

Національний  
Підручник

# SURGERY

**Edited by**

Bereznyts'kyy Ya. S.

Zakharash M. P.

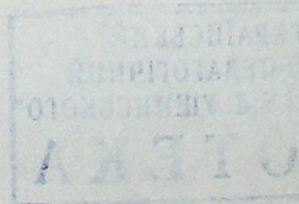
Mishalov V. G.P

NK  
PUBLISHERS

# SURGERY

Edited by  
**Bereznyts'kyy Ya. S.**  
**Zakharash M. P.**  
**Mishalov V. G.**

Vinnytsia  
Nova Knyha  
2016



УДК 617(075.8)  
ББК 54.5я73  
Х50

Б-ка ПНПУ ім. К.Д.УШИНСЬКОГО



545217

*Recommended by the Ministry of Health of Ukraine (Report # 2 of 02.06.2016 of the Commission for materials for persons who study in higher medical educational institutions and institutions of postgraduate education)*

**Authors:**

Kateryna M. Amosova, Yakov S. Bereznyts'kyy, Anatoliy O. Burka, Vadym G. Getman, Georgiy Y. Khapat'ko, Vasyl V. Khrapash, Olena M. Kligunenko, Volodymyr M. Klimenko, Igor V. Korpusyenko, Oleksandr B. Kutovyi, Anatoliy V. Makarov, Volodymyr G. Mishalov, Robert M. Molchanov, Oleksandr S. Nikonenko, Sergiy D. Shapoval, Viktor O. Shidlovskyy, Olena Y. Sorokina, Volodymyr P. Sulyma, Mykhailo P. Zakharash

**Reviewers:**

**Petro D. Fomin** – M.D., D.Med.Sc., Academician of the National Academy of Medical Sciences of Ukraine, Professor and Chairman of the Department of Surgery № 3 of Bogomolets National Medical University.

**Volodymyr V. Grubnik** – M.D., D.Med.Sc., Professor and Chairman of the Department of Surgery № 1 of Odessa National Medical University

**Edited by Yakov S. Bereznyts'kyy, Mykhailo P. Zakharash, Volodymyr G. Mishalov**

X50 Хирургія = Surgery : textbook for students of higher medical educational institutions / K. M. Amosova, Y. S. Bereznyts'kyy, A. O. Burka [et al.] ; edited by: Bereznyts'kyy Ya. S., Zakharash M. P., Mishalov V. G. – Vinnytsia : Nova Knyha, 2016. – 712 p. : il

ISBN 978-966-382-598-4

The textbook meets the program for preparing general practitioners in clinical surgery approved by the Ministry of Health of Ukraine. The material in the book is distributed depending on the nature of the disease and the priorities of medical care. Each theme is structured according to the principal clinical syndrome, with a precise division into chapters and due to professionally-oriented tasks of the approved branch standards. Each chapter is algorithmized that, in the judgement of the authors, should contribute to better assimilation of the material using the credit-module system.

The textbook is intended for 4–6-year English-speaking students of higher medical educational institutions of III–IV<sup>th</sup> levels of accreditation, interns.

УДК 617(075.8)  
ББК54.5я73

545217



ISBN 978-966-382-598-4

© Authors, 2016  
© Nova Knyha, 2016

# CONTENTS

<b>INTRODUCTION</b> .....	12
<b>LIST OF ABBREVIATIONS</b> .....	13
<b>CHAPTER 1. GENERAL PRINCIPLES OF RECOGNITION AND FORMATION OF CLINICAL DIAGNOSIS</b> .....	14
<b>PRINCIPLES OF DIAGNOSTIC THINKING</b> .....	15
Nosological principle of diagnostics.....	17
Syndromic principle of diagnostics.....	18
<b>PRINCIPLES OF PRELIMINARY DIAGNOSIS FORMATION</b> .....	19
Algorithm of preliminary diagnosis formation .....	20
<b>SUBSTANTIATION OF DIAGNOSTIC PROGRAM</b> .....	20
<b>PRINCIPLES OF DIFFERENTIAL DIAGNOSIS PERFORMANCE</b> .....	21
Differential diagnosis in an examined supervised patient with "acute cholecystitis" disease .....	22
<b>GENERAL PRINCIPLES AND STAGES OF CLINICAL DIAGNOSIS FORMATION</b> .....	24
References .....	25
Test questions to Chapter 1 .....	25
<b>CHAPTER 2. SURGICAL DISEASES OF ABDOMINAL WALL</b> .....	26
<b>ABDOMINAL HERNIAS (HERNIATION SYNDROME)</b> .....	27
<i>General issues of development, diagnostics and treatment of hernias of anterior abdominal wall</i> .....	27
Inguinal hernia .....	30
Femoral hernia .....	35
Umbilical and white line (midline) hernias.....	39
Ventral hernia .....	42
Complications of hernias .....	44
References .....	47
Test questions to Chapter 2.....	48
<b>CHAPTER 3. URGENT SURGICAL DISEASES OF ABDOMINAL ORGANS</b> .....	49
<b>3.1. ACUTE INFLAMMATORY DISEASES OF ABDOMINAL ORGANS (ACUTE INFLAMMATORY ABDOMINAL SYNDROME)</b> .....	50
<i>General issues of development and manifestation of acute inflammatory abdominal syndrome</i> .....	50
Acute appendicitis .....	52
Acute cholecystitis .....	60
Acute pancreatitis .....	68
<b>3.2. DISEASES OF ABDOMINAL ORGANS COMPLICATED BY BLEEDING (SYNDROME OF GASTROINTESTINAL BLEEDING)</b> .....	79
<i>General issues of diagnostics and treatment of bleeding into the lumen of gastrointestinal tract</i> .....	79
Gastrointestinal reflux disease complicated by bleeding .....	81
Bleeding from esophageal varices.....	85
Mallory – Weiss syndrome .....	90
Peptic ulcer complicated by bleeding .....	92

Hemorrhagic gastritis.....	100
Stomach cancer complicated by bleeding.....	101
Cancer of bowels complicated by bleeding.....	103
Hemorrhoids complicated by bleeding.....	104
<b>3.3. ACUTE INTESTINAL OBSTRUCTION</b> (SYNDROME OF ACUTE INTESTINAL OBSTRUCTION).....	110
<i>General issues of diagnostics and treatment of acute intestinal obstruction</i> .....	110
Dynamic intestinal obstruction.....	116
Mechanical obstruction of small and large intestine.....	117
<i>Obturator obstruction</i> .....	117
<i>Strangulation obstruction</i> .....	119
<i>Mixed intestinal obstruction</i> .....	120
Thrombosis of mesenteric vessels.....	121
<b>3.4. PERITONITIS (PERITONEAL SYNDROME)</b> .....	125
<i>General issues of diagnostics and treatment of peritoneal syndrome</i> .....	125
Peritonitis.....	128
Perforation of peptic ulcer.....	134
Perforation of small and large intestines.....	140
<b>3.5. ACUTE PROCTOLOGIC DISEASES (SYNDROME OF ACUTE PAIN IN RECTUM, ANAL CANAL AND PERIANAL AREA)</b> .....	143
<i>General issues of development and diagnostics of pain syndrome in anorectal area</i> .....	143
Thrombosed hemorrhoids.....	144
Acute anal fissure.....	147
Acute proctitis/acute anal abscess.....	150
Suppurative pilonidal sinuses.....	153
<i>References</i> .....	155
<i>Test questions to Chapter 3</i> .....	155
<b>CHAPTER 4. CHRONIC SURGICAL DISEASES OF GASTROINTESTINAL TRACT ORGANS</b> .....	161
<b>4.1. CHRONIC OBSTRUCTIVE DISORDERS OF ESOPHAGUS (SYNDROME OF DYSPHAGIA)</b> ... 162	162
<i>General issues of dysphagia development and its diagnostics</i> .....	162
Esophageal achalasia (achalasia cardiae).....	165
Esophageal stricture.....	169
Tumors of esophagus.....	171
<i>Benign tumors of esophagus</i> .....	173
<i>Malignant tumors of esophagus</i> .....	174
Diverticulum of esophagus.....	175
<b>4.2. CHRONIC DISEASES OF ESOPHAGUS CAUSED BY REFLUX OF GASTRIC CONTENTS (REFLUX AND HEARTBURN SYNDROME)</b> .....	177
<i>General issues of development and diagnostics of heartburn and regurgitation of gastric contents into the esophagus</i> .....	177
Gastroesophageal reflux disease.....	180
Hiatal hernia.....	184
<b>4.3. CHRONIC DISEASES OF STOMACH AND PANCREATOBILIARY SYSTEM (PAIN SYNDROME IN THE UPPER PART OF ABDOMINAL CAVITY)</b> .....	188
Peptic ulcer.....	188

Peptic (postoperative) ulcer of anastomosis .....	196
Recurrent duodenal ulcer after isolated selective proximal vagotomy .....	200
Cholelithiasis (gallstone disease) .....	203
<b>General issues of development, diagnostics and treatment of cholelithiasis</b> .....	205
Chronic calculous cholecystitis .....	206
Choledocholithiasis .....	208
Chronic obstructive pancreatitis .....	212
Pancreatic cyst .....	216
<b>4.4. CHRONIC OBSTRUCTION OF GASTROINTESTINAL TRACT</b> (SYNDROME OF CHRONIC OBSTRUCTION OF GASTROINTESTINAL TRACT) .....	219
<b>General issues of development, diagnostics and treatment of chronic obstruction of gastrointestinal tract</b> .....	220
Peptic ulcer complicated by stenosis .....	221
Arteriomesenteric compression of duodenum (chronic duodenal arteriomesenteric obstruction) .....	224
Adhesive disease of abdominal cavity organs .....	226
<b>4.5. DISEASES OF HEPATOPANCREATOBILIARY ZONE COMPLICATED BY</b> <b>OBSTRUCTIVE JAUNDICE (SYNDROME OF OBSTRUCTIVE JAUNDICE)</b> .....	228
<b>General issues of jaundice diagnosing</b> .....	228
<b>General issues of obstructive jaundice diagnostics and treatment</b> .....	231
Choledocolithiasis complicated by obstructive jaundice .....	233
Tumor of extrahepatic bile ducts .....	236
Tumor of major duodenal papilla .....	238
Tumor of the head of pancreas .....	240
Cholangitis .....	241
<b>4.6. CHRONIC INFLAMMATORY DISEASES OF SMALL AND LARGE INTESTINES</b> (DIARRHEAL-INFLAMMATORY SYNDROME) .....	243
<b>General issues of development, diagnostics and treatment of diseases with diarrheal-inflammatory syndrome</b> .....	243
Ulcerative colitis .....	248
Crohn's disease (terminal ileitis) .....	255
<b>4.7. PROLAPSE OF RECTUM (RECTAL PROLAPSE SYNDROME)</b> .....	259
<b>General issues of development, diagnostics and treatment of rectal prolapse syndrome</b> .....	260
Rectal prolapse .....	261
Chronic hemorrhoids .....	264
<b>4.8. CHRONIC PROCTOLOGIC DISEASES (CHRONIC PAIN SYNDROME</b> <b>IN THE AREA OF ANAL CANAL)</b> .....	268
<b>General issues of development, diagnostics and treatment of diseases, characterized by chronic pain syndrome in the area of anal canal</b> .....	268
Anal fissure .....	269
Rectal fistulas .....	271
Pilonidal sinuses .....	274
References .....	276
Control questions to Chapter 4 .....	277

<b>CHAPTER 5. SURGICAL DISEASES OF THORAX AND ORGANS OF THORACIC CAVITY</b> .....	285
<i>Topographic anatomy of thorax and mediastinum</i> .....	286
5.1. PNEUMOTHORAX (SYNDROME OF COLLAPSED LUNG) .....	296
<i>General issues of development, diagnostics and treatment of collapsed lung</i> .....	296
Spontaneous pneumothorax .....	299
Traumatic pneumothorax.....	303
5.2. FLUID IN PLEURAL CAVITY/PLEURAL FLUID (SYNDROME OF FLUID IN PLEURAL CAVITY) .....	306
<i>General issues of development, diagnostics and treatment of fluid accumulations in pleural cavity (hydrothorax)</i> .....	307
Pleurisy .....	308
Hemothorax .....	311
Chylothorax.....	315
Pleural empyema.....	318
5.3. PULMONARY HEMORRHAGE (PULMONARY HEMORRHAGE SYNDROME) .....	324
<i>General issues of development, diagnostics and treatment of pulmonary hemorrhage</i> ..	324
Pulmonary embolism.....	326
Multiple bronchiectasis.....	330
Lung cancer.....	334
Benign tumors of bronchi and lungs .....	338
5.4. INFLAMMATORY DISEASES OF THORACIC ORGANS (INFLAMMATORY SYNDROME IN THORACIC SURGERY) .....	341
<i>General issues of development, diagnostics and treatment of inflammatory syndrome in thoracic surgery</i> .....	341
Pulmonary abscess and gangrene.....	343
Mediastinitis .....	348
5.5. OBSTRUCTION OF TRACHEA AND BRONCHI (SYNDROME OF ASPHYXIA).....	352
Foreign bodies of trachea and bronchi.....	352
References .....	355
Test questions to Chapter 5.....	355
<b>CHAPTER 6. TRAUMA OF ABDOMINAL AND THORACIC ORGANS</b> .....	359
<b>TRAUMA OF ABDOMEN, CHEST AND RETROPERITONEAL SPACE</b> .....	360
<i>General issues of diagnostics and treatment of traumatic influence on patient's organism</i> .....	360
6.1. ABDOMINAL TRAUMA (SYNDROME OF TRAUMATIC ABDOMINAL INJURY) .....	362
<i>General issues of development, diagnostics and treatment of abdominal traumas</i> .....	362
Closed (blunt) abdominal trauma .....	366
Open abdominal trauma.....	370
Trauma of rectum .....	372
6.2. TRAUMA OF THORAX AND THORACIC ORGANS.....	375
<i>General issues of development, diagnostics and treatment of traumas of thorax</i> .....	375
Closed trauma of thorax and thoracic organs.....	381
Open trauma of thorax and thoracic organs .....	388
6.3. MULTIPLE TRAUMA (POLYTRAUMA) .....	393
<i>General issues of development, diagnostics and treatment of multiple trauma (polytrauma)</i> .....	393

6.4. ESOPHAGEAL TRAUMA (SYNDROME OF TRAUMATIC INJURY OF ESOPHAGUS) .....	398
<i>General issues of development, diagnostics and treatment of esophageal traumas</i> .....	399
Mechanical trauma of esophagus .....	401
Chemical burn of esophagus .....	405
References .....	409
Test questions to Chapter 6 .....	409
<b>CHAPTER 7. SURGICAL DISEASES OF ARTERIAL VESSELS</b> .....	412
7.1. ACUTE DISTURBANCE OF ARTERIAL CIRCULATION (SYNDROME OF ACUTE ISCHEMIA) .....	413
<i>General issues of diagnostics and treatment of acute occlusion of arterial vessels</i> .....	413
Acute arterial occlusion of lower extremities .....	415
Pulmonary embolism (PE) .....	417
7.2. ISCHEMIC DISEASES OF LOWER EXTREMITIES (SYNDROME OF CHRONIC ISCHEMIA) .....	422
<i>General issues of diagnostics and treatment of obliterating arterial lesions</i> .....	422
Obliterating atherosclerosis of vessels of lower extremities .....	426
Obliterating endarteritis .....	431
Raynaud's disease .....	435
Peripheral angiopathy in diabetes mellitus (diabetic angiopathy) .....	437
References .....	441
Test questions to Chapter 7 .....	441
<b>CHAPTER 8. SURGICAL DISEASES OF VEINS OF LOWER EXTREMITIES</b> .....	444
SURGICAL DISEASES OF VEINS OF LOWER EXTREMITIES .....	445
<i>Topographic anatomy of veins of lower extremities, their physiology     and methods of investigation</i> .....	445
8.1. CHRONIC VENOUS INSUFFICIENCY (SYNDROME OF CHRONIC VENOUS INSUFFICIENCY) .....	451
<i>General issues of diagnostics and treatment of chronic venous insufficiency</i> .....	451
Varicose vein disease of lower extremities .....	453
Post-thrombophlebitic disease (PTD) .....	457
8.2. ACUTE VENOUS OBSTRUCTION (SYNDROME OF ACUTE VENOUS THROMBOSIS) ....	461
<i>General issues of diagnostics and treatment of acute venous obstruction</i> .....	461
Thrombophlebitis of superficial veins of lower extremities .....	465
Thrombosis of deep veins of lower extremities .....	467
References .....	469
Test questions to Chapter 8 .....	470
<b>CHAPTER 9. SURGICAL DISEASES OF ENDOCRINE ORGANS</b> .....	472
SURGICAL DISEASES OF ENDOCRINE ORGANS .....	473
9.1. SURGICAL DISEASES OF THYROID GLAND .....	473
9.1.1. Goiter without thyroid function abnormality (Syndrome of thyroid gland hypertrophy) .....	478
<i>General issues of development, diagnostics and treatment of surgical diseases         of the thyroid gland without disturbance of its function (euthyroid goiter)</i> .....	478
Diffuse endemic goiter .....	480
Nodular endemic goiter .....	482
Autoimmune thyroiditis – Hashimoto's goiter (euthyroid form) .....	483



9.1.2. Thyrotoxicosis (SYNDROME OF THYROTOXICOSIS) .....	485
<i>General issues of development, diagnostics and treatment of surgical thyroid diseases with signs of thyrotoxicosis.</i> .....	485
Diffuse toxic goiter .....	488
Functional anatomy of thyroid gland .....	490
9.1.3. Inflammatory diseases of thyroid gland (Thyroid gland inflammation syndrome) .....	492
<i>General issues of development, diagnostics and treatment of inflammatory diseases of thyroid gland</i> .....	492
Acute suppurative thyroiditis and strumitis .....	493
Subacute thyroiditis .....	495
9.2. SURGICAL DISEASES OF PARATHYROID GLANDS (HYPERCALCEMIA SYNDROME) ...	496
Hyperparathyroidism .....	497
9.3. SURGICAL DISEASES OF ADRENAL GLANDS .....	500
Itsenko – Cushing’s syndrome .....	503
Primary (hyper)aldosteronism (Conn’s syndrome) .....	504
Pheochromocytoma .....	506
References .....	510
Test questions to Chapter 9 .....	510
<b>CHAPTER 10. BREAST ANOMALIES AND DISEASES</b> .....	511
BREAST ANOMALIES AND DISEASES .....	512
10.1. CONGENITAL BREAST ANOMALIES .....	516
Amastia (breast aplasia) .....	516
Polymastia .....	517
Polythelia .....	517
Athelia .....	518
10.2. HORMONE-DEPENDENT BREAST DISEASES .....	518
Fibrocystic mastopathy .....	518
Thyroid form .....	519
Ovarian form .....	520
Suprarenal form .....	520
Diffuse mastopathy .....	521
Nodal mastopathy .....	521
Cystic mastopathy (Reclus’s disease) .....	522
Mastodynia (mastalgia, Cooper’s disease) .....	522
Fibroadenoma of breast .....	523
Breast cyst .....	523
References .....	525
Test questions to Chapter 10 .....	525
<b>CHAPTER 11. SURGICAL PURULENT INFECTIONS</b> .....	527
<i>General issues of development, diagnostics and treatment of purulent surgical infection</i> .....	528
11.1. WOUND INFECTION .....	531
Causes and mechanism of development of wound infection .....	531
Microbiological diagnostics of wound infection .....	534

Immune response of organism to wound infection .....	536
Clinical diagnostics of wound infection.....	538
Principles of prevention and treatment of wound infection .....	539
11.2. GENERALIZED INFLAMMATORY REACTIONS (SEPSIS).....	543
<i>General issues of development, diagnostics and treatment of generalized inflammatory reactions (sepsis)</i> .....	543
References .....	554
Test questions to Chapter 11.....	555
CHAPTER 12. FUNDAMENTALS OF TRANSPLANTOLOGY .....	558
<i>General issues of transplantology</i> .....	559
Social and legal aspects of transplantology.....	560
<i>Mental and ethical (bioethical) and legal issues of transplantology</i> .....	560
Fundamentals of transplant immunology .....	561
Particular issues of of vital organ transplantation .....	563
<i>Kidney transplantation</i> .....	563
<i>Liver transplantation</i> .....	564
<i>Heart transplantation</i> .....	565
<i>Pancreas transplantation</i> .....	566
References .....	567
Test questions to Chapter 12.....	567
CHAPTER 13. SHOCKS .....	569
<i>General issues of development, diagnostics and treatment of shocks</i> .....	570
Hemorrhagic shock.....	579
Burn shock.....	585
Anaphylactic shock.....	595
References .....	601
Test questions to Chapter 13.....	602
<b>APPENDICES</b> .....	604
<b>DIFFERENTIAL DIAGNOSIS TABLES OF SURGICAL DISEASES</b> .....	605
<b>MULTIPLE-CHOICE CLINICAL TASKS</b> .....	640
<b>ANSWERS TO CLINICAL TASKS</b> .....	678
<b>CLUSTER TYPE CLINICAL TASKS ON SURGERY TO PREPARE FOR</b>	
<b>PROBLEM-ORIENTED STATE TESTS</b> .....	695
<b>SUBJECT INDEX</b> .....	704