndrome
- Inflammatory polyp (Ulcerative colitis)
- Lymphoid polyps

2. Neoplastic polyps:

- Tubular adenoma (most common)
- Tubulovillous adenoma
- Villous adenoma (highest risk of malignancy)

2. Describe the characteristics of the Juvenile Polyposis Syndrome?

- Having more than 5 juvenile polyps
- Cancer risk before the age of 60 is between 20% and 60%
- Hereditary transmission
- Presenting symptoms of bleeding, abdominal pain, and diarrhea

[1] Prof. M.D. Gazi University, Department of Surgery, sezaileventoglu@hotmail.com
ORCID iD: 0000-0003-0680-0589

15. What are the Amsterdam II criteria used in the diagnosis of Lynch Syndrome?

- Lynch syndrome-associated cancer (colorectal, endometrial, small bowel, ureter, renal pelvis) should be present in at least three relatives; whom at least one of them be a first-degree relative.
- There should be at least two consecutive generations affected by Lynch syndrome-associated cancer.
- At least one diagnosis of colorectal cancer should be made at the age of 50 or older.
- Familial Adenomatous Polyposis (FAP) should be ruled out FAP (0).

16. What are the Bethesta criteria in Lynch Syndrome?

- Diagnosis of colorectal cancer in a patient under the age of 50.
- Regardless of age, presence of synchronous or metachronous colorectal or other Lynch syndrome-associated tumors.
- Diagnosis of MSI-associated colorectal cancer in a patient under the age of 60.
- Diagnosis of colorectal cancer in a patient with Lynch syndrome-associated cancer in one or more first-degree relatives, with one of the cancers being diagnosed before the age of 50.
- Diagnosis of colorectal cancer in a patient with Lynch syndrome-associated cancer in two or more first- or second-degree relatives, regardless of age.

17. What is the recommended screening protocol for Lynch syndrome?

- Colonoscopy screening age: starting at 20-25 years old, repeated every 1-2 years.
- Upper gastrointestinal endoscopy: starting at 30-35 years old, repeated every 1-2 years.
- Gynecological examination: starting at 35 years old, repeated annually.

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1. Schwartz's Principles of Surgery (11th edition); F. Charles Brunicardi, Dana K. Andersen, Timothy R. Billiar, David L. Dunn, John G. Hunter Jeffrey B. Matthews, Raphael E. Pollock; McGraw-Hill, New York, 2019. Chapter 29.

Chapter 23

COLORECTAL CANCERS

Ahmet KARAMERCAN [1]

1. What is the most common cause of mechanical colon obstruction? How should the approach be? What is the most important characteristic in colon obstruction?

- Colorectal cancer is the most common cause.
- Determining the level of obstruction and distinguishing between small bowel and colonic obstruction is the first step in the approach. Apart from direct radiographs, computed tomography (CT) scans taken with oral contrast material are valuable in determining the etiology of the obstruction.
- The most important feature is the possibility of cecum distension, necrosis and perforation secondary to obstruction in the presence of a patent ileocecal valve.

2. What are the ways in which colon cancer spreads (metastasizes)?

- Lymphatic
- Hematogenous
- Direct invasion
- Can spread via implantation

The most common lymphatic pathway leading to regional mesenteric lymph nodes is of surgical importance as it determines the boundaries of resection required when performing surgery with curative intent. Sequentially, metastasis occurs to pericolonic, intermediate, and principal lymph nodes. Metas-

[1] Prof. M.D. Gazi University, Department of Surgery, karamercan@gazi.edu.tr
ORCID iD: 0000-0002-1155-3634

a) Abdominopelvic US/CT, direct chest radiography, and, if necessary, thorax CT and PET-CT are used in clinical staging. In rectal cancers, transanal US or MRI is performed.
b) The most common Dukes and TNM staging systems are used in pathological staging:

- Stages 1 and 2, the tumor is limited to the intestinal wall, lymph nodes and distant organs. (There is no metastasis).
- Stage 3, mesenteric lymph nodes are involved.
- Stage 4, there is distant organ (metastasis).

12. What are the treatment principles of colorectal cancer?

- In stage 1, 2 and 3 cases of colon cancer, radical resections including the relevant lymphovascular pedicle are performed (right hemicolectomy, left hemicolectomy, transverse colectomy, sigmoid resection).
- In stage 4 cases, chemotherapy, palliative radiotherapy, and palliative surgery for bleeding and obstruction can be applied.
- Neoadjuvant (preoperative) chemoradiotherapy in colon cancers in general It is not usually applied.
- In pathological stage 1 and 2 cases, radical surgery is considered sufficient and ad juvant chemotherapy is not applied.
- In stage 3 colon cancers, adjuvant chemotherapy is indicated. Chemotherapy protocols containing 5-FU are generally preferred.
- In rectal cancers, transanal local excision can be performed in T1N0 tumors confirmed by transanal ultrasonography. Postoperative (adjuvant) treatment approach is the same as in colon cancer.
- Unlike colon cancers, neoadjuvant radio-chemotherapy and then surgery are applied to rectal cancers:

1. Sphincter-preserving lower anterior resections are performed in upper and middle rectal cancers.
2. The classical approach for cancers that invade the sphincter complex and are located within the anal canal is Abdominoperineal resection (APR), also known as Miles' surgery.

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Chapter 24

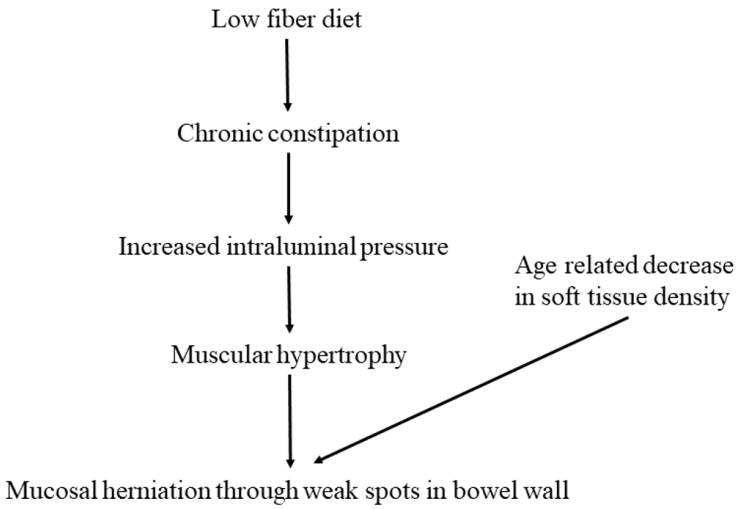
DIVERTICULAR DISEASE OF THE COLON

Ahmet KARAMERCAN [1]

1. What is the definition and etiopathogenesis of colon diverticulitis

Diverticulitis is one of the most common complications, occurring in 15-25% of those with diverticular disease.

Bacterial overgrowth or local tissue ischemia, which develops as a result of stasis or obstruction in the neck of the diverticulum, plays a role in the pathogenesis of diverticulitis.



[1] Prof. M.D. Gazi University, Department of Surgery, karamercan@gazi.edu.tr, ORCID iD: 0000-0002-1155-3634

4. What are the indications for surgery in diverticular disease of the colon?

- Diffuse peritonitis.
- Persistent obstruction.
- Fistula.
- Symptomatic stenosis.
- Unresponsiveness to medical treatment.
- Recurrent diverticulitis attacks.
- The patient is younger than 40 years old.
- Suspicion of carcinoma.
- Immunosuppressed patient

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Chapter 25

ANORECTAL DISORDERS

Sezai LEVENTOĞLU [1]

1. What are the characteristics of internal hemorrhoid disease?

a. Rectal bleeding with defecation/straining (cardinal symptom)
b. Pain when strangulated, edematous and thrombosed
c. Mucus discharge
d. Itching.

2. Classify internal hemorrhoid disease.

1st degree hemorrhoid disease: The hemorrhoidal cushion is in the anal canal. It moves in the anal canal with the second breast and defecation.

2nd degree hemorrhoid disease: Hemorrhoid cushions come out of the anal entrance with straining and defecation, but they come back in when the straining/defecation action is finished.

3rd degree hemorrhoid disease: Hemorrhoid cushions come out of the anal entrance with straining and defecation, but they remain outside even after the act of straining/defecation is over. It enters with the help of fingers.

4th degree hemorrhoid disease: Hemorrhoid cushions are found externally, independent of straining and defecation. Being outside poses the risk of strangulation. It is likely to be painful during this period.

[1] Prof. M.D. Gazi University, Department of Surgery, sezaileventoglu@hotmail.com, ORCID iD: 0000-0003-0680-0589

25. Describe the treatment of pilonidal sinus.

a. If the disease is initially localized:

- Daily showers
- Hair cleaning in the intergluteal sulcus
- Laser epilation is effective if necessary

b. If the disease is simple in the middle line

- Crystallized phenol applications are effective

c. Surgery in complicated disease:

i. Marsupialization
ii. Excision-leaving open
iii. Excision-primary repair
iv. Excision-flap methods:
    1. Limberg (modified)
    2. V-Y flap
    3. Z plasty
    4. Gluteal rotation flap
v. Excision-Cleft lift application
vi. Bascom procedure (pit excision)
vii. Laser application
viii. Endoscopic pit excision (EPSIT)

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1. Schwartz's Principles of Surgery (11th edition); F. Charles Brunicardi, Dana K. An- dersen, Timothy R. Billiar, David L. Dunn, John G. Hunter Jeffrey B. Matthews, Raphael E. Pollock; McGraw-Hill, New York, 2019. Chapter 29.

Chapter 26

PELVIC FLOOR DISEASES

Sezai LEVENTOĞLU [1]

1. DESCRİBE the components of the Levator Ani muscle.

- Pubococcygeus
- Iliococcygeus
- Puborectalis
- Ischiococcygeus

2. What are the diagnostic tests for pelvic floor diseases?

- Transanal ultrasonography (EAUS-ERUS)
- Anorectal physiological tests
- Anorectal manometry
- EAS electromyography (EMG)
- Pudendal nerve terminal motor latency (waiting time) - PNTML
- Defecography (Conventional/MR defecography).

3. What are the functional and anatomical reasons for defecation disorders?

a. Anismus/Paradox puborectal/pelvic dyssynergia
b. Rectocele
c. Intussusception
d. Rectal prolapse

[1] Prof. M.D. Gazi University, Department of Surgery, sezaileventoglu@hotmail.com
ORCID iD: 0000-0003-0680-0589

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Chapter 27

HEPATIC TUMORS

Mustafa ŞARE [1]

1. What is the classification of Liver Tumor?
Benign

1. Cyst
2. Hemanjioma
3. Focal nodular hyperplasia
4. Adenoma
5. Biliary hamartoma

Malignant

1. Hepatocellular cancer (HCC)
2. Cholangiocarcinoma
3. Gallbladder cancer
4. Metastatic colorectal cancer
5. Metastatic neuroendocrine cancers
6. Other metastatic cancers

2. What are the Features to be considered in the history and physical examination of a patient presenting with a suspected liver mass?
History:

1. Abdominal pain
2. Weight loss
3. History of hepatitis
4. History of chronic

[1] Prof. M.D. Gazi University, Department of Surgery, mustafasare@gmail.com, ORCID iD: 0000-0003-0534-1157

20. What are the BAD prognostic factors for liver metastases of colorectal cancers?

- Presence of multiple liver metastases
- Metastatic lymph node
- Extrahepatic metastases
- High CEA levels
- High grade of the entire primary tumor
- Satellite nodule
- Clean resection margin (R0 resection)

21. What are the unresectability criteria for liver metastases of colorectal cancers?

- The most important reason is adequate functional residual (>30%) parenchymal deposition.
- Low risk if more than 40% tissue remains
- Medium risk if 25-40% tissue remains
- High risk If less than 25% liver remains.

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Chapter 28

LIVER ABSCESSES

Hasan BOSTANCI [1]

1. What are the pathways of pathogenic agents in the etiology of pyogenic liver abscess?

- Ascending infection
- Cryptogenic
- Portal vein
- Direct spread from neighboring organs
- Trauma
- Hepatic artery

2. In which age group are pyogenic liver abscesses more common?

- Pyogenic liver abscesses are more common in older age groups.
- It increases in people aged 60 and above.

3. What are the predisposing factors pyogenic liver abscesses?
Predisposing factors:

- Diabetes
- Alcoholism
- Steroid use
- Hematological diseases

[1] Prof. M.D., Gazi University, Department of Surgery, hasanbostanci@yahoo.com
ORCID iD: 0000-0002-3160-1488

- Amebic liver abscesses are formed by progressive, localized hepatic necrosis.
- Hepatic amebic abscess is essentially the result of liquefaction necrosis of the liver, which creates a cavity filled with blood and liquefied liver tissue. The appearance of this liquid typically resembles anchovy sauce (glazier's paste); The fluid is odorless unless there is secondary bacterial infection.

13. What serological tests Beneficial in the diagnosis of amebic liver abscess? Is diagnostic accuracy ensured? What is the treatment plan in these patient?

- A number of serological tests have been developed over the years;
  - Indirect hemagglutination test: Sensitivity 90%
  - Enzyme immunoassay: Detects the presence of antibodies against the parasite. Basite is fast and cheap. Its sensitivity is 99% and specificity is higher than 90%.
  - *E. histolytica* lectin antigen test: It has high sensitivity.
- Basic treatment for amebic abscesses; Metronidazole (750 mg orally, 10 days three times a day). Clinical improvement is usually seen within 3 days.
- Aspiration is recommended in cases of diagnostic uncertainty, failure to respond to metronidazole treatment within 3 to 5 days, and abscesses considered to be at high risk of rupture.
- Abscesses larger than 5 cm in diameter and in the left lobe carry a higher risk of rupture.

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Chapter 29

HYDATID CYST DISEASE OF THE LIVER

Ömer ŞAKRAK [1]

1. Explain the parasitology and clinics of hydatid cyst.

- Two different parasites are responsible for this disease:
  - Echinococcus granulosus
  - Echinococcus alveolaris (E. multilocularis)
- **The most common parasite is *Echinococcus granulosus*.**
- Parasite cyst structure: (outside-inside) Pericyst - Laminar membrane - Germinative membrane (scolexes form over this layer) - hydatid fluid and sand-shaped. Daughter vesicles are found within the cyst.
- The primary hosts are carnivorous animals such as dogs, wolves and foxes. Parasite eggs spread into nature through the feces of these animals and are transmitted to humans (secondary hosts) as a result of improper washing of vegetables and fruits.
- In secondary hosts, parasite eggs come to the liver via the portal venous system. Some parasites that can pass through the liver can spread to the lungs and other organs.
- Involvement is most common in the liver (70%) and the second most common in the lungs. It mostly affects the right lobe.
- It is mostly asymptomatic in the clinic. Abdominal pain, nausea, Vomiting, dyspepsia and distension are the most common symptoms.
- Hepatomegaly can be detected on physical examination.
- The disease caused by the other agent, E. alveolaris (E. multilocularis), has a severe course. In this form, the cyst does not have a capsule and progresses invasively.

[1] Prof. M.D. Gazi University, Department of Surgery, omersakrak@gazi.edu.tr
ORCID iD: 0000-0002-8834-0928

- External drainage and omen top minus.
- Open or laparoscopic surgery can be performed.
- In cases where the cyst cannot be completely removed, anatomical liver resections can be performed.

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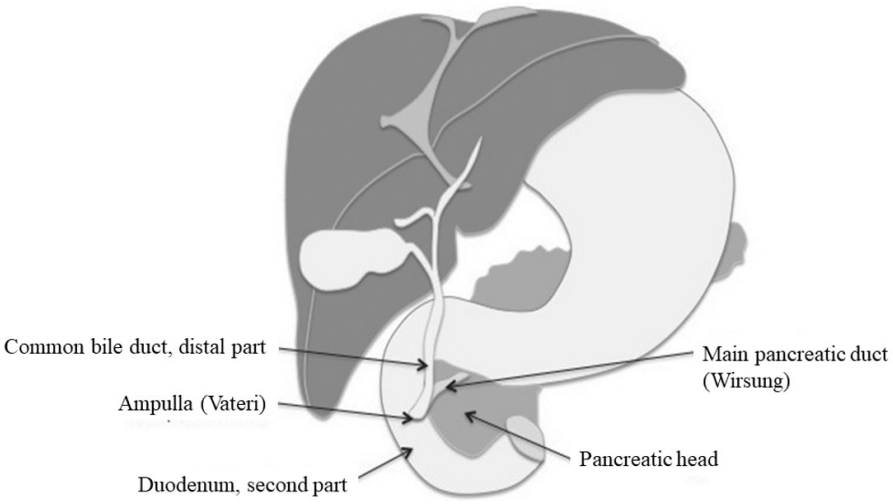
Chapter 30

BILE TRACT DISEASES AND OBSTRUCTIVE JAUNDICE

Aydın DALGIÇ [1]
Hakan SÖZEN [2]

1. What are the structures that make up the periampullary region?

- Head of the pancreas
- Distal common bile duct and Wirsung duct
- 2nd part of the duodenum
- Ampulla of Vater.



[1] Prof. M.D., PhD, Gazi University, Department of Surgery, adalgic@yahoo.com
ORCID iD: 0000-0002-5872-6096
[2] Prof. M.D. Gazi University, Department of Surgery, mhakansozen@gmail.com
ORCID iD: 0000-0002-1282-3413

Indications

- Pancreas, liver, intrahepatic and extrahepatic bile ducts viewing
- Taking histopathological samples radiologic interventional from the channels
- It is possible to treat cases that cause obstruction in the bile ducts, such as balloon dilatation of the ducts, placement of stents, and removal of these factors such as stones, sludge, and parasites.
- Nowadays, ERCP is used for performing interventional treatments (treatment tool) rather than just imaging the bile ducts (diagnostic tool).

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Chapter 31

PANCREATIC TUMORS

Mustafa KEREM [1]

1. Describe the epidemiology of pancreatic cancer.

- The number of newly diagnosed pancreatic cancer patients in the USA in 2017 was 53,670. and the number of deaths from pancreatic cancer was reported as 43,090.
- Overall, it has the worst prognosis among all cancers, with a 5-year survival rate of only 7.2%. The incidence of pancreatic carcinoma is increasing in parallel with the increase in obesity and diabetes, which are possible risk factors.
- It is estimated that cancer-related deaths will lead in 2050.

2. What are the risk factors for the development of pancreatic cancer?

- It occurs through the interaction of environmental and genetic factors.
- Age: It is most common between the ages of 75-84.
- Gender: It is slightly more common in men.
- Smoking: The risk is doubled compared to non-smokers.
- Family History: The probability of being seen in siblings is 2-3 times higher.
- Nutrition: Fatty, fiber-poor diet, low consumption of fruits and vegetables increases pancreatic cancer.

[1] Prof. M.D. Gazi University, Department of Surgery, keremmustafa@gmail.com
ORCID iD: 0000-0002-1797-6291

C. Malignant

1. Ductal adenocarcinoma
2. Serous/Mucinous cystadenocarcinoma
3. IPMN.

20. What are the Surgical resection indications of cystic neoplasms of the pancreas?

- Main channel IPMN
- Mixed type IPMN
- Greater than 3 cm and symptomatic side channel IPMN
- Mucinous cystadenoma
- Solid pseudopapillary tumor.

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Chapter 32

ACUTE PANCREATITIS

Abdülkadir BEDİRLİ [1]

1. List the reasons for acute pancreatitis (AP).

1. Alcohol
2. Gallstones
3. Hyperlipidemia
4. Hereditary (SPINK 1, PRSS 1)
5. Hypercalcemia
6. Trauma
    - External
    - Surgery
    - ERCP
7. Ischemia
    - Hipoperfusion
    - Atheroembolic
    - Vasculitis
8. Pancreatic duct obstruction
    - Neoplasms
    - Pancreas divisum
    - Ampullary and duodenal lesions
9. Infections
10. Poisons (such as Scorpions, snakes)
11. Medicines
12. Idiopathic

[1] Prof. M.D. Gazi University, Department of Surgery, bedirlia@gazi.edu.tr, ORCID iD: 0000-0002-6480-3203

- Early detection of high-risk patients and referral to specialized centers has a very important place in treatment.
- AP treatment should be carried out in a multidisciplinary and coordinated manner.
- Successful results are achieved with correct identification, appropriate triage, provision of high-quality support, monitoring and treatment of complications.

1. Fluid resuscitation: It is the most important part of AP treatment. 5-10 ml/ kg/hour crystalloid should be given in the first 24 hours. Ringer's lactate should be the crystalloid of choice.
2. Nutritional support: There are many studies showing that, unlike painkillers and fluid support, nutritional support is absolutely necessary. The philosophy of resting the pancreas has now been abandoned. Since parenteral nutrition is expensive, complicated and not more effective than enteral nutrition, it should be given enterally by calculating the patient's needs. In patients who cannot take orally, enteral nutrition is administered via nasogastric or nasojejunal route after the 72nd hour.
3. ERCP: 24-48 days in patients with biliary pancreatitis. Stones are cleared by performing ERCP between hours.
4. Antibiotics: There is no benefit in using prophylactic antibiotics. Absolutely in the presence of non-sterile peripancreatic fluid collections and necrosis. lacquer should be given.
5. Treatment of local complications (Walled of necrosis (WON)): Endoscopic cystogastrostomy and necrosectomy should be performed in symptomatic cases after 6-8 weeks. If endoscopy is insufficient, retroperitoneal or transperitoneal minimally invasive drainage and necrosectomy is performed.
6. Treatment of systemic complications:
    - Respiratory system: Ventilator support should be given if necessary.
    - Renal failure: Fluid support and hemodialysis.

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Chapter 33

SURGICAL DISORDERS OF THE SPLEEN

Kürşat DİKMEN [1]

1. Provide information about anatomy and functions of the spleen. Anatomy:

- The most common embryological anomaly is accessory spleen (14-30%) and the most It is frequently seen in the splenic hilus.
- It is fed by the splenic artery arising from the celiac trunk and drains into the portal system via the splenic vein.
- Ligaments of the spleen:

  i. Splenocolic ligament
  ii. Gastrosplenic ligament (Contains short gastric vessels.)
  iii. Frenosplenic ligament
  iv. Splenorenal ligament

Functions

- Filtering (Faulty and aged erythrocytes, clogged granulocytes, faulty and normal platelets, cellular debris)
- Immunological (Antibody synthesis, especially IgM, phagocytosis of antigen and antigen-anti-body complexes, protection against infections)
- Storage (1/3 of the total platelets in the body are stored in the spleen and also erythrocyte, granulocyte, iron)

[1] Assoc. Prof. M.D. Gazi University, Department of Surgery, kursatdikmen@yahoo.com
ORCID iD: 0000-0002-9150-9499

4. What are splenectomy complications?

- Pulmonary complications (most common): Pleural effusion, atelectasis, diaphragmatic collection and abscess, permanent left lower lobe pneumonia
- Thrombocytosis (40-50%)
- Bleeding
- Neighboring organ injuries (colon, stomach, tail of pancreas)
- Postsplenectomy sepsis:
  - The risk is higher in children.
  - The most common agent is S. pneumonia.
- Pneumococcal, H. influenza and meningococcal vaccines should be administered. 2 weeks before elective surgeries and 2 weeks after emergency surgeries.

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Chapter 34

PORTAL HYPERTENSION

Aydın DALGIÇ [1]
Hakan SÖZEN [2]

1. What are the vessels that supplies blood to the liver?

Hepatic artery (25%) and Portal vein (75%).
Hepatic vein is the draining vein.

- The liver is the only organ with dual blood flow.
- The portal vein provides 75% of liver blood flow and 25% of oxygen.
- Hepatic artery provides 25% of blood flow and 75% of oxygen.

2. What is the mean Portal vein (PV) pressure? What is PV gradient?

Average PV pressure 7 mm Hg (normal PV pressure 1-5 mmHg)
PV gradient = (PVp - HVp).

3. What is definition of portal hypertension (PH) and provide cardinal findings of PH?

Definition:

Due to different etiological factors (normal PV pressure = 7 mmHg);

- When PV pressure exceeds 12 mmHg
- It is a clinical condition that occurs when the pressure gradient (the pressure differences between the hepatic veins and the portal vein) is > 10 mmHg.

[1] Prof. M.D., PhD Gazi University, Department of Surgery, adalgic@yahoo.com
ORCID iD: 0000-0002-5872-6096
[2] Prof. M.D. Gazi University, Department of Surgery, mhakansozen@gmail.com
ORCID iD: 0000-0002-1282-3413

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Chapter 35

TRANSPLANTATION

Aydın DALGIÇ [1]
Hakan SÖZEN [2]

1. What is brain death? How is it diagnosed? What are the tests used in diagnosis?

Definition

Brain death signifies death. A person diagnosed with brain death is considered medically deceased. Naturally, once a person has died, returning to life is not possible. In intensive care conditions in hospitals, irreversible brain damage can occur due to various reasons such as head trauma, intracranial bleeding, primary brain tumors, drug toxicities, cerebral anoxia, cardiac arrest, drowning, hanging, and certain cases of sudden infant death. In these situations, the brain tissue loses its vitality. While a person is still technically alive with ongoing heartbeats, or if cardiac massage is performed to restore heartbeats and the individual is connected to a ventilator, and necessary medical treatment is administered, the viability of organs outside the brain can be maintained for a period expressed in hours or days (as long as the heart continues to beat). Under appropriate conditions during this period, the organs of the deceased person can be used for organ transplantation. The irreversible loss of brain and brainstem functions characterizes brain death

Diagnostic Criteria (Harvard Criteria):

- Complete loss of consciousness
- Absence of spontaneous movements
- Lack of cerebral-motor response to painful stimuli

[1] Prof. M.D., PhD Gazi University, Department of Surgery, adalgic@yahoo.com
ORCID iD: 0000-0002-5872-6096

[2] Prof. M.D. Gazi University, Department of Surgery, mhakansozen@gmail.com
ORCID iD: 0000-0002-1282-3413

15. What does a living organ donor mean, which organs does it apply to, and according to the laws in our country, who can be a living organ donor, and what are the criteria?

Definition

A living organ donor is an individual who, in a manner that does not hinder their normal life, voluntarily donates one of their organs to another person in need of an organ transplant. These organs can include a kidney, a portion of the liver, blood, bone marrow, and, in some very specific cases for pediatric recipients, a segment of the small intestine or a lobe of the lung.

Criteria

- Certification by the organ transplantation center that there is no medical obstacle to becoming an organ donor,
- There must be a relationship between the living donor and the recipient patient, up to the 4th degree, or a marriage bond of at least 2 years
- If there is no consanguinity, living donor transplantation can be performed, Republic of Turkey Ministry of Health It is done with the permission of the 'Central Ethics Committee'.

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Chapter 36

ABDOMINAL WALL HERNIAS

Ziya ANADOL [1]

1. List the layers that make up the abdominal wall.

a. Skin
b. Subcutaneous tissue (Camper and Scarpa's fasciae)
c. External oblique muscle
d. İnternal oblique muscle
e. Transversus abdominis muscle
f. Fascia transversalis
g. Preperitoneal fat and porous tissue
h. Peritoneum

2. What is a rectus sheath hematoma and what are the diagnosis and treatment principles?

- It is a rare condition that manifests itself with acute abdominal pain and the appearance of a mass on the abdominal wall.
- It is more common in women and older age groups.
- One study showed that 70 percent of 126 patients had anticoagulant use.
- It may be accompanied by a history of non-surgical abdominal trauma (48%) and cough (29%).
- It can also be seen during pregnancy.
- Patients who develop rectus sheath hematoma describe pain that begins suddenly, is severe, and increases with abdominal muscle contractions.
- Physical examination reveals tenderness and voluntary guarding over the rectus. Some patients also have a mass in the abdominal wall (63%).

[1] Prof. M.D., PhD, FACS Gazi University, Department of Surgery, zanadol@yahoo.com
ORCID iD: 0000-0003-0913-2600

13. What are the types of ventral hernia?

- Umbilical hernia
- Incisional hernia
- Epigastric hernia
- Spiegel hernia
- Suprapubic hernia
- Flank hernia

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Chapter 37

THE RISK FACTORS FOR BREAST CANCER AND BENIGN BREAST DISEASES

Osman KURUKAHVECİOĞLU [1]

1. What is the purpose of determining breast cancer risk?

- Prevention of malignant disease
- Ensuring early diagnosis
- Ensuring long-term survival
- Determine follow-up frequency
- To determine the necessity of prophylactic mastectomy, oophorectomy and tamoxifen use
- Reduce the side effects of toxic treatments (CT/RT) on the patient.

2. What are the unmodifiable risk factors for breast cancer?

- Gender
- Age
- Genetics
- History of cancer in the opposite breast
- Race and ethnic group
- Proliferative breast disease in a previous breast biopsy having a diagnosis
- Presence of Atypical hyperplasia
- Previous radiation to the breast
- <12 years of menarche, >54 years of menopause

[1] Prof. M.D. Gazi University, Department of Surgery, okurukahveci@yahoo.com
ORCID iD: 0000-0002-3074-5199

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Chapter 38

BREAST CANCER

Ekmel TEZEL [1]

1. Classify Axillary lymph nodes.

Axillary lymph nodes are classified according to the pectoralis **minor** muscle (Picture):

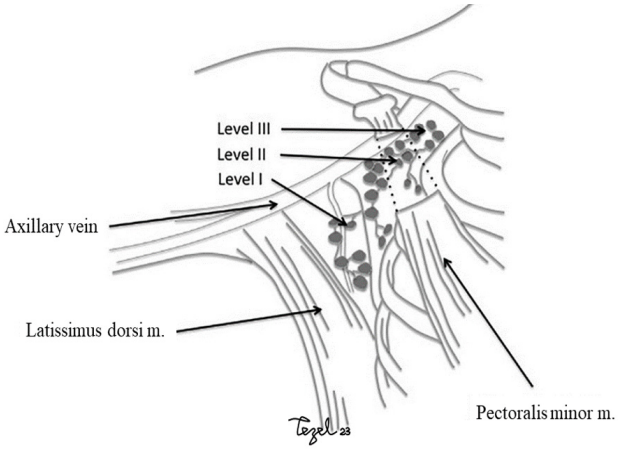
Level I lymph nodes: Located lateral to the pectoralis minor muscle.

Level II lymph nodes: Behind the pectoralis minor muscle are lymph nodes.

Level III lymph nodes: Located medial to the pectoralis minor muscle.

The lymph nodes known as Rotter or interpectoral are the lymph nodes anterior to the pectoralis minor muscle (posterior to the pectoralis major muscle).

Whether or not there is axillary lymph node involvement usually depends on tumor size and is the most important prognostic indicator of survival for breast cancer. If there is axillary metastasis, chemotherapy is indicated.



[1] Prof. M.D., PhD Gazi University, Department of Surgery, ekmeltezel@yahoo.com
ORCID iD: 0000-0001-5192-9475

Category 4	Suspicious findings *4A*: Slightly suspicious (Probability of malignancy 2-10%) *4B*: Moderately suspicious (Probability of malignancy 10-50%) *4C*: Highly suspicious (Probability of malignancy 50-95%)	Group containing findings with a probability of cancer ranging from 2% to 95%. Whether to perform a biopsy is decided based on clinical findings.
Category 5	Findings highly suggestive of malignancy	Cases containing findings with a probability of malignancy ranging from 95% to 99%. Biopsy is necessary.
Category 6	Biopsy proven malignant case	Biopsy-proven malignant case but definitive treatment has not yet been applied.

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Chapter 39

BENIGN THYROIDAL DISEASES, APPROACH TO THE THYROID NODULES AND COMPLICATIONS OF THE THYROID SURGERY

Hüseyin GÖBÜT [1]

1. Which nerves provide parasympathetic innervation to the thyroid gland?

- These are N. laryngeus inferior (Recurrent laryngeal nerve; RLN) and N. laryngeus superior which are branches of the N. Vagus.
- RLN innervates all intrinsic muscles except cricothyroid muscle.
- N. laryngeus superior only innervates the cricothyroid muscle.

2. What symptoms are seen in case of possible laryngeal nerve injury during surgery?

a) N. laryngeus inferior (NLI or RLN) damage:

In unilateral:

- Paralysis occurs in the vocal cord on the same side. The vocal cord comes medially and may remain in a paramedian or abducted position: In paramedian paralysis, the voice is normal but weak.
- In the abducted position, hoarseness, coarseness and inadequacy to coughing are observed.

In bilateral:

- The vocal cords move medially, the rima glottis narrows. Loss of voice occurs and emergency tracheostomy may be required.

b) N. laryngeus superior (NLI) damage:

[1] Assoc. Prof., M.D. Gazi University, Department of Surgery, drhuseyingobut@gmail.com
ORCID iD: 0000-0003-0127-7039

Radioactive Iodine Therapy (RAI):

- Approximately 6 months after radioactive iodine treatment, approximately 50% of patients It is euthyroid.
- There is a possibility that Graves' ophthalmopathy may not improve or even progress after RAI treatment.
- RAI treatment is used in elderly patients with small to medium-sized goiter, in patients for whom surgery or antithyroid treatment is contraindicated, and in patients who develop recurrence after medical or surgical treatment.
- Absolute contraindications are pregnancy and lactation.
- Relative contraindications are young patients, patients with nodules, ophthalmologic patients

Surgical treatment:

The recommended surgery is total thyroidectomy. Graves ophthalmopathy may improve after surgery.

13. What are the indications for surgical treatment in patients with Graves's disease?

- Having cancer or suspected tumor
- Young patient
- Inability to use antithyroid drugs or developing side effects during treatment patients
- Presence of large goiter with pressure symptoms
- If the patient does not want RAI treatment or in a short time after treatment having a desire for pregnancy
- Surgical treatment is relatively contraindicated in pregnant women. If so, the most appropriate timing is the second trimester.
- Surgical treatment is recommended for patients with moderate to severe ophthalmopathy.
- Patients for whom radioactive iodine treatment is contraindicated.

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Chapter 40

MALIGNANT TUMORS OF THE THYROID

Ferit TANERİ [1]

1. List the thyroid malignancies according to their frequency.

- Papillary carcinoma (80%)
- Follicular carcinoma (10%)
- Medullary carcinoma (5%)
- Hurdle cell carcinoma (3%)
- Anaplastic carcinoma (1%)

2. What are differentiated thyroid cancers? What tumor marker is used the follow-up?

- Papillary thyroid cancer
- Follicular thyroid cancer
- Hurthle cell carcinoma
- Thyroglobulin is used as a tumor marker in follow-up.

3. What are clinical and pathological features of papillary thyroid carcinoma?

a. It is the most common thyroid cancer (80%).
b. It is seen on average in people between the ages of 30-40.
c. It is the most common Thyroid cancer in children and with those have had exposure to radiation.
d. It is twice as common in women.
e. The best prognosis in Thyroid cancers (10-year survival 95%).
f. Most patients are euthyroid.

[1] Prof. M.D. Gazi University, Department of Surgery, ftaneri@gazi.edu.tr, ORCID iD: 0000-0002-6790-2071

10. A 55-year-old female patient presented to the outpatient clinic with a complaint of a neck mass. A neck ultrasound revealed a nodule in the upper right pole of the thyroid gland, measuring approximately 3x1 cm. Fine-needle aspiration biopsy (FNAB) showed malignant cells, and staining for amyloid and calcitonin were positive.

1. What is your primary diagnosis in this patient?

Medullary thyroid cancer

2. What is used as a tumor marker in the patient described above and what are the conditions that need to be investigated in addition to diagnosis?

- Calcitonin and CEA levels are checked.
- The patient should be examined for MEN.
- In RET mutation positive patients, other family members of should also be screened.

3. Sort medullary thyroid cancers from good prognosis to poor prognosis please?

- Familial non-MEN medullary thyroid cancer
- MEN2A
- Sporadic medullary thyroid cancer
- Men 2B

4. What is the surgical treatment approach for medullary thyroid cancer?

- Total thyroidectomy + routine central lymph node dissection is performed.
- Ipsilateral or bilateral modified radical neck dissection is added to the treatment in patients with palpable or imaging-detected lateral lymph node involvement or calcitonin >400pg/ mL.

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Chapter 41

PARATHYROID DISORDERS

Ferit TANERİ [1]

1. Which diseases do you consider in the differential diagnosis of hypercalcemia?

- Hyperparathyroidism
- Malignancies: Multiple myeloma, squamous cell cancers etc.
- Endocrine diseases: hyperthyroidism, Addison crisis, VIPoma.
- Granulomatous diseases: Sarcoidosis, Tuberculosis, Berylliosis, Histoplasmosis.
- Milk alkaline syndrome
- Medicines; thiazide diuretics, lithium, vitamin A and D intoxication
- Familial hypocalciuric hypercalcemia
- Paget's disease
- Immobilization

2. Explain the laboratory findings of primary hyperparathyroidism.

- Calcium level has increased.
- Intact PTH increased.
- Chlorine is increased or normal.
- Phosphate is low or normal.
- CI/P ratio increased (>33 is diagnostic).
- Magnesium is normal or low.
- Uric acid is normal or increased.
- ALP is normal or increased.
- Mild hyperchloremic metabolic acidosis is present.

[1] Prof. M.D. Gazi University, Department of Surgery, ftaneri@gazi.edu.tr, ORCID iD: 0000-0002-6790-2071

5. Hypoparathyroidism and hungry bone syndrome: What are the differences in terms of laboratory findings?

- In hypoparathyroidism; PTH: Low; Calcium: Low; Phosphor: High.
- In hungry bone syndrome; PTH: Normal; Calcium: Low; Phosphor: Low.

6. What are the physical examination findings in hypocalcemia?

Chvostek's sign (light tapping on the facial nerve fibers anterior to the ear) contraction of the muscles of the corner of the mouth when stretching).

Trotisseau's sign (Carpo-pedal spasm occurs in the hand when the blood flow is blocked for 2-3 minutes with the help of the cuff).

REFERENCES

1. Schwartz's Principles of Surgery (11th edition); F. Charles Brunicardi, Dana K. Andersen, Timothy R. Billiar, David L. Dunn, John G. Hunter Jeffrey B. Matthews, Raphael E. Pollock; McGraw-Hill, New York, 2019. Chapter 38.

Chapter 42

ADRENAL DISORDERS

Murat AKIN [1]

1. What does adrenal incidentaloma mean? What should the treatment approach be?

- Adrenal incidentaloma (AI) refers to adrenal tumors detected incidentally through imaging techniques such as ultrasound (US), computed tomography (CT), and magnetic resonance imaging (MRI), unrelated to adrenal diseases. The prevalence ranges from 0.3% to 5% in abdominal CT series, with these lesions being more common in individuals aged 50-70. Approximately 11-16% of cases involve bilateral lesions.
- When encountering an incidentaloma case, considering the cost, two different situations should be prioritized. Is it functional? Is the lesion malignant? Regardless of their size, lesions producing active hormones identified through functional tests should be surgically removed.
- The treatment of non-functional lesions depends on factors such as size, solidity, and the presence of malignancy on imaging.
- Masses showing invasion into surrounding tissues must be surgically removed.
- Additionally, adrenocortical adenomas larger than 5 cm are quite rare.
- In contrast, most adrenocortical carcinomas are larger than 5 cm, warranting the removal of lesions exceeding this size.

2. What is Conn syndrome?

- It is characterized by excessive secretion of aldosterone from the adrenal gland and suppression of plasma renin level. Some cases are completely

[1] Prof. M.D. Gazi University, Department of Surgery, drmuratakin@gmail.com
ORCID iD: 0000-0003-0001-1036

- Edema may be seen in the legs.
- Weight loss may occur in advanced stages.

4. What are the clinical findings of pheochromocytoma?

- Paroxysmal seizures, headache, sweating, nausea, hypertension attacks, tachycardia, paroxysmal or continuous hypertension, symptoms related to increased metabolism,
- Fever, weight loss, chest pain, abdominal pain, anxiety, symptoms of neurocutaneous diseases, hypertension aggravated by surgery, anesthesia or trauma.

5. What are the clinical findings of Cushion syndrome?

a. Weight gain is most common. Fat is in the body, as a result of muscle atrophy extremities are thin.
b. Buffalo hump: Fatty tissue on the back of the neck, kyphosis due to osteoporosis.
c. The face is round and moon-shaped. Red-purple colored striae on the body has.
d. Hirsutism, hypertension and hyperglycemia are present.
e. Menstrual irregularities, virilization in women, and impotence in men.
f. Immune dysfunction may occur.
g. Mental status changes may be observed.

REFERENCES

1. Schwartz's Principles of Surgery (11th edition); F. Charles Brunicardi, Dana K. An- dersen, Timothy R. Billiar, David L. Dunn, John G. Hunter Jeffrey B. Matthews, Raphael E. Pollock; McGraw-Hill, New York, 2019. Chapter 38.