

**MINISTRY OF HIGHER AND SECONDARY
SPECIAL EDUCATION OF THE REPUBLIC OF UZBEKISTAN**

**SAMARKAND STATE UNIVERSITY OF VETERINARY MEDICINE,
LIVESTOCK AND BIOTECHNOLOGIES**

**VETERINARY PROPHYLAXIS AND TREATMENT
FACULTY**

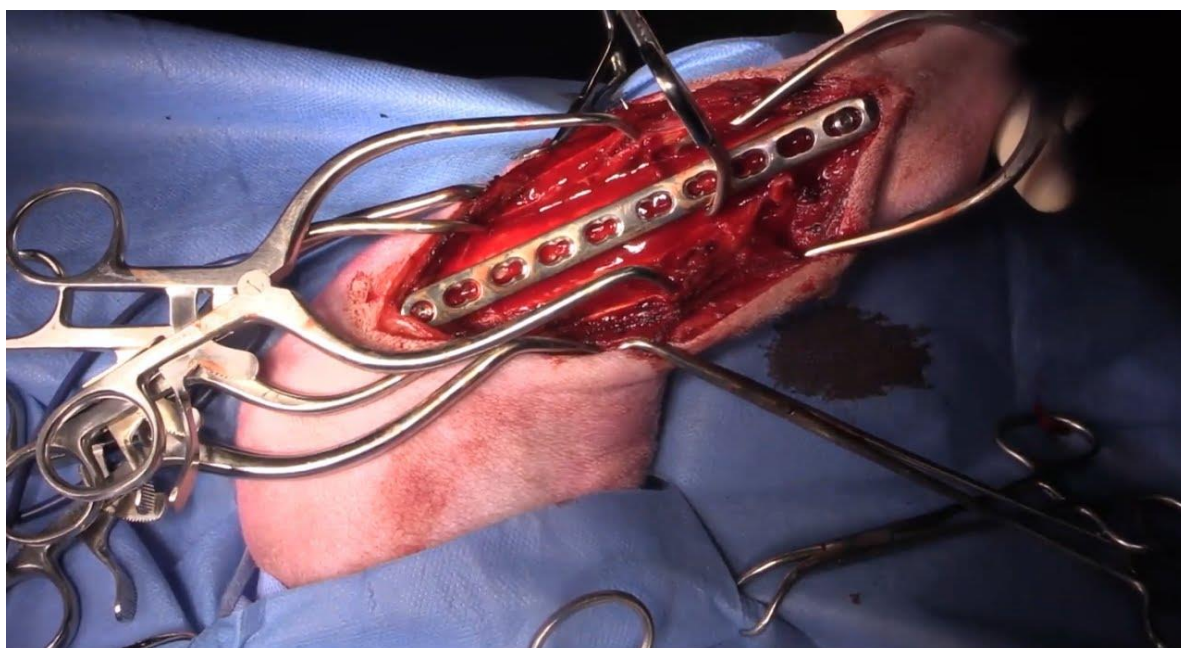
VETERINARY SURGERY AND OBSTETRICS

5440100 - Veterinary medicine (by type of activity)
Stage 4 is for students of group 414

**By subject
« DISEASES OF ANIMALS OF MILITARY SERVICE »**

MODERN DIAGNOSIS AND TREATMENT OF BONE FRACTURES.

**On the subject of the laboratory training
open class handouts**



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Modern diagnosis and treatment of bone fractures laboratory training technology on the topic

Lesson time: 80 minutes	Number of students: 14
Form of training	Demonstration laboratory - training
Theme plan	2.1. Treatment of bone fractures with modern methods. 2.2. Clinical signs of fractures. 2.3. Types of fractures 2.4. Osteosynthesis technique
The purpose of the laboratory session: to provide students with an understanding of modern methods of treatment of bone fractures in service animals and to acquire the skills of fixation of broken bones by osteosynthesis methods. Independent work - gaining deep understanding of modern methods of treatment of bone fractures and learning new methods of treatment..	
Pedagogical tasks: 1. To provide an understanding of methods of treatment of bone fractures with modern methods. 2. To teach the clinical signs of fractures. 2. Explain the types of fractures. 4. Explain the technique of osteosynthesis.	Results of educational activities: 1 He will have knowledge about the treatment of bone fractures with modern methods. 2. They create an idea about the clinical signs of fractures 3. Understand the types of fractures. 4. They learn the technique of osteosynthesis.
<i>Educational methods</i>	Quick question-and-answer, conversation, cluster, brainstorming, dialogic approach, problem-based learning
<i>Educational tools</i>	Dogs with broken bones of various breeds, special machines, fixators, splints, anesthesia, external fixators, surgical instruments, hemostatic agents.
<i>Forms of education</i>	Team work, small groups.
<i>Teaching conditions</i>	An audience designed for the use of technical tools and working in groups
<i>Monitoring and evaluation</i>	Oral, question-and-answer, assessment based on the Hemis system .

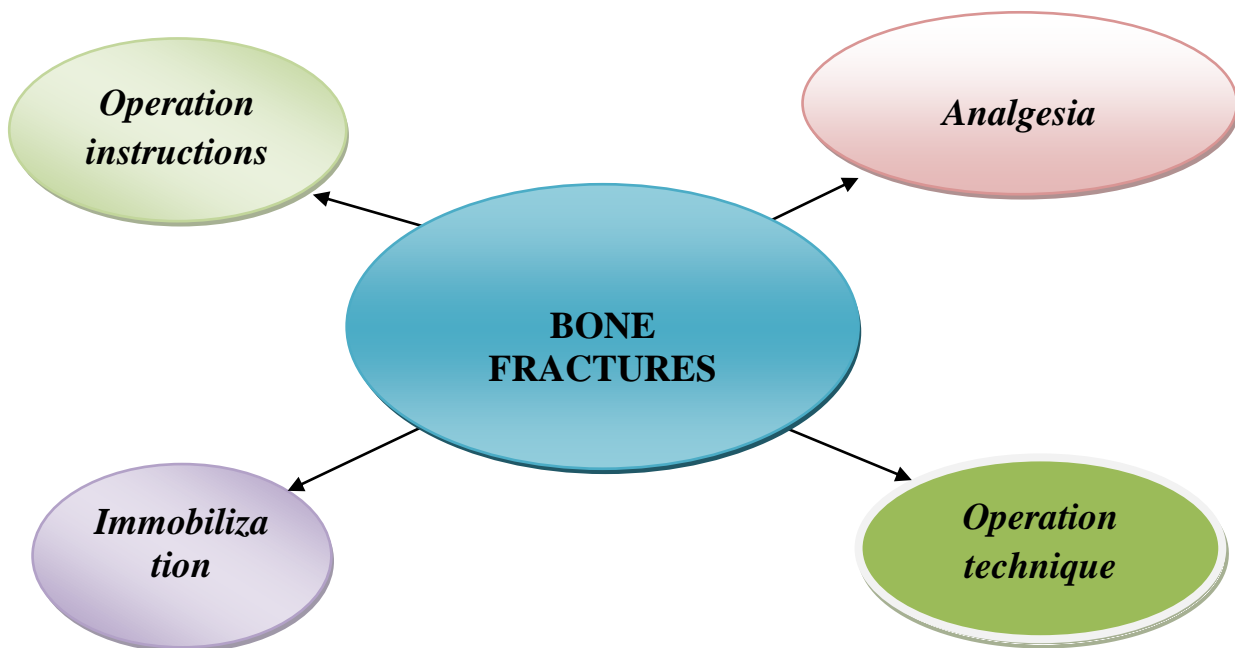
Technological map of laboratory training

Work steps and time	Activity content	
	educator	learners
1st stage. Access to training (10 min.)	1.1. The laboratory informs the subject, purpose and plan of the training, introduces the learning results expected from the training	1.1. They listen and write.
2nd stage. Main (60 min.)	2.1. In order to recall the previous topic and to determine what they learned as a result of reading the text of the laboratory exercise, they conduct a blis-survey. 2.2. He will have knowledge about the treatment of bone fractures with modern methods. 2.3. They form an idea about the clinical signs of fractures 2.4. Understand the types of fractures. 2.5. They learn the technique of osteosynthesis.	2.1. He remembers, answers questions. They write. 2.2. Discusses the content of diagrams and tables. Questions are asked and the main points are recorded. 2.3. Remembers, writes. He tries to answer every question.
3rd stage. Final (10 min.)	3.1. Concludes the topic, forms general conclusions, motivates actively participating students. Reveals the importance of acquired knowledge. 3.2. Inactive students are asked questions and evaluated. 3.3. Gives an assignment for independent work and introduces its evaluation criteria.	3.1. hears clarifies. They write down assignments .

Key words: Bone fractures, clinical signs of fractures, diagnosis, consequences, partial fractures, complete fractures, healing of bone fractures, conservative methods, osteosynthesis technique, intramedullary osteosynthesis, plate osteosynthesis.

MENTAL ATTACK METHOD

1. How are bone fractures classified by the time of onset?
2. What do you know about conservative treatment of bone fractures?
3. Give information on the treatment of bone fractures by the method of osteosynthesis.
4. How are bone fractures classified according to their anatomical features?
5. When is the primary bone pack formed?
6. What wires are used to connect broken bones?

CLUSTER METHOD**“WORKING IN SMALL GROUPS”.**

Working in small groups ensures the activity of students in the lesson, gives the right to participate in a discussion for each of them, is able to learn from each other in an audience, teaches to appreciate the opinion of others.

13. laboratory training. MODERN DIAGNOSIS AND TREATMENT OF BONE FRACTURES.

Training plan	<ol style="list-style-type: none">1. Types and causes of bone fractures.2. Modern diagnosis of bone fractures.3. Treatment of fractures by conservative and operative methods
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Key words: bone fractures, rickets, osteomalacia, osteodystrophy, hypovitaminosis, local bone diseases necrosis, caries, osteosarcoma, musculoskeletal immobilization, conservative methods, Intramedular osteosynthesis, Plate osteosynthesis.

Literature used:

1. Niyazov H.B. "Veterinary Surgery". Textbook, Samarkand, 2023.
2. Ziyodinova F. and others, "Fundamentals of Kinology", training manual, Tashkent. 2003.
3. Rustamov H.Q., Akbotayev Ya.O., Narziyev B.D. "Operative surgery". Study guide, Samarkand, 1997.4. www.ziyo.net.uz
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Anatomical-topographic structure of bones. The skeleton is divided into two parts – the spine and the peripheral skeleton. The first includes the skull, spine and tail, while the second – the areas of the front and hind legs.

The spine is composed of the vertebrae of the neck, chest, waist, buttocks and tail. Of this, the cervical vertebrae are 7; the thorax is 13, the waist is 7, the buttocks are 3, and the tail vertebrae are 20-23. A pair of ribs attach to each thoracic spine, which in dogs reach 13.

Bone fractures are said to be a partial or complete violation of the anatomical integrity of the bone and damage to the surrounding soft tissue as a result of any impact. Bone fractures are congenital and ordered by time of origin, traumatic, pathological (spontaneous).

1. Open, closed and numerous in the nature of the violation.

2. By location-flat bone fracture and wedge-shaped bone fracture.
3. In the case of anatomical characters – epiphyseal, diaphyseal, metaphyseal, epiphyseal is separated from diaphyseal.
4. By the nature of the disorder – complete and partial fractures.

Bone fractures are accompanied by damage to soft tissues as a result of various factors. These factors include crashing, falling, slipping, abrupt or sudden muscle contractions, and ejaculation. In addition to causing bone fractures from mechanical factors rickets, osteomalacia, osteodystrophy, hypovitaminosis, local bone diseases necrosis, caries, osteosarcoma, etc., which are factors that lose bone stiffness and they also break in weak structures. In bone fractures, muscles and capsules are torn, blood and nerve vessels are severed.

The origin of bone fractures is divided into two: congenital and acquired.

Congenital, that is, due to the strong constituents supplied by the abdomen or caused by the strong contractions of the uterus. Contributing factors are deficiencies during fetal development such as osteomalacia, rickets, etc.

Acquired bone fractures are in the process of childbirth, and postnatal to this can be traumatic, pathological, spontaneous and physiological (old age osteopenia, steaming, giving a lot of milk and poor nutrition).

Bone fractures are open and closed depending on their nature, and open bone fractures are much more dangerous. Fractures of several bones at the same time are called multiple bone fractures.

Fractures are divided into flat, wedge-shaped and rounded bone fractures, depending on their location. Fractures in the tubular bones are distinguished as epiphyseal, diaphyseal and metaphyseal. Bones are complete and incomplete depending on the degree of fracture.

Students learn clinical signs of a fracture based on animal examination (observation, palpation, auscultation, walking). Learn to fix the fracture, put on tire and plaster ties. Studies treatments in open fractures and osteomyelitis. In the presence of a diseased animal, students examine the animal to diagnose, prescribe treatment, and perform it.

Clinical signs of fractures. At the time of a fracture of the bones of the foot, its function is impaired, it becomes limp. Severe pain occurs when nerve receptors tickle as a result of broken bone ends, muscle contraction, and disruption of static apparatus. Deformity occurs as a result of the displacement of the areas of the broken bone ends or a strong blood clot to the tissues. When comparing with a healthy leg, it is observed that the broken leg is in an irregular shape, and deformity is observed in the place of the fracture.

A characteristic clinical sign of a completely broken bone is its mobility at the fracture site. To determine this, move with one hand over the broken area, with the other hand to the sides, holding it from the distal part. Bone crunch (crepitation) is detected when moving the broken area. When examining a broken leg, the animal feels intense pain and becomes restless. Swelling occurs due to blood clots in soft tissues, lymphatic and circulatory disorders.

Diagnosis. Clinical signs and differential diagnosis data are assorted. Basically, it is differentiated from rupture, in which clinical signs are less

pronounced, movement and crackling are not observed in the fracture. The final diagnosis is X-ray of the fracture site.

The end. Age, type of animal bone and tissue damage, time of fracture, type and shape of fracture are taken into account.

Partial fractures:

1. Cracks (cracked) – perforator, superficial, singular and plural.
2. Fracture of a part of the bone without separation.
3. Fragmented fracture of the bone is observed, mainly at the edge of the bones.
4. Fractures under the bone curtain.
5. Holes.

Complete fractures: in the direction – transverse, oblique, longitudinal, spiral, tooth-shaped.

In the case of damage to bone tissue – stumbled, broken, crushed, disconnected, hit by a bullet.

Etiology - various mechanical influences.

Secondary causes are pathological and physiological changes in bone tissue.

In closed fractures, pain, impaired leg function, defiguration (change in shape), movement of bones from the joint, bone crepitation are observed.

In partial fractures, pain and dysfunction are little known.

Bleeding, pain, damage to soft tissues and headaches are observed in open fractures.

The end of bone fractures – the integrity of the broken bone is restored by the formation of bone packaging.

Main sources of regeneration:

1. Internal cambial floor of the bone curtain.
2. Endost.
3. Bone marrow.
4. Endothelium of the vessels of the Havers canals.
5. Young connective tissue that turns into bone.

The primary bone packaging is made up of the ones next to it:

1. Periosteal sac.
2. Endosteal sac.
3. Intermediate packaging.
4. Paraosseal or sac near the bone.

Treatment of bone fractures with conservative methods

In closed fractures, it is necessary to prevent the mobility of the injured limb and the mutual displacement of broken bone fragments. A closed fracture should not be allowed to turn into an open fracture. To do this, planks are placed on the broken place. In acute fracture, surgical processing is carried out. For immobilization, a board made of plywood, tree trunks, boards, tree bark; wire, plasticine, metal is used. In closed fractures, broken fragments are properly attached to each other, and their musculoskeletal immobilization is ensured.

Osteosynthesis technique in bone fractures

Attachment of bone fragments by bloody method is said to be osteosynthesis. Aluminium, latun, nickel, molybdenum and copper wires are used for bonding. They need to be up to 2– 6 mm in diameter. Spisas, nails, bandages, stainless plates, scobs, bone trans-plantants, and metal screws are used to cross-attach broken bone fragments. The distraction tire consists of metal SPIs and plates.

When the bone is broken, the main goal is to straighten the broken bones in their places and in this case, it is taken not to deform without providing functional tension, until the bone Mazol is formed. To do this, students prepare an area of surgery and are injected around the fracture and muscles with a 1% novocaine solution, or aminazine is injected between the muscles. If a solution of 5-10 ml of Novocaine is injected between the broken bones, after 5-7 minutes the muscles relax. For pain relief – conduction, epidural and large animals can sometimes also be used narcosis. After the pain relief, bone fractures should be repositioned (returned to place). To do this, the broken bones are placed in their place, holding them from the proximal and distal part of the fracture, bending, twisting and making other types of movements. When broken bones are clearly placed in their place, blood circulation and innervation are restored, the finish is quick, and the functional impairment disappears.

Fixation of a broken bone

The bones are fixed with a tire or plaster tie after they are placed in place. The assistant holds the broken area without moving it, the plaster bandage is wrapped in a spiral from bottom to top, after 4-5 layers of plaster bandage are applied over it with a plaster mixture. The plaster bandage is dipped in warm water before wrapping, then the water is slightly squeezed out and wrapped in a broken place in this holat.

In the case of open bone fractures, the wound is treated – primary surgical. By revising the wound, broken bone fractures are removed, cleaned of dead tissue, cut open if there are pockets. the wound is sprinkled with white streptocide or an emulsion of Vishnevsky is applied. A closed plaster tie is then placed. For the purpose of keeping the plaster bandage in a sterile state, chlorinated lime (40-50 g of lime to 4 l of water) or 2% chloramine solution is ivitized. To prevent infection, penicillin is administered between the muscles, sulfanilamide drugs are injected into the vein.

Hemotherapy, tissue therapy, 10% calcium chlorine, vitamin C, D, followed by less-to-less walking, massage, ultraviolet light are used to stimulate the wound. After 5-6 weeks in adult animals and 3-4 weeks in small animals, the plaster bond is removed.

Intramedular osteosynthesis

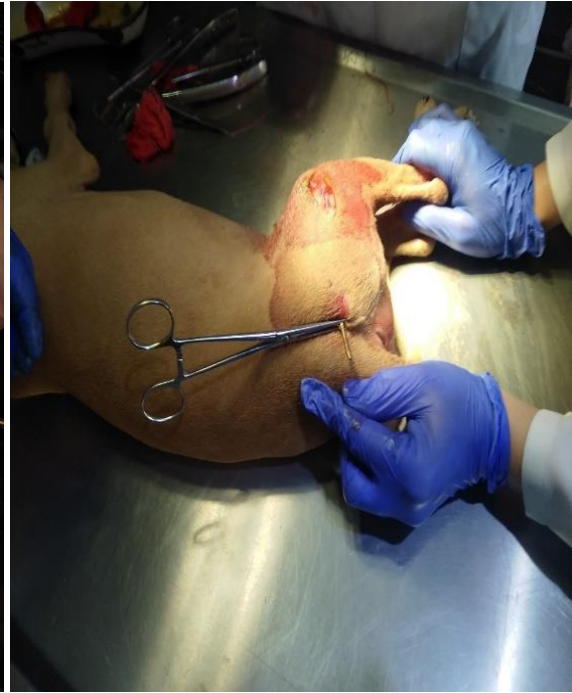


Plate osteosynthesis

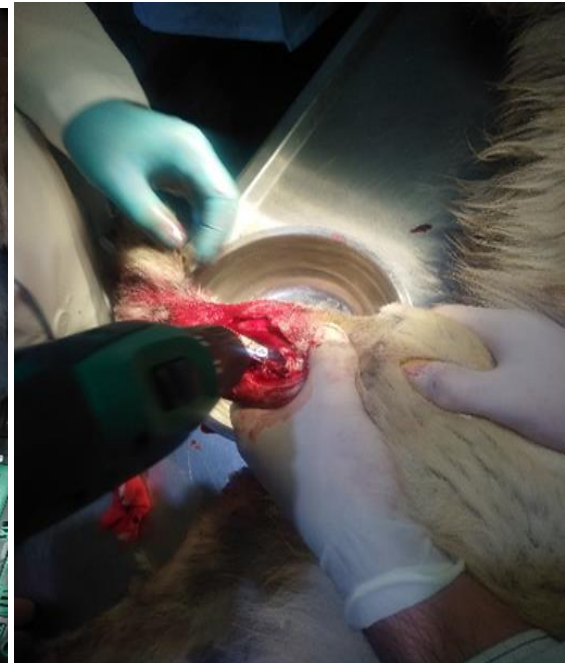
Plate osteosynthesis

Keeping dogs newly brought to the farm in quarantine for 30 days;

3. Before the exhibition, competitions are organized, all dogs must be vaccinated against plague and other infectious diseases;

4. Compliance with the rules of storage and feeding;

5. Regularly carry out disinfection work.





All healthy dogs are vaccinated against the plague. Vaccination begins with 2-month-old canine children, who are revaccinated in 14-21 days. Adult dogs are vaccinated once a year. In the territory of Uzbekistan, the following vaccines are used for the Prevention of plague: ChPAG, Biovak, Multican-4, Multican-7; Duramon, Kinoron biopreparate can be used for the prevention and treatment of plague. Before vaccination for the first time, dog children should definitely be dewormed.

