

PROBLEMS OF THE SURGEONS TRAINING

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Organisation of the educational process in the 2nd year of internship in surgery at Odesa National Medical University

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The internship is a mandatory form of postgraduate primary specialisation for graduates of all faculties of higher education institutions of III–IV accreditation levels. The main purpose of the internship in surgery is to provide basic training for graduates to work independently as doctors in the speciality of surgery. After successful completion of the internship in surgery, interns are awarded the qualification of a surgeon [1–3].

The importance of internship training is increasingly growing in view of the special requirements for graduates of medical higher education institutions: professionalism, activity, communication skills based on mutual understanding, and the ability to make quick decisions [4, 5].

Internship training is designed to focus on new teaching methods, the formation of positive motivation for the quality and creative work of interns and be based on the rules of the European Credit Transfer System [6, 7].

Surgery internship training is carried out in accordance with the Regulations on Internship [8].

A single set of educational and practical components has been developed for internship training in surgery based on the Model Programme for Internship Training in Knowledge Area 22 "Health Care" in the specialty "Surgery" after undergraduate training (Master's degree in specialty 222 "Medicine") [1], taking into account the requirements, standards and recommendations for quality assurance in the European Higher Education Area [6], which is aimed at mastering the competencies necessary for the qualification of a doctor–specialist in surgery.

Taking into account the current martial law in Ukraine, the training of interns in the full–time part of the internship in surgery in the 2nd year takes place at the bases of the Department of Surgery of Odesa National Medical University in a mixed format – online and offline in accordance with the order of the university. There are 43 interns enrolled in the full–time surgery internship.

For better and deeper learning of certain sections of surgery, interns rotate at training bases during the full–time part of the internship. At medical bases where patients with gastric and intestinal pathology predominate, practical and seminar classes on relevant topics are advisable, and in departments where endocrine pathology is treated, classes corresponding to this section of surgery are appropriate. Particular attention

is paid to the study and mastery of practical skills in practical classes at the patient's bedside. The Department of Surgery has a bank of educational videos that demonstrate the stages and course of operations, clinical operations directly from the operating theatres. The operating surgeon announces the course of the operation and demonstrates his tactical actions on the screen. Direct Internet connection is widely used in the educational process, especially when training is conducted in a blended format. Using the resources of Internet conferences on surgery improves the quality of training of surgical interns.

A significant role in the educational process is played by the use of computer equipment with the arrangement of computer classes. By creating computer–based training programmes that include situational tasks, the level of mastery of certain sections of surgery is monitored. This approach increases the rating of answers, individualises the work of the surgical intern, and is especially important in preparing for the Krok–3 exam.

The training at the internship in surgery is carried out according to individual curricula developed on the basis of the training programme for internship in surgery and curricula approved by the Academic Council of Odesa National Medical University. During the period of training in internship, interns must master the competencies, knowledge and skills defined by the individual curriculum and the programme of training in surgery.

Surgery internship training lasts three years and consists of educational and practical parts [1]. The full–time part of the surgical internship involves lectures, seminars and practical classes.

The leading form of organising the educational process is the lecture. There are the following types of lectures: introductory, informational, final, and review. Clinical lectures are held for all interns in the lecture hall of the Department of Surgery, except for those interns who, for objective reasons, could not attend the lecture. For them, the lectures are held online simultaneously with the lectures for the main group using the Microsoft Teams platform.

The lecture covers only the most important material, which should lead to the solution of typical and atypical problem tasks. The rest of the material is covered in seminars and practical classes.

There are two forms of lectures: classical and problem-based. The classical lecture is a standard form of training aimed at familiarising interns with a block of logically complete scientific information, so it involves a consistent, thorough presentation of the material, starting with its relevance, etiopathogenesis and ending with modern methods of treatment.

For a clinical lecture, it is not the classical form that is better suited, because due to the limited lecture time it is difficult to present the material in full and consistently, but the problem form.

Interns should prepare for a problem-based lecture by studying the key issues. This is to ensure that they are active and engaged in the discussion during the lecture.

The support of a problematic or classical lecture at the Department of Surgery meets the requirements of today: multimedia presentation, use of videos, demonstration of ultrasound, echocardiography, X-rays, results of general clinical and special examination methods, clinical analysis of the patient. It should be noted that the level of learning is very low – only 3%, if the lecture is delivered separately from the topic of seminars and practical classes.

The topics of the lectures, which take a total of 32 hours, depend on the course code. The following lecture courses are scheduled for the 2nd year of the surgery internship.

Course 3. Abdominal surgery (10 hours). This course includes lectures on the following topics: acute intestinal obstruction; intestinal fistulas; peritonitis; diseases simulating "acute abdomen"; retroperitoneal tumours; post-cholecystectomy syndrome; cholangitis; abscesses, non-parasitic cysts and tumours of the liver; liver echinococcosis; spleen diseases.

Course 4. Proctology (4 hours). This course includes lectures on the following topics: haemorrhoids; fissures of the ileum; acute and chronic paraproctitis; fistulas, prolapses, rectal strictures; anal sphincter insufficiency.

Course 5. Surgical diseases of endocrine organs (2 hours). Interns learn in-depth about special methods of examination of the thyroid gland; nodular, diffuse, toxic goiter; chronic thyroiditis (Riedel and Hashimoto).

Course 6. Surgical vascular diseases (6 hours). Interns attend the following lectures: varicose veins; deep and superficial vein thrombophlebitis; post-thrombophlebitic syndrome; elephantiasis; obliterative endarteritis and atherosclerosis of the extremities; obliterative thrombangitis (Burger's disease); purulent blood vessel diseases; basic principles of treatment of purulent blood vessel diseases.

Course 9: Thoracic surgery (8 hours). The lectures of this course cover the following topics: hernia of the esophageal opening of the diaphragm; diseases of the diaphragm; esophageal achalasia; esophageal diverticula; purulent lung diseases; mediastinitis; pleurisy; acute and chronic pleural empyema; foreign bodies and damage to the esophagus; pulmonary bleeding; burns and stenosis of the esophagus.

Course 12. Surgery of the heart and major vessels (2 hours). The range of lecture topics is quite wide: trauma of veins and arteries; thrombosis and embolism of major vessels; special re-

search methods in vascular surgery; principles of reconstructive surgery on vessels.

The staff of the Department of Surgery pays special attention to educational and methodological work, which involves the improvement and appropriate standardisation of teaching the speciality, aimed at improving the quality of training of a surgeon. The methodological developments of practical and seminar classes in the full-time part of the internship have been updated and supplemented with the latest modern medical achievements to ensure a deeper study of the subject. Each surgical intern is provided with methodological developments for practical and seminar classes, developed by the leading staff of the department. The interns are aware of the issues discussed in the classroom and prepare for them according to the methodological recommendations for more effective learning.

A seminar is a special form of practical training, which consists in the independent study of individual issues and topics of the lecture course by students, followed by the preparation of educational material in the form of abstracts, reports, messages, etc. The seminar is designed for in-depth study of surgical topics.

Seminar classes in the 2nd year of the surgical internship are allocated 114 hours and the following courses are defined.

Course 3. Abdominal surgery (30 hours). This course of seminars is dedicated to deepening knowledge of the following diseases and conditions.

Dynamic intestinal obstruction: clinic and diagnosis. Pathogenesis of acute obstructive intestinal obstruction. Surgical tactics in acute intestinal obstruction.

Strangulated intestinal obstruction: clinic and diagnosis. Acute disorders of mesenteric circulation. Invagination: clinic, diagnosis, surgical tactics. Staged operations in the treatment of intestinal obstruction.

Surgical tactics in obstructive jaundice. Postcholecystectomy syndrome: clinic, diagnosis, tactics.

Cholangitis: diagnosis, differential diagnosis, surgical tactics. Liver abscesses: diagnosis, surgical tactics.

Splenic trauma: surgical tactics, splenectomy technique, possibilities of endoscopic interventions.

Chronic essential thrombocytopenia (Werlhoff disease). Haemolytic jaundice: differential diagnosis, treatment.

Course 4. Proctology (14 hours). Interns are offered the following topics: differential diagnosis of pain in the sacroiliac region, perineum and rectum; haemorrhoids and their complications: clinic, diagnosis, treatment methods; acute paraproctitis: clinic, diagnosis, treatment tactics; chronic paraproctitis: clinic, diagnosis, treatment tactics; anal sphincter insufficiency: diagnostic and treatment methods.

Course 5. Surgical diseases of endocrine organs (10 hours). These seminars are designed to help interns learn special research methods for thyroid diseases, to deepen their knowledge of nodular goiter, clinical manifestations of thyrotoxic goiter, chronic thyroiditis (Riedel's and Hashimoto's). Particular attention is paid to thyrotoxic crisis, including its prevention and treatment.

Course 6. Surgical vascular diseases (22 hours). Study of special research methods in vascular surgery. Analysis of the peculiarities of managing patients after vascular surgery, surgical tactics in case of vascular damage. Particular attention is paid to the study of venous gangrene (clinic, diagnosis, treatment tactics), obliterating atherosclerosis (clinic, diagnosis, surgical treatment), varicose veins (clinic, diagnosis, surgical treatment), post-thrombophlebitic syndrome (clinic, diagnosis, complications); elephantiasis (diagnosis, treatment), thrombosis in the deep vein system (clinical forms, diagnosis), thrombophlebitis of superficial (clinic, diagnosis, treatment) and deep (diagnosis, surgical tactics) veins of the extremities.

Course 8. Outpatient surgery (2 hours). Seminar sessions are devoted to surgical tactics for wounds of various localisations, including gunshot wounds.

Course 9: Thoracic Surgery (22 hours). During the seminars of this course, interns study the following topics in depth: oesophageal achalasia (clinic, classification, diagnosis, surgical tactics); oesophageal diverticula depending on the location (indications for surgery and types of surgery); central lung cancer (clinic, diagnosis); lung abscesses and gangrene; pleurisy and pleural empyema (diagnosis, differential diagnosis, surgical tactics); hernia of the esophageal opening of the diaphragm (classification, diagnosis, main types of operations, main types of diaphragmoplasty); damage to the esophagus (surgical tactics); scarred stenosis of the esophagus (plastic surgery); mediastinitis (classification, clinic, diagnosis, treatment tactics).

Course 12. Surgery of the heart and major vessels (14 hours). Interns study the symptoms of arterial aneurysm, acute trauma, thrombosis and embolism of the great vessels, and surgical tactics for these conditions. Seminars on pulmonary embolism, its prevention and treatment are important. Special attention is paid to special research methods in cardiac surgery, objective examination of patients with cardiac pathology.

In the 2nd year of the internship in surgery, interns study disciplines in practical classes with teachers at the department's bases in accordance with the calendar and thematic plan.

Course 3. Abdominal surgery (88 hours). In-depth study of the problem of intestinal obstruction. Interns learn the basics of pathogenesis, classification and clinic, differential, instrumental diagnosis and methods of surgical treatment of acute intestinal obstruction, and mixed form of acute intestinal obstruction. Practical classes are also dedicated to the following topics: chronic ischaemic disease of the digestive system, intestinal volvulus and nodule formation (surgical tactics), internal hernia strangulation as a cause of intestinal obstruction, obstructive intestinal obstruction, peculiarities of its course, adhesive intestinal obstruction, treatment and diagnostic programme for dynamic and obstructive intestinal obstruction, preoperative preparation of patients with intestinal obstruction, treatment of strangulated forms of intestinal obstruction, indications for intestinal resection in intestinal obstruction, methods of unloading intestinal intubation, surgeon's tactics in case of doubtful intestinal

viability, peculiarities of management of patients with intestinal obstruction in the postoperative period.

Interns also study the main causes and clinical manifestations of post-cholecystectomy syndrome. Attention is paid to the differential diagnosis of jaundice at the pre-hospital stage, instrumental diagnosis of bile duct diseases, causes of their emergency, and differential diagnosis of jaundice in the hospital. They master the methods of conservative and surgical treatment of obstructive jaundice, endoscopic surgical transpapillary interventions, open operations on the hepatocellular junction and duodenal papilla, and deepen their knowledge of the clinic and diagnosis of cholangitis. Liver abscesses are studied according to the standard scheme: the main factors, clinic and diagnosis, and puncture methods of treatment.

Topics include spleen examination methods, malformations and localisation of this organ; spleen injury in blunt abdominal trauma (clinic, diagnosis); spontaneous splenic rupture (causes, clinic, diagnosis); splenic abscesses (clinic, diagnosis, treatment); Vascular diseases of the spleen of surgical significance; splenic torsion; splenic vein thrombosis (symptoms, treatment); splenic infarction (etiology, diagnosis, treatment); splenic artery aneurysm (diagnostic methods, treatment). Particular attention is paid to the symptoms and methods of diagnosis of haemolytic jaundice. Pseudo-abdominal syndrome and its clinical features are studied.

Course 4. Proctology (18 hours). Interns study the anatomy of the rectum and pelvic floor, methods of examination of the rectum and colon, features of objective examination of a patient with a proctological disease, clinical course, basic principles of treatment of proctological diseases, complicated forms of haemorrhoids (clinic, surgical tactics), methods of conservative treatment of haemorrhoids, types of operations for hemorrhoids, surgical tactics for rectal fissures, rectal fistula (diagnosis, treatment), methods of treatment of rectal prolapse, surgeon's tactics for rectal strictures, complications during and after proctologic operations, management of patients with proctologic pathology in the postoperative period.

Course 5. Surgical diseases of endocrine organs (14 hours). The following topics are to be studied: general clinical examinations in thyroid diseases, pathogenesis of goiter, classification of goiter depending on its size, functional disorders in goiter, symptoms of diffuse non-toxic goiter, clinic of goiter, "aberrant goiter", non-toxic nodular and diffuse goiter (clinic, diagnosis), surgical treatment of patients with goiter, contraindications to goiter surgery, complications during goiter surgery, clinic and diagnosis of thyroiditis.

Course 6. Surgical diseases of blood vessels (60 hours). The topics of this course are as follows.

Classification of blood vessel injuries, features of open and closed vascular injuries, arterial trauma without disruption of their continuity, acute arterial trauma with anatomical disruption of the arterial wall.

Clinic and diagnostics of acute venous trauma, scope of surgical care for venous vessel trauma. Types of operations for vascular thrombosis and embolism, management of such patients in the postoperative period.

Pathogenesis, diagnostic methods, treatment of mesenteric thromboembolism. Clinic of Obliterating Atherosclerosis, Clinic of Acute Arterial Obstruction, angiography techniques.

Basic principles of reconstructive vascular surgery. Types of operations for obliterating atherosclerosis.

Obliterative endarteritis (clinic, diagnosis), differential diagnosis of obliterative diseases, methods of treatment of obliterative endarteritis.

Atherosclerotic gangrene (diagnosis, treatment), arterial thrombosis and vascular embolism, and obliterative thrombophlebitis (clinic, diagnosis, treatment).

Aetiopathogenesis, classification, clinic and complications of varicose veins, compression, drug and sclerosing therapy of varicose veins, contraindications to surgery. Surgical treatment of varicose veins.

Post-thrombophlebitic syndrome (etiology, pathogenesis, haemodynamics), dependence of clinical symptoms on the location of post-thrombophlebitic syndrome, main methods of treatment of post-thrombophlebitic syndrome. Causes of limb lymphostasis, lower limb elephantiasis clinic.

General characteristics of acute thrombosis of the veins of the extremities and pelvis. Typical syndromes of lower extremity vein thrombosis. Clinic of phlebothrombosis. Complications of deep vein thrombosis.

Superficial thrombophlebitis (localisation, etiopathogenesis). Clinical picture of acute thrombophlebitis. Classification of thrombophlebitis, laboratory tests and differential diagnosis, conservative treatment. Surgical treatment of acute thrombophlebitis. Complications of thrombophlebitis (prognosis and prevention).

Course 8. Outpatient surgery (6 hours). Disclosure of the specifics of the surgeon's work at an outpatient clinic.

Course 9: Thoracic surgery (44 hours). As part of this course, interns study the following topics.

Etiopathogenesis, pathological anatomy, clinic, methods of diagnosis of oesophageal achalasia. Features of the course of oesophageal achalasia depending on the stage of the disease. Complications of oesophageal achalasia. Differential diagnosis of oesophageal achalasia. Conservative treatment of oesophageal achalasia (balloon dilation), surgical techniques for oesophageal achalasia.

Classification, complications, methods of diagnosis of oesophageal diverticula. Zenker's diverticula (clinic, diagnosis, treatment), pulsatile and traction diverticula (diagnosis, treatment).

Clinical manifestations, complications of abscesses and lung gangrene. Clinic of pleurisy depending on its volume, thoracoscopy technique for pleurisy. Pyopneumothorax (clinic, classification, X-ray examination). Emergency care for tension pyopneumothorax. Temporary bronchial occlusion in pyopneumothorax. Indications for surgery in purulent lung diseases. Decortication and thoracoplasty for pleural empyema. Bronchiectasis (clinic, diagnostics), complications of bronchiectasis. Pulmonary bleeding (clinic, diagnostics). Methods of diagnosis of foreign bodies and damage to the oesophagus, the main causes of damage to the oesophagus, symptoms and

methods of removing foreign bodies from the oesophagus. Features of oesophageal burns by various agents, pathology of the oesophageal walls in case of burns. Clinical picture, diagnosis of oesophageal burns, first aid for patients with chemical burns of the oesophagus. Conservative and surgical treatment of mediastinitis, features of mediastinal drainage.

Anatomical and physiological features of the gastroesophageal zone. Research methods for hernias of the esophageal opening of the diaphragm. Classification of hernias of the esophageal orifice of the diaphragm. Sliding hernia of the esophageal orifice of the diaphragm (clinic and diagnosis), paraesophageal hernia (clinic and diagnosis). Short oesophagus (clinic and diagnostics). Complications of hernias of the oesophageal opening of the diaphragm. Indications for surgery for hernias of the esophageal orifice of the diaphragm. Basic principles of surgical treatment of hernias of the esophageal orifice of the diaphragm. Traumatic diaphragmatic hernias (clinic, diagnosis, treatment). Special methods of diagnosing diaphragm pathology. Relaxation of the diaphragm (indications for surgery).

Course 12. Surgery of the heart and major vessels (22 hours). This course is dedicated to the study of the following topics: diagnostics of major blood vessel injuries, surgical tactics for major blood vessel injuries, rules for applying haemostatic jute, temporary bypass surgery for vascular injuries, reconstructive surgery for vascular injuries, clinic, diagnostics, prevention of pulmonary embolism, true aneurysms of blood vessels (etiology, pathological anatomy), diffuse aneurysms (clinic, diagnostics), limited aneurysms (clinic, diagnostics), false aneurysms (causes, pathological anatomy, clinical course, complications).

Conclusions

1. The training of a surgical intern in the 2nd year of study should correspond to the curricula according to the state standard of postgraduate professional training in the specialty "Surgery" and be consistent with the individual schedule drawn up by the staff of the Department of Surgery and approved by its head.

2. The staff of the Department of Surgery should pay special attention to the educational and methodological work, improvement of standardisation of teaching of the specialty aimed at improving the quality of training of surgeons in the full-time part of the internship.

3. Methodological developments of practical and seminar classes in the full-time part of the internship should be updated, supplemented with the latest modern achievements in medicine for the purpose of in-depth study of the subject.

4. For better and deeper learning of the relevant sections of surgery, it is advisable to rotate interns at the training bases during the full-time part of the internship.

5. Particular attention should be paid to learning and mastering practical skills in practical classes at the patient's bedside.

6. It is advisable to use direct Internet connection in the educational process. The use of resources of Internet conferences on surgery improves the quality of training of surgical interns.

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