CURRICULUM WORK PROGRAM

"OPERATIVE SURGERY, TOPOGRAFIC ANATOMY AND ANESTHESIOLOGY"

Speciality 211 «Veterinary medicine»

Educational program — «Veterinary medicine»

Faculty of veterinary medicine

Developers:
Tkachenko V, PhD, asoc prof.; Klymchuk V. PhD, assist.; Tarnaskyi D. assist.

Kyiv – 2022
General information

«OPERATIVE SURGERY, TOPOGRAFIC ANATOMY AND ANESTHESIOLOGY»

<table>
<thead>
<tr>
<th>Educational degree</th>
<th>«Master»</th>
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<td>Speciality</td>
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<td>Educational program</td>
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Main characteristics

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<tr>
<th>Kind</th>
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<tr>
<td>Total hours quantity</td>
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<td>Control form</td>
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Indicators of discipline

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<thead>
<tr>
<th>full-time education</th>
<th>external form of education</th>
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<tbody>
<tr>
<td>Year of study</td>
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<td>Semester</td>
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<td>Individual work</td>
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<td>Quantity of class-hours per week</td>
<td>3 Year, 5 Semester – 5, 3 Year, 6 Semester – 4</td>
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Aim, tasks and competencies of the discipline

- **The aim** is to acquaint applicants about the surgical operations used in the treatment of animals and increase their productivity. Surgical operations are characterized by a great variety and are among the most complex medical interventions. Successful surgical operations are impossible without knowledge of topographic anatomy.

- **Tasks:** - with the help of surgical interventions solves specific economic problems to restore lost or low productivity of animals in the shortest possible time, promote the fastest recovery of the herd, quantitative and qualitative improvement of meat, dairy products or wool.
- The course of operative surgery consists of general and special parts. In the general part the general data on surgical operation, fixation of animals, asepsis and antiseptics, anesthesia, elements of surgical operations, injections, desmurgia are stated.
- The special part describes the anatomical and topographic structure and techniques of various operations in the head, neck, torso, limbs and other parts of the animal's
As a result of studying the discipline the student must

Know:

1. Know the anatomical and topographic structure of the body of the animal where surgery is performed,
2. Basic methods of animal anesthesia
3. Methods of surgical interventions

Be able:

1. Capture animals
2. Prevent surgical infection.
3. Have the means of anesthesia for animals.
4. Separate and connect biological tissues.
5. Prevent and stop bleeding.
6. Perform injections, punctures and infusions.
7. Apply bandages.
8. Have the technique of surgery in different parts of the body of animals.

Acquisition of competencies:

General competencies:

. Ability to apply knowledge in practical situations.
. Ability to conduct research at the appropriate level.
. Ability to make informed decisions.

Professional (special) competencies (FC):

. Ability to use tools, special devices, instruments, laboratory equipment and other technical means to carry out the necessary manipulations during professional activities.
Ability to follow the rules of labor protection, asepsis and antiseptics during professional activities.

Ability to develop strategies for disease prevention of various etiologies.

**Program and structure of discipline**

<table>
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<tr>
<th>Themes</th>
<th>Hours quantity</th>
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<tr>
<th>Module 1. Theory of surgery, asepsis and antiseptics, anesthesiology, general and local anesthesia.</th>
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<tbody>
<tr>
<td><strong>Topic №1 Introductory. The doctrine of surgery. The importance of operative surgery in a number of clinical disciplines. Classification of operations. Content of operations.</strong></td>
</tr>
<tr>
<td><strong>Topic №2 Asepsis and antiseptics in veterinary surgery</strong></td>
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<tr>
<td><strong>Topic №4 Local anesthesia. Superficial, infiltrative, regional, spinal.</strong></td>
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<tr>
<th>Module 2. Administration of drugs, novocaine blockade, bleeding, separation and connection of biological tissues, elements of plastic surgery, desmurgia.</th>
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<tbody>
<tr>
<td><strong>Topic №5 Non-specific stimulant therapy in veterinary surgery.</strong></td>
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<tr>
<td><strong>Topic №6 Novocaine blockades. Novocaine therapy. The effect of novocaine on the body. Theoretical bases of action of novocaine blockades, means of increase of their efficiency. Indications and contraindications.</strong></td>
</tr>
<tr>
<td>Topic №7 Injections, punctures of vessels and cavities, infusions. Blood transfusions.</td>
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<tr>
<td>Topic №8 Separation and joining of biological tissues.</td>
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<td>Topic №9 Temporary and permanent cessation of bleeding. Help with significant blood loss.</td>
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<tr>
<td>Topic №10 Plastic surgery</td>
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<td>Topic №11 Desmurgia</td>
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<td><strong>Total in 5th semester</strong></td>
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### 6th semester

Module 3. Typical surgical interventions in the head, neck, chest wall of domestic animals, laparotomy, gastronomy, enterotomy.


| Topic №3 Surgical interventions in the genital area. Castrations. | 15 | 2 | 8 | 5 |
| Topic №4 Operations in the pelvis. Urethrotomy, urethrostomy. Cystotomy. | 15 | 2 | 8 | 5 |
| Topic №5 Operations in the anus and rectum. Tail operations. | 13 | 2 | 6 | 5 |
| Topic №6 Topographic anatomy of the thoracic and pelvic limbs. Limb surgery | 14 | 2 | 7 | 5 |
| **Total in 6th semesters** | **90** | **15** | **45** | **30** |
| **Total, hours** | **180** | **45** | **90** | **45** |
Lectures

Module 1. Theory of surgery, asepsis and antiseptics, anesthesiology, general and local anesthesia.

Topic №1 Introductory. The doctrine of surgery. Importance of operative surgery in a number of clinical disciplines. Classification of operations. Content of operations. Modern veterinary surgery is the science of prevention and treatment of surgical diseases of animals. It includes operative surgery (with topographic anatomy), general and special surgery (with orthopedics and ophthalmology).

Relationship with other veterinary disciplines. Operative surgery studies the rules and methods of performing surgical operations and is inextricably linked with the use of anatomy data. Topographic anatomy studies the mutual arrangement of organs and tissues of different parts of the animal's body, as well as the projection of internal organs on the skin. Knowledge of topographic anatomy allows to comprehend the operation anatomically, confidently and correctly navigate during the operation, to clearly distinguish organs and tissues.

The importance of knowledge of topographic anatomy for operative surgery was noted by a prominent Russian surgeon М.И. Пирогов.

In the body of an animal in the process of growth there are certain changes in the location and development of certain tissues and organs (for example, the formation of horns). These data are taken into account by age anatomy. The mutual arrangement of organs and tissues can change with various pathological abnormalities in the animal's body (for example, cryptorchidism); they are studied by pathological anatomy.

General surgery considers the patterns of occurrence and development of surgical pathology, its most characteristic features, the basic principles of treatment and prevention without taking into account the specific features due to its location, and so on. For example, dislocation of the jaw and dislocation of the hip joints have much in common: causes, mechanism of occurrence, the most important morphofunctional changes, principles of treatment, which is the content of general surgery.

General surgery acquaints with the peculiarities of the course of tissue reactions that occur as a result of surgery, and the reaction of the animal's body to them. It allows to identify the most common defects, which is of great importance in establishing a diagnosis, as well as justifies medical manipulations and the use of pharmacological drugs and physiotherapy procedures and more. However, the selection of generalized surgical diseases, taking into account the causes of their occurrence is the basis of rational prevention.

Topic №2 Asepsis and antiseptics in veterinary surgery

Asepsis (a - without, septicus - rot, ie "rotless") - is a set of methods and techniques aimed at preventing the entry of infectious agents into the animal's body. Bona is achieved by creating microbial, sterile conditions for all surgical work through the use of organizational measures, active disinfectant chemicals, physical factors and technical means. The main postulate of asepsis is that everything in contact with the wound surface must be decontaminated.

Antiseptics (anti - against, septicus - rot, ie "anti-rot") - is a therapeutic and prophylactic set of measures aimed at combating infection directly in the wound and in the animal's body, to prevent or eliminate infectious inflammatory process. It is achieved through the use of mechanical and physical methods of influence, active chemicals and biological factors.

The term "antiseptic" was introduced in 1750 by the English surgeon J. Pringle, describing the antiseptic effect of quinine.

Historical background. Surgical science, like other applied sciences, has undergone certain stages of development. Its fundamental achievements date back to the period of great discoveries of the late XIX - early XX centuries. In surgical practice, a radical revolution came with the introduction of asepsis and antiseptics, anesthesia, the discovery of blood groups and the possibility of blood transfusions.

Surgeons of the XVIII century. associated purulent complications of wounds (phlegmon, fever, tetanus, etc.) with putrefaction, which was caused by the action of air as a factor that cools and dries the wound. Therefore, they recommended applying occlusive airtight bandages. It was also
found that wound discharge from one patient (through bandages, instruments) when getting into the wound of another caused the latter purulent inflammation. Wound infection was a disaster of contemporary surgery. A large number of patients died from surgical and accidental wounds.


Complication
An - denial, absence; asthesis - no sensitivity; logos - science.
Science that is part of operative surgery, which studies ways to eliminate pain sensitivity in animals. Anesthesia not only facilitates surgery, but also protects the body from excessive pain, which can lead to disturbances of homeostasis of various degrees (trauma during attempts to recover, traumatic shock, CCC disorders, breathing).

Choice of type of anesthesia
Indications for:
- local anesthesia - for small operations in animals with CCC disorders, acute respiratory diseases, liver and kidney diseases.
- general anesthesia - for major bloody operations, interventions on the chest, abdomen, bones.

The following factors must be taken into account when choosing the type and method of anesthesia:
- species and condition of animals;
- age - old or young;
- fatness, exhaustion, pregnancy;
- the presence of comorbidities;
- condition of the sick animal;
- type of nervous activity;
- agitation and shock.

Preparing the animal for anesthesia.
• determination of sensitivity to general or local anesthetics;
• pharmacological preparation of the animal for anesthesia (premedication);
• starvation diet for abdominal surgery or long-term surgery;
• in animals with upper respiratory tract lesions, or in animals fixed in special positions that complicate breathing, animals at risk of asphyxia due to anatomical structure (brachiocephaly), when using anesthetics that suppress respiration - it is necessary to intubate the trachea with endotracheal tubes if necessary) connection to a respirator.

Experience of a veterinarian
• inhalation anesthesia (more controlled and less toxic) should be used for long-term operations;
• intravenous anesthesia is desirable for large operations lasting less than an hour;

it is desirable to combine local anesthesia and superficial anesthesia. Which allows to increase the level of anesthesia and reduce the toxic effects of drugs on the animal's body.

Topic №4 Local anesthesia. Superficial, infiltrative, regional, spinal.

The problem of animal anesthesia should be considered much more broadly than just depriving animals of pain sensitivity during the operation. Significant attention should be paid to the preparation of the operation, no less than the performance of the anesthesia itself. The animal's fear of man, unusual situation, screams, rough behavior, fall, fixation lead to a number of disorders in the animal's body, including disruption of normal nervous activity, homeostasis, potassium-calcium ratio, oxidative properties of blood and metabolism in general. All this should be taken into account when preparing the animal for surgery, creating an appropriate environment for it. In the practice of veterinary medicine can not be fully used the whole complex of preparation of animals for surgery, as is possible in human medicine, so in some cases it is important to pre-administer sleeping pills, neuroleptics, muscle relaxants and drugs. The implementation of these measures is especially necessary for irritable and restless animals and in cases where the operation is preceded by a fall and fixation of the animal in a supine position. This emphasizes the need for calm handling of the animal. In large animals (horses and cattle), if they are calm and have no bad temper, small and large operations can be performed only under local anesthesia and even in a
standing position. It is easy to follow the precautions taken in operative surgery and to fix the animals at the time of local anesthesia. Sometimes a good distraction is to give the animal a handful of oats, drink, etc. at the time of injection. These remedies are especially effective after a previous starvation diet. With a painful injection, short-term twisting is also sometimes necessary. Only evil animals need special measures to fix or pre-introduce staggering doses of chloral hydrate and alcohol (cattle).

**Module 2. Administration of drugs, novocaine blockade, bleeding, separation and connection of biological tissues, elements of plastic surgery, desmurgia.**

**Topic №6 Novocaine blockades.** Novocaine therapy. The effect of novocaine on the body. Theoretical bases of action of novocaine blockades, means of increase of their efficiency. Indications and contraindications.

One type of local anesthesia is the use of novocaine blockade. Depending on the concentration, novocaine acts differently on nerve trunks. In particular, its high concentrations permeate all nerve fibers of the nerve trunk and have an analgesic effect. The CNS in such cases, without receiving irritation from the periphery, does not show a coordinating action, which can not improve the course of the inflammatory reaction. Therefore, the healing properties are characteristic of low concentrations of novocaine (0.25 - 0.5%), which permeate only part of the nerve fibers of the trunk and thus do not eliminate, but only reduce the pain response, ie change strong stimuli weaker or weaken them.

But, as practice shows, the best healing properties are observed when the nerve or relevant elements of the sympathetic nerve of the affected area or nerve plexuses are blocked near the pathological focus.

Sympathetic division of the autonomic nervous system, which has segmental connections of sympathetic ganglia with spinal segments, and innervation connections - with peripheral and internal organs, therefore, depending on the location of the pathological process and its characteristics, different types of novocaine blockade are recommended.

Novocaine blockades... do not eliminate the cause of the pathological process, but complement other methods of etiological and symptomatic therapy.

**Topic №7 Injections, punctures of vessels and cavities, infusions. Blood transfusions.**

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**Topic №8 Separation and joining of biological tissues.**
The search for methods that accelerate wound healing is one of the main tasks of veterinary surgery, because the speed of recovery in the performance of injured or operated animals is directly dependent on the timing of recovery. Experience has shown that the most effective way to treat wounds is surgery. It gives the best result if immediately after the operation or in the postoperative period to reduce the gaping of the wound by suturing it. Joining the edges of the wound with a suture is one of the oldest methods of treatment and is successfully used today. Surgical sutures were known to Egyptian priests as early as 4,000 BC. The first reports of contraindications for suturing were made in 1400 BC. Hippocrates (460-377 BC) pointed to knot and sewing seams, the use of ligatures of horse hair and ribbons of tree bark. Galen (2nd century AD) mentions intestinal strings as a material for the suture. To bring the edges of the wound closer together, the Arabs used the insects ZsagIeh rugetop, whose well-developed jaws are armed with hooks; the jaws of the insects connected the edges of the wound, and their bodies were removed by unscrewing. The Arab surgeon Abulkazim in the second half of the tenth century mentioned the suture. The vitality of this method is due to its exceptional effectiveness, and the need for suturing is based on the biological characteristics of the organism. In order for the wound to heal with the initial tension, it is necessary that its walls and edges are tightly connected. Indications for suturing are fresh, without visible contamination open traumatic injuries, wounds after primary treatment and aseptic surgical rags. Sutures are applied in order to: a) protect the aseptic wound from microbial contamination and further development of infection in it; b) create the best conditions for tissue regeneration; c) accelerate the healing of granulating wounds; d) reduce tissue tension and wound healing; e) help stop bleeding.

Topic №9 Temporary and permanent cessation of bleeding. Help with significant blood loss.

Bleeding (bleeding from blood vessels outside or into the cavity) can be external or internal. Traumatic bleeding is distinguished by its origin - it occurs due to damage to vascular walls; erosive - as a result of tissue decay; neurotrophic - due to nerve damage; bleeding that occurs after removal of the tourniquet is called paralytic.

Depending on the time of formation, bleeding can be primary (starting immediately after vascular damage) and secondary (occurring some time after injury due to slipping of the negatura, removal of blood clots, tissue breakdown, etc.).

Depending on the type of damaged vessel, bleeding can be argorical, venous, capillary and parenchymal (from organs).

Arterial bleeding is characterized by the leakage of a pulsating jet of bright red color; when large arteries are injured, death from bleeding quickly occurs. At venous bleeding the stream has dark red color; when very large veins are damaged, the death of the animal is also possible; when small veins are injured, the bleeding stops on its own. With capillary bleeding, the blood flows in drops, which, when combined, can form jets. Such bleeding is not dangerous. In parenchymal bleeding, blood flows from a large number of small arteries and veins of the damaged organ; such bleeding is strong and long.

Topic №10 Plastic surgery

Plastic operations are bloody operations performed to restore the shape, continuity and function of lost tissue, replace the destroyed part of any organ or transplant an entire organ. In veterinary medicine, plastic surgery is used mainly to restore lost skin and mucous membranes in cases where this cannot be achieved by applying normal sutures. The huge volume and variety of plastic surgery includes: 1) transplantation, or transplantation (free plastic), when the tissue to close the defect is transferred from adjacent or remote areas by complete separation from this place or from another animal. Varieties of transplants include: transplantation of tissue preserved in the cold according to Filatov; transplantation of fresh tissue (immediately after its separation); artificial tissue transplantation (alloplasty). Methods of replacing a tissue defect are determined by the type of material used for transplantation. Based on this, there are: a) autoplasty - tissue to replace the defect is taken from the same animal to which the transplant is performed; b) homoplasty - use tissues of another animal, but of the same species; c) heteroplasty - tissue is transplanted from an animal of another species; d) alloplasty - use artificial fabrics of synthetic origin. 2) the actual plastic (non-free plastic), when the tissue to replace the defect is cut out next to it and moved to
the defect without complete separation from this place, and when this tissue is fed through the leg or bridge. A special type of plastic is to close the defect with a round stem (according to Filatov). Thanks to the research of Filatov, as well as Bogoraz, Limberg and others, plastic operations in humans are perfectly developed.

**Topic №11 Desmurgia**

A bandage is a means of providing rest to the affected area of the body. Bandages are used to: 1) stop bleeding from wounds (compression); 2) protection of wounds and body parts from external action (protective bandage); 3) absorption of blood, lymph and wound secretions (absorbent, or absorbent, bandage); 4) treatment for closed lesions and various inflammatory processes of soft tissues (medical bandage, bandage-compress); 5) treatment of wounds and their protection from external harmful influences (wound dressing); 6) strengthening of the body with fractures, dislocations and other processes (fixed, or immobilizing, bandage).

Most dressings consist of three parts: 1) a bandage that is applied directly to the wound or skin of the animal in the area of injury (often called a bandage); 2) hygroscopic (absorbent) or insulating material; 3) tissue, which fixes in a certain position the dressing material (often it is actually called a bandage). In practice, bandaging is understood to mean therapeutic measures, including removal of the old bandage, wound treatment and application of a new bandage.

**Module 3. Typical surgical interventions in the head, neck, chest wall of domestic animals, laparotomy, gastronomy, enterotomy.**


Methods of anesthesia in the head (nerve block) are considered; treatment of nasolabial mirror rupture in breeding bulls. Methods of decoration in calves and adult cattle are studied. Much attention is paid to the study of diseases of the teeth, tongue, eyes (their etiology, clinical signs, diagnosis and treatment methods). Particular attention is paid to the prevention of these diseases in various species of productive animals.


Methods of anesthesia in the abdomen (infiltration anesthesia, paraumbar anesthesia) in productive animals are considered; diseases that can occur in this part of the body of animals (their etiology, clinical signs, diagnosis and treatment). Particular attention is paid to the prevention of these diseases in various species of productive animals.

**Module 4. Typical surgical interventions in the genitourinary tract, anus, rectum, tail. Castration of domestic animals. Limb surgery**

**Topic №14 Surgical interventions in the genital area.** Castrations.

Castration is the artificial cessation of gonadal function. It can be done in various ways. Most castration is performed by removing the gonads. The function of the gonads can also be stopped by other influences, such as the use of chemicals and hormonal drugs, radiation, immunological castration. Of great importance is surgical castration, which is an important economic operation. Castration causes radical changes in the metabolism of the animal's body and, as a result, peculiar morphological abnormalities in its development. Complete removal of the ovaries in females is called ovariectomy.

Castration of cows and heifers is also performed for economic and medical purposes. Removal of the ovaries leads to an increase in the average daily weight gain, as well as to the improvement of the quality of the meat obtained after the slaughter of these animals. Diseases such as persistent corpus luteum cysts and ovarian neoplasms are treated by surgical removal. In these cases, early removal of the affected organ (before the process has spread to the second ovary) completely restores reproductive capacity.
Ewes that are not suitable for reproduction are also castrated for diseases that are accompanied by an evil temper of the animal and increased sexual excitability (cysts, tumors, etc.), as well as those that cannot be cured.

**Topic №15 Pelvic surgery. Urethrotomy, urethrostomy. Cystotomy.**

Lower urethrotomy (urethrotomia inferior) is performed if the probe rests on a stone at the level of the back of the penis. Fingers grasp the trunk of the penis through the pre- tions, pull it up, straining the skin, and in this position, without displacing the tissues, hold during surgery. At the end of the protruding probe between the bone of the penis and the scrotum strictly along the midline, focusing on the probe, cut the skin, the retractor of the penis, the spongy body of the urethra and the mucous membrane of the urethra. The total length of the incision is 3-4 cm. The stone is carefully removed with tweezers. The patency of the urethra is controlled by the introduction of a soft catheter in the direction of the bladder. The wound is not sutured. It heals in 3 weeks.

Upper urethrotomy (urethrotomia superior) is performed if there are stones or sand in the bladder. A soft catheter is inserted into the bladder. Strictly along the midline, between the sciatic arch and the scrotum, cut all the tissues, focusing on the catheter. Bleeding vessels are bandaged. The bladder is flushed through the hole with a catheter and small urinary stones and sand are removed. The wound is not sutured

**Topic №16 Operations in the anus and rectum. Tail operations.**

Part of the fallen intestine is washed with a cold solution of alum or potassium permanganate, covered with ointment and gently exercised. In severe heartburn (tenesmus) anesthetic fluid is poured into the intestinal cavity through a rubber tube; it also moistens the fallen part of the intestine. If this does not help, perform conduction anesthesia (in pigs and dogs) or low sacral anesthesia (in horses and cows)

the swollen intestine is tried to be reduced in volume by means of circular rounds of an elastic bandage, imposing it, beginning from the free end, to an anus. The intestine is exercised gradually, successively removing the turns of the bandage. The incision should be complete not only on the outside but also on the inside, for which a finger is inserted through the anus and the folds of the intestine are straightened in depth.

Finally, in order to prevent re-loss, apply with a steeply bent needle purse string suture around the anus at a distance of 0.5-1 cm from its edge. The thread is passed through the entire thickness of the tissues of the anus, except for the mucous membrane, controlling the movement of the needle with the index finger pushed into the anus. The thread is tightened so that the anus was narrowed, but at the same time pass for liquid fecal masses and tie a sea knot. The suture is removed on the 7th-10th day.

**Topic №17 Topographic anatomy of the thoracic and pelvic limbs. Limb surgery**

The hooves should be approximately the same size, close to each other, almost without touching the hooks, except when they have a large load and diverge. The angle formed by the dorsal edge of the hoof with the sole is 45-55 °. The ratio of the length of the dorsal wall (from the corolla to the hook) to the bearing surface is 2: 1.

Lack of proper care and untimely cleaning of the hooves lead to deformation of the bone and ligamentous apparatus of the finger, the emergence of pododermatitis and ulcers of the sole of the hooves. At the same time in animals there is a sharp decrease in meat, dairy and reproductive capacity. In order to prevent finger disease, it is necessary to conduct a systematic examination and timely cleaning of the hooves. This requires a special set of tools.

Animals are fixed in a standing position. Concerned and capricious animals 10-15 minutes before the treatment of hooves, it is desirable to use neuroleptics. The limb is lifted and fixed on a wooden file. Using a hoof knife (cutter), remove the entire hard horn of the overgrown sole and the walls of the hoof.
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<th>Theme</th>
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<td>1</td>
<td>TOPIC 1. Safety during operations. Organization of surgical work. Work in the operating room and on the road.</td>
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<td>2</td>
<td>TOPIC 2. Fixation and fall of animals.</td>
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<td>3</td>
<td>TOPIC 3. Asepsis and antiseptics. Surgeon's hands and operating field treatment. Sterilization of sutures and dressings and surgical linen. Sterilization of surgical instruments. Surgical instruments.</td>
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<td>TOPIC 4. Anesthesiology. Superficial, infiltrative anesthesia. Local anesthetics. Preparation of solutions. Regional anesthesia of the head and lateral costal wall. Regional anesthesia of the soft abdominal wall. Regional anesthesia of the urogenital organs. Spinal anesthesia.</td>
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<td>TOPIC 5. Injections, punctures of blood vessels, cavities. AUFOK. Blood transfusions.</td>
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<td>TOPIC 6. Tissue separation. Types of bleeding and ways to stop it.</td>
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<td>7</td>
<td>TOPIC 7. Connections of tissues. Requirements, materials and methods of joining fabrics. Varieties of knots and seams. Types of soft biological tissue sutures. Special types of seams. Intestinal, tendon sutures.</td>
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<td>TOPIC 8. Elements of plastic surgery.</td>
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<td>9</td>
<td>TOPIC 9. Desmurgia. Types of bandages and dressings</td>
<td>2</td>
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<tr>
<td>11</td>
<td>TOPIC 11. Operations in the head</td>
<td>5</td>
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<td>6 semester</td>
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<td>1</td>
<td>TOPIC 1. Trepanation of additional nasal cavities. Ear surgery</td>
<td>6</td>
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<td>2</td>
<td>shells. Salivary gland surgery. Dental surgery. Operations in the orbit.</td>
<td>4</td>
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<tr>
<td>3</td>
<td>TOPIC 2. Operations on the vessels of the neck. Esophagotomy. Tracheotomy. Tracheostomy.</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>TOPIC 3. Surgical interventions in the thoracic region. Thoracentesis, rib resection.</td>
<td>6</td>
</tr>
</tbody>
</table>
Test questions, sets of tests to determine the level of knowledge acquisition by higher education students.

1. Definition of "veterinary surgery" and its content. History and founders of veterinary surgery. Definition of the discipline "Operative surgery with the basics of topographic anatomy, anesthesiology" and its division into general and special parts. Objectives, content and importance of operative surgery to improve veterinary care, increase reproductive function and productivity of animals.


4. Classification of surgical operations by purpose, by nature, by urgency, by asepsis, by time spent, by preserving the integrity of tissues.

5. Indications and contraindications to surgery. Degree of risk during operations.

6. The content of surgery: the concept of rational surgical access (direct and bypass), rational surgical reception, the final stage of the operation.

7. Complications during and after surgery, their prevention and elimination. Postoperative care and maintenance of animals. Therapeutic and economic efficiency of operations.

8. The organization and carrying out out of treatment-and-prophylactic and mass surgical operations in the conditions of livestock farms. Taking into account the epizootic situation during operations.


10. Safety precautions when fixing large and small ruminants. The use of pharmacological agents to calm and immobilize animals (general characteristics of neuroleptics and muscle relaxants) during operations and research of animals.
11. Classification of means of fixation of ruminants.
12. Fixation of cattle in standing and lying positions.
13. Fixation of small cattle in standing and lying positions.
14. Surgical instruments for dissection of soft tissues and stop bleeding, for connection of soft tissues, osteotomy and osteosynthesis.
16. Aseptic-antiseptic method in the modern sense. Prevention of surgical infection and organization of surgical work in the operating room, on farms and in veterinary institutions.
17. Prevention of surgical infection during injections, punctures and other mass operations in animals.
18. General preparation of ruminants for surgery: clinical research, diet, use of drugs that increase the body's defenses, antimicrobial therapy, release of intestines and bladder from the contents.
19. General principles of preparation of the skin of the animal for surgery. The order of preparation of the operating field for the operation.
20. Preparation of the operating field by the methods of: Pirogov, Misha, Borchers, disinfection of the operating field with pervomur, gibitan, degmin, ayatin. Comparative evaluation of these methods.
21. Preparation (disinfection) of the mucous membranes of the eye, rectum and genitals for surgery. Preparation of the operating field on the hooves.
22. Definition of science "Anesthesiology". Importance of anesthesia during operations on animals. The effect of pain on the basic functions of the body. Pain sensitivity of certain tissues and organs in different parts of the body of ruminants.
24. General anesthesia and its types. Anesthesia: definition and classification of anesthesia: depending on the depth, the route of administration, the amount of drugs and the order of their use, the condition of the animal that caused the drug.
25. The course and stages of anesthesia.
26. Examination of animals before anesthesia. Indications and contraindications to its implementation. Preparing animals for anesthesia.
29. Inhalation anesthesia: use of evaporating liquids and gases. Techniques and methods of inhalation anesthesia: mask, drip, endotracheal. The concept of intubation and
insufflation anesthesia.


33. Local anesthesia. Definitions: local anesthesia, analgesia, anesthesia. Indications and contraindications to local anesthesia.

34. The main means of local anesthesia: novocaine, lidocaine, dicaine, prilocaine, menivacaine. Means that enhance the action of local anesthetics. Premedication during local anesthesia (potentiated local anesthesia). Preparing the animal for local anesthesia.

35. Terminal local anesthesia - superficial, infiltrative (linear, circular, cross-section, tight creeping infiltrate according to Vishnevsky, at the fracture site, diffuse). Complications during local anesthesia, prevention and treatment.

36. Regional anesthesia - conduction (stem, plexus, paravertebral, central, peripheral) and spinal (epidural and subarachnoid). Diagnostic and therapeutic value of local anesthesia. Complications during local anesthesia, prevention and treatment.

37. Soft tissue separation (rules and methods). Length, shape and direction of the cut. Types of sections: shape, direction and depth. The concept of rational sections.

38. Features of the incision of the skin and underlying tissues. Disconnection of tissues with ultrasound, electric knife, laser scalpel.


40. Bleeding and its consequences for the body. Determination of bleeding, hemorrhage, hematoma. Blood clotting. Classification of bleeding depending on the type of damaged blood vessel; from localization, from the time of occurrence.

**Test example**

Question 1. What formed the outer inguinal ring?
1 pelvic and abdominal parts of the aponeurosis of the external oblique muscle of the abdomen;
2 slit in the aponeurosis of the internal oblique muscle of the abdomen;
3 interval between inguinal and pupar ligaments;
4 Aponeurosis of the internal oblique muscle of the abdomen and inguinal ligament.
Question 2. At what age are usually castrated bulls for fattening?
1 in 5 - 6 months;
2 in 1 - 3 months;
3 in 2 years;
4 since the appearance of the testicles in the scrotum.

Question 3. Where is the amputation of the tail of boxers and Dobermans?
1 in the middle of the length;
2 remove a third of the tail;
3 at the level of 2 - 4 vertebrae;
4 as close to the root.

Question 4. What kind of surgery is surgery for perforation of the abdominal organs?
1 Emergency, or urgent;
2 palliative;
3 Forced deferred;
4 Planned.

Question 5. Muscle relaxants include:
1 solution of phenolphthalein;
2 Dithiline, diplanine;
3 Antipyrine, aspirin;
4 Antihistamines.

Question 6. Primary surgical treatment of the wound refers to the methods:
1 Aseptics;
2 Antiseptics;
3 Preventive measures;
4 Disinfection.

Question 7. The operative field on the conjunctiva is processed by:
1 3% solution of boric acid;
2 1 - 2% solution of lysol;
3 1 - 2% solution of iodine;
4 2.4% district of the first world.

Question 8. Paramedial incision is made:
1 Between the white line and the subcutaneous vein of the abdomen;
2 From the white line of the abdomen 3 - 5 cm from the base of the udder;
3 At the base of the udder and knee folds and lead in the cranioventral direction 10 - 15 cm above the subcutaneous vein;
4 Below the macula 10 - 12 cm in the direction of the xiphoid process of the sternum.
Question 9. At an overflow of a caecum ovaries at pigs touch:
1 Right abdominal wall;
2 Left abdominal wall;
3 Rectum;
4 Bladder.

Question 10. Pleurocentesis in horses on the left side is performed in the intercostal space:
1 6th; 3 8th;
2 7th; 4 7 - 8th.

Question 11. Which of these bloody methods of castration involves the removal of the testicle, appendage and common vaginal membrane?
1 open;
2 closed;
3 percutaneous;
4 elastration.

Question 12. What is the purpose of resection of the tail of bulls?
1 with cosmetic;
2 to save feed during fattening;
3 to prevent pollution;
4 to prevent injury.

Question 13. The foreskin and penis are innervated:
1 internal pubic nerve, branches of the iliopsoas, iliopsoas and external seminal nerve;
2 only the internal pubic nerve;
3 only the external seminal nerve;
4 only branches of the iliac and iliac nerve.

Question 14. The relative indications for surgery include:
1 Pneumothorax;
2 Acute airway obstruction;
3 Obstruction of the urinary tract;
4 Benign tumor.

Question 15. Mass operative interventions are prohibited in farms where:
1 In a month preventive inoculations will be carried out;
2 1.5 weeks before preventive vaccinations;
3 Prophylactic vaccinations were given 3 weeks before surgery;
4 There is no mechanized feeding process.

Question 16. To calm the animals before the fall and anesthesia use:
1 Lytic mixture;
2 Karetnikov's solution;
3 Atropine solution;
4 Glucose solution 40%.

Question 17. The system of preventive measures aimed at preventing surgical infection by preventing the entry of microorganisms into the wound, tissues, organs, body cavities, is called:
1 Antiseptics;
2 Asepsis;
3 Prevention of surgical infection;
4 Aseptic-antiseptic method.

Question 18. Primary surgical treatment of the wound refers to:
1 Physical methods of antiseptics;
2 Mechanical methods of antiseptics;
3 Chemical methods of antiseptics;
4 Biological methods of antiseptics.

Question 19. Which of the methods of treatment of hands does not require re-treatment after 20 minutes operation?
1 Alfeld method;
2 Spasokukotsky-Kochergin method;
3 Pencil method;
4 Hand treatment with primrose.

Question 20. Abomasum is located in the abdominal cavity:
1 Dorsally on the right side;
2 Ventrally on the right side;
3 Dorsally on the left side;
4 Caudally on the left side.

Education methods
- Lectures.
- Conducting laboratory classes and developing methods.
- Survey during classes.
- Additional weekly consultations.
- Carrying out of boundary control - offset.

Forms of control
- oral examination;
- tests on relevant topics;
- delivery of modules;
- passing the test.
Distribution of points received by students.
Assessment of student knowledge is on a 100-point scale and is translated into national assessments according to table. 1 "Regulations on examinations and tests in NULES of Ukraine" (order of entry into force of 27.12.2019 № 1371).

<table>
<thead>
<tr>
<th>Module</th>
<th>Module</th>
<th>Module</th>
<th>Module</th>
<th>Educational rating $R_{HP}$</th>
<th>Additional points $R_{DR}$</th>
<th>Penalty points $R_{ШТР}$</th>
<th>Control (test or exam)</th>
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<td>0-30</td>
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$$0.7 \cdot (R^{(1)}_{3M} \cdot K^{(1)}_{3M} + ... + R^{(n)}_{3M} \cdot K^{(n)}_{3M})$$

$$R_{HP} = \frac{\text{TOTAL}}{N} + R_{DR} - R_{ШТР},$$

$$K^{(1)}_{3M} = ... = K^{(n)}_{3M}. \text{ Тоді вона буде мати вигляд}$$

$$0.7 \cdot (R^{(1)}_{3M} + ... + R^{(n)}_{3M})$$

$$R_{HP} = \frac{\text{TOTAL}}{N} + R_{DR} - R_{ШТР}.$$ 

The rating on additional work $R_{DR}$ is added to $R_{HP}$ and can not exceed 20 points. It is determined by the lecturer and is provided to students by the decision of the department for the performance of work that is not provided by the curriculum, but contributes to improving the level of knowledge of students in the discipline.

Penalty rating $R_{ШТР}$ does not exceed 5 points and is deducted from $R_{HP}$. It is determined by the lecturer and is introduced by the decision of the department for students who mastered the material of the content module late, did not follow the work schedule, missed classes and so on.

2. In accordance with the above Regulations, the preparation and defense of the course project (work) is assessed on a 100-point scale and further translated into assessments on the national scale and the ECTS scale.

<table>
<thead>
<tr>
<th>Total points</th>
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<tbody>
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<td>Good</td>
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<td>0-59</td>
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</table>
Methodical support:
1. Конспект лекцій, учбові таблиці, слайди, відеофільми, мультимедійна система.
2. Підручник «Оперативна хірургія».
4. Навчальний практикум «Оперативна хірургія»

Recommended literature:

Basic:
4. Власенко В.М., Тихонюк Л.А. Хірургія в конярстві. – К.: Урожай, 1995. – 255

Additional

Information resources:
https://www.oie.int/en/home/
https://uk.wikipedia.org/