

**MINISTRY OF HEALTH OF UKRAINE**  
**POLTAVA STATE MEDICAL UNIVERSITY**

Department of general surgery

**METHODICAL INSTRUCTIONS**  
**FOR STUDENT SELF-DIRECTED WORK**  
**WHEN PREPARING FOR AND DURING PRACTICAL CLASS**

<b>Study discipline</b>	<b>General surgery</b>
<b>Module №1</b>	<b>INTRODUCTION TO SURGERY. SURGICAL EMERGENCY CONDITIONS. FUNDAMENTALS OF ANESTHESIOLOGY AND INTENSIVE CARE</b>
<b>Content module 4.</b>	<b>Injury and damage.</b>
<b>Lesson theme №16</b>	Wounds, definitions, classification. The structure of the wound and the course of the wound process. Features of a modern gunshot wound and mine explosive damage. Accidental contaminated wound: conditions for the development of the infectious process in the wound and their elimination (PCO). Clean postoperative wounds, treatment features.
<b>Years of study</b>	<b><i>III</i></b>
<b>Faculty</b>	<b>International</b>

Poltava

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### **1. Relevance of the topic :**

When meeting with wounds and wound healing process should be noted the long history of the pathogenesis and treatment of this disease . Interest and attention to the old problem of constantly changing with advances in medicine , biology and engineering . Timely diagnosis and scientifically based treatment of wounds is among the most important problems of surgery, because it is a method of preventing wound infection. Most patients who have had recourse to withdraw from a difficult traumatic shock and die from complications of septic wounds.

This topic needs a perfect study of wound healing , methods of diagnosis, prevention , treatment and understanding of the pathogenesis of systemic inflammatory response of the body to kill , which in turn prevent the occurrence of complications during the wound healing process .

### **2 . Learning Objectives :**

1. Know etiology , pathogenesis, clinical and morphological characteristics of wounds , methods of diagnosis and monitoring of the progress of wound healing; modern principles of wound healing methods
2. Explain clinical picture of the wound.
3. Explain local morphological changes according to the phases of wound healing .
4. Analyzed the clinical and morphological features of the form of wound healing .
5. To be able to characterize the therapeutic agents that are used for the topical treatment of wounds and the prevention of infectious complications
6. Rate indication for active surgical treatment of wounds.
7. To analyze the clinical and morphological features of the effectiveness of the treatment of wounds
8. Make a plan for the prevention of wound infection.
9. Master the skills of transportation of patients from ward to clean the dressing , shifting from rolling on the operating table .
10. Carry out postoperative examination and take care .
11. Write out prescriptions drugs in the treatment of patients with wounds .

### 3 . Basic knowledge , skills, habits, necessary for studying the topic ( interdisciplinary integration)

Name of previous disciplines	The skills
histology	Know the histological structure of the skin, adipose tissue, mucous membranes. Determine the clinical and morphological features of wound healing of primary and secondary intention. Know the basic mechanisms of life and regeneration of wounds.
anatomy	Know the surgical anatomy of the human body.
pathological anatomy	Violation of trophic tissue. Compare features of pathological changes in the skin and its derivatives.
microbiology	Determine the resistance of vegetative flora to thermal radiation energy, chemicals. To possess elements of bacteriological research. Sterility control. Tech fence material.
biochemistry	Metabolism. Evaluate the results of clinical, biochemical studies of blood and urine tests.
hygiene	To be able to apply the principles of care for surgical patients (hygiene of patients with the disease site).
pharmacology	Know the medicines and ways of their introduction, the mechanism of action. Compare pharmacological action necessary antiseptic and medicinal products.

#### **The student must have an idea :**

- On the etiology, pathogenesis , classification , clinic, and the structure of the wounds
- modern classification of the progress of wound healing ;
- types of wound healing
- the general reaction to inflammation
- a special methods of clinical examination of patients .

#### **The student should know :**

- The basics of aseptic and antiseptic
- definition of " injury "
- the etiology and pathogenesis of injury
- the histological structure of the skin, adipose tissue , mucous membranes ,
- possible general and local complications
- the main stages of surgery
- especially management of wounds
- methods wound healing ;
- different kinds of dressings that can be used
- the principles of care for patients with wounds
- the basic mechanisms of life and regeneration of wounds.

#### **The student should be able to:**

- Apply the principles of care for surgical patients (hygiene of patients with the disease site )
- examine the patient and the site of disease
- to be able to provide clinical interpretation of the identified symptoms

- form a clinical diagnosis
- to appoint conservative treatment for wounds in different locations
- to justify the indication for surgery intervention
- to conduct post-operative monitoring of patients and to care
- to apply preventive agents of infection in the wound

#### **Mastering practical skill of student :**

- Learn the technique of palpation to determine the boundaries impressions of tissues, organs ,
- identify signs of inflammation in the wound
- learn to identify fluctuation or softening in the fire of inflammation
- learn to wash the wounds with antiseptics
- to determine the clinical and morphological signs of healing of primary and secondary intention ;
- Blending technique to improve various types of dressings, depending on the location of the wound
- technique master sampling material microflora sensitivity to antibiotics.

#### **4. Tasks for self-study in preparation for the lesson.**

##### **4.1. The list of basic terms, parameters, characteristics, which the student must learn in preparation for the class:**

<b>contamination</b>	The penetration of microbes in the human body (microbial contamination)
<b>asepsis</b>	A set of tools and organizational practices aimed at preventing the entry of microorganisms into the wound
<b>antiseptics</b>	A set of tools and organizational practices aimed at combating the existing infection in the wound
<b>dressings room</b>	The room, a room that Health Standards has a floor and walls covered with tiles, the tables are covered with oil paints, suitable for washing and sanitizing.
<b>irrigation</b>	Washing of voids
<b>instillation</b>	surface irrigation
<b>dressings</b>	Made from different microscopic tissue products that are used in surgical practice for drying wounds, stop bleeding, remove the contents of the wound, to strengthen the lining and bandages.
<b>lines Langersa</b>	The course of elastic fibers in the skin, according to what and make the cut

##### **4.2 . Theoretical questions for the class :**

1. The modern view of the etiology , pathogenesis, clinical and morphological characteristics of wounds.
- 2 . The clinic, diagnosis of wound healing .
- 3 . Methods for diagnosing and monitoring the progress of wound healing .
- 4 . Modern principles and methods for the treatment of wounds.
- 5 . Types of wound healing.
6. Technique of active surgical treatment of wounds .
7. General characterization of therapeutic agents that are used for the topical treatment of wounds and the prevention of infectious complications.
8. Technique of active surgical treatment of wounds .

9. Basic mechanisms of wound healing and life .
- 10 . Treatment of wounds depending on the phase of wound healing .
11. Preventive measures for the development of infected wounds.

#### **4.3. Practical work (task ) that are used in class:**

1. Transporting patients to the dressing .
- 2 . Laying the patient on the dressing table according to the zone of the dressings.
- 3 . Treatment of hands to perform ligation .
- 4 . To be able to put on a sterile gown .
- 5 . To collect anamnesis in patients.
6. To evaluate the results of laboratory research methods and plan further investigation .
7. A plan of treatment a particular patient .
8. Drawing up of a landmark epicrsis .
9. Development of primary documentation ( medical records ) .
- 10 . An analysis of archival material.
11. Prepare a kit for washing wounds and drainages.
12. Prepare a set for performing ligation .
13. Conduct dressings.
14. Specimen collection for bacteriological control .
15. Different types of cleaning in contaminated dressing .
16. Disposal of dressing.
17. Simulate the actions of the medical staff for suspected an infection in the wound.
18. Manufacturing tables and other illustrative material (photos , slides, drugs) .

#### **5 . The content of the topic.**

**The wound (vulnus)** - a mechanical violation of the integrity of skin or mucous membranes with possible damage to the surrounding tissues.

The clinical picture of the wound depends on the local disruption of tissues and organs , and from the general reactions of the body in response to injury. Local symptoms of wounds are the pain in the wound , cover the defect , sometimes deep tissue or wound dehiscence , bleeding.

Pain at the time of injury is predetermined mechanical damage receptors in the nerve trunks . Gaping wound its predetermined value , the depth and the number of cross-crossed elastic fibers of the skin. Bleeding depends on the number and anatomy of damaged blood vessels. Clinic and the symptoms will be related to the localization , bleeding , injury to vital organs , and will depend on the progress of wound healing , the development of infection.

Wound structure : edge walls, a bottom , corners, content .

#### **Classification of wounds.**

- I. For the nature of the injuries : gunshot inflicted by machetes
- II. For the nature of the tissue damage , depending on the agent, which hurts : chopped , cut, chopped , bitten bullet , mixed , poisoned , abrasion , scratch.

III. The shape of the defect : linear, perforated , scrappy .

IV. The degree of tissue destruction : a wound with a small area of damage , which is characterized by a small tissue destruction over the course of the wound channel ; wound with a large area of damage , which was formed as a result of clogged difficult subject at work, road adventures, natural disaster.

V. For the depth of damage : surface , penetrating , pass-through , tangentsial .

VI. For damage : operating , random .

VII. The degree of its infection : aseptic contaminated by microbes, infected .

VIII. For wound healing : healing by first intention , healing by secondary intention.

Reza wound has a linear shape , sharp edges gaping , bleeding heavily . Cloth around her little break . Gaping wounds allows for its examination , helps drain the wound secretions . This wound has favorable conditions for healing .

Chopped wounds are characterized by great depth with possible damage to the bones and vital organs , and concussion external tissues , bleeding which slows regeneration.

Puncture wounds have considerable depth and slight damage to covers, winding wound channel .

Clogged , torn , marked and wounds are characterized by a large number of marked , scored , blood leakage tissue with reduced viability.

Abrasion and scratch do not have much damage , but can be a gateway for infection.

Bitten wounds are characterized by a massive infection of the virulent flora of the mouth of animal or human, that leads to fester . Been the hardest complication - there is infuriating .

Gunshot wounds are different from other healing of the wound channel depth , complex changes of anatomical relationships of tissues, the presence of traumatic necrosis , a high degree of infection .

### Wound process .

Functional and morphological changes that occur in the wound , have a certain sequence , and can be differentiated on the progress of the phase of wound healing .

Recently, the largest spread of acquired classification MI Cousin (1977), in which the emphasis - the phase of inflammation, which is divided into two periods - vascular changes during the period of purification and half dead tissue from the wound , the second phase of the regeneration , the formation and maturation of granulation tissue , and the third phase is scar formation and reorganization . BG Datsenko et al (1985 ) proposed a classification of the wound healing process , according to which there are three successive phases of the stroke in the festering wound : purulent necrotic phase , for which the wound is necrotic tissue and pus , swollen and sealed the edge , phase granulation - when the wound is cleaned of necrotic tissue and pus and displays the granulation tissue , which gradually fills the void wounds epitelization phase when the wound surface is covered with epithelium, and scar sclerosed .

In the **first phase** of wound healing in the wound site is swelling, redness , fever, tissue enhanced pain energized function . Migrating into the area of inflammation , white blood cells for the past one - and time form a circle areas of necrosis zone of disengagement . Neutrophilic phagocytes perform the function of phagocytosis in relation

to microbes and necrotic tissue due to intracellular proteolysis. Proteolysis passes through proteolytic enzymes that are introduced from the blood and the surrounding tissues. Lysosomes and macrophage phagolysosome contain powerful set of lysosomal enzymes, ribonucleases, cathepsins, acid phosphatase, etc., which play a different role in phagocytosis.

**The second phase** of wound healing begins after 2-3 time after the injury. Wound cleansing contributes to attenuation of inflammatory processes. Normalizes microcirculation. In the wound decreases the number of pathogenic microorganisms and active phagocytes appear tissue cells, which showed proliferation and regeneration.

In the proliferation of new blood vessels are formed. Granulation tissue contains a large number of fibroblasts and elastoblasts that form collagen and elastic fibers.

The second phase of wound healing process finishes filling the wound defect with granulation tissue and its maturation.

**The third phase** of wound healing - scarring and epithelisation - begins in 2-4 weeks. An active process of formation of scar tissue. However, formation of epithelium of the skin occurs.

This scheme of healing inherent in all types of wounds.

### **Wound healing.**

The clinical and morphological features distinguish primary and wound healing by **secondary intention**.

Healing by **primary intention**, subject Clash of the possible sides and edges of the wound and the lack of conditions for the development of infection. It is for 5-8 days. First, narrow the gap between closely spaced walls of the wound is filled with blood, which collapses to form strands of fibrin. The threads of fibrin glue the wall and the edge of the wound, however, there are repair processes.

Wounds heal by **secondary intention** in the case where there is a large tissue defects, edge and wall are at a great distance or in a wound is foreign bodies. Void wounds gradually filled with granulation tissue and gradually scars. Healing takes those same phases of wound healing, and that the healing by first intention, but with distinct clinical morphological manifestations of inflammation. Granulation tissue plays an important role not only in wound healing, but also serves a barrier function between the external and internal environment of an organism. Normal granulation tissue is pink, it is granular, relatively hard, not bleeding, with a poor selection. Isolation of a wound is an inflammatory exudate.

### **Treatment of wounds.**

First aid to the injured at the hospital stage is to stop bleeding and protect the wound from further contamination by applying aseptic dressing and if necessary transport immobilization. The basic principles of treatment of purulent wounds include surgical debridement, drainage PVC-tube drainage, prolonged washing with antiseptics, early closure by primary or secondary sutures, general and local antibiotic therapy, an increase in specific and non-specific reactivity. The leading role in the complex treatment of purulent wounds belongs active surgical treatment, which removes necrotic center, which results in a lower total intoxication, hydration and acidosis, normalization of tissue metabolism, that is, the formation of a favorable environment for the progress of the

inflammatory process. In the first phase of wound healing progress of antimicrobial drugs are used, nekrolitichnym and dehydration effects. The great interest of researchers and clinicians is to antiseptics. Antiseptics possess antibacterial properties, the degree of which depends on the concentration of microbial load and duration. Of antiseptics in contaminated surgery, use a 3% solution of hydrogen peroxide, yodopiron, yodovidonu 0.1-0.5% solution of potassium permanganate, etc., but they do not extend deep into the tissues and do not affect the microbial flora.

Of nitrofurantoin drugs for the local treatment of purulent wounds apply furacillin, furagin and solafur as a solution, ointment and powder, which have a high degree of bactericidal to staphylococci and streptococci and low bacterial action to gram-negative microorganisms. Widely used in medical practice dioxidine, dimexide, chlorhexidine, due to their action on gram-positive and gram-negative flora. For the treatment of purulent wounds using proteolytic enzymes of animal (trypsin, chymotrypsin, himoxin) and bacterial (streptokinase, gidrolitin, streptodornaza, terrilitina) origin. These drugs possess nekrolitichnimi, fibrinolitichnimi and anti-inflammatory properties, increase the sensitivity of pyogenic microorganisms to antibiotics. A promising application is in the treatment of purulent wounds multicomponent ointments based on the hydrophilic (levomekol, dioksikol, etc.). The antimicrobial action of these drugs associated with their having the composition of broad spectrum antibiotics. The hydrophilic base allows to absorb exudate, microbial toxins, tissue breakdown products. The use of multicomponent ointments caused the reduction of the period of treatment at 2-3. Over the past few years for the treatment of septic wounds applied vulnosorbtsiya - absorption of wound waste sorbents. Great progress has been sorption methods of therapy. The mechanism of therapeutic action of sorbents in the wound is composed of capillary drainage, antimicrobial activity, stimulation of regenerative processes, adsorption of microbes and their toxins, exudate, inflammatory mediators, enzymes and endotoxins. That is, the effect of sorbents aimed at early restoration of adequate tissue and lymphatic drainage reorganization of the regional lymph channel.

In the II phase of wound healing process, when the wound is completely cleared of necrotic tissue, granulation hiding disappear signs of acute inflammation, for rapid healing impose secondary seams. When the secondary seams do not overlap, granulyaschuyusya wound treated under the bandage. During this period, using drugs that stimulate the regenerative processes, defended the granulation tissue from secondary infections - Vinylinum, vulnuzan, methyluracyl ointment. Widely used physical methods of treatment and ultraviolet laser radiation injury, UHF, electrophoresis.

## **6. Materials for self-control.**

- 1 Know the features of the structure of the surgical wound, which has implications for stroke diagnosis and treatment.
2. Learn the classification of wounds.
3. Know the clinical symptoms of the wound.
4. Know t diagnostic features of certain types of wounds.

### **6.1. Tasks for self-control.**



**question:**

1. Learn the modern phase of wound healing and their diagnostic value.
2. Know the method of anesthesia and the method of primary surgical treatment in patients with clean wounds.

**Problem:**

1. To capture the method of dressing wounds clean .
2. Capture the method of caring for drainage pipes.
3. To master the technique of removal of sutures clean wounds.

**6.2 . Situational problems .**

1. Development infection in the wound contribute to many factors , other than:

- A) In the hematoma
- B) from nerve damage
- C) of blood loss
- D ) shock
- E ) Depletion
- F) lack of foreign bodies

2. In the gunshot wound distinguish all the damage zone , except :

- A) In the area of the wound channel
- B) zone molecular tremors
- C) zone of hemorrhage
- D ) the primary zone of necrosis
- E) zone parabiologic
- F) zone of cell concussion

3. For fragmental wounds characteristic of all, except:

- A) In the complex anatomical lesions
- B ) with the presence of foreign bodies
- C) A high degree of infection
- D), smooth wound channel
- E) is the mandatory presence of input and output openings
- F) uneven skin lesions

**Test problems in the implementation of the " CROK 1 " and "CROK-2 ."**

1. For fresh wound characterized all, except:

- A) In lymphorrhea
- B) pain
- C) bleeding
- D ) muscle twitching
- E) hiatus

2. Degree of pain in the wound determines everything, except :

- A) the number of neural elements in the damage zone
- B) of mental state of the patient
- C) Bit injured
- D) immune status patient
- E) value of damaging the object
- F) the severity of damaging the subject

3. With than related degree hiatus wounds :

- A) the depth of damage
- B) localization of wounds
- C) damage to nerves
- D) damage to the fascia
- E) muscle and tendons' injury
- F) direction of elastic fibers

4. Microorganisms during primary infection across the wound with :

- A) with pincer ligation , the surgical treatment
- B) scalpel
- C) wounded skin
- D) surgical sutures
- E) clothing wounded

5. What wounds heal faster than others :

- A) were playing
- B) minced
- C) bitten
- D) hammered
- E) abrasion
- F) crushed

### **6.3 Tests for self-control (basic knowledge )**

1. In a study of patients with stab wounds of the loss of the right hand side half of the sensitivity of the skin dorsum of the hand and proximal phalanges and , II and part III fingers . What nerve is damaged ?

- A. The elbow .
- B. The middle .
- C. Ray .
- D. Muscle- skin .
- E. Side forearm skin .

2 . In a study of patients with Rosanna wound in the lower third of the front portion of the right tibia found no extension movements tibial joint. Muscle is not damaged. The integrity of the nerve affected by what ?

- A. Subcutaneous
- B. Common peroneal peroneal
- C. Surface .
- D. Deep peroneal .
- E. tibialis .

3 . The victim , aged 37, was applied to injury with a sharp object in the lower portion of the carotid triangle neck. What vessel was damaged while ?

- A. The external jugular vein.
- B. The external carotid artery.
- C. Common carotid artery.
- D. The upper shield-shaped artery.
- E. The internal carotid artery.

4 . In patients after traumatic sciatic nerve transection have trophic skin changes . What is the underlying mechanism of their appearance ?

- A. Phagocytosis of nerve endings.
- B. The phantom pain.
- C. Termination axoplasmic nervus.
- D. Destruction myelin sheath.
- E. Damage Ranv'e interceptions .

5 . The patient , aged 40, an hour ago, was bitten by an unknown dog . Bitten on the left leg wound size 4x2x0, 5 cm What surgical care expedient in this case?

- A. provisory stitches to the wound .
- B. Aseptic dressing .
- C. Ointment bandage .
- D. Toilet wound with soap and water , provisionally stitches to the wound .
- E. Deaf seam.

### **Tests and testing task source of knowledge .**

1. Patient 25 years appealed to the trauma center at the Rosanna wound right hand , planned prischeplennaya against tetanus. What is the measure of non-specific prophylaxis against tetanus should hold?

- A. Prophylactic antibiotics.
- B. introduction of tetanus toxoid .
- C. Primary debridement .
- D. Introduction of tetanus toxoid . E. Introduction of tetanus immunoglobulin.

2. Bolnoy 27 years went to the hospital an hour after he was wounded in the stomach. Stab wound stomach  $0,5 \times 1$  cm with minor bleeding . What kind of assistance to provide to the patient ?

- A. laparotomy , inspection of the abdominal cavity, the primary debridement .
- B. Drainage of the wound rubber band.
- C. Revision of the wound channel probe.
- D. aseptic dressing . E. stitches in the wound.

3 . A patient 29 years old , was admitted with complaints of a cut- laceration lower third of the right thigh , after 8 hours of injury. What are the main means of prevention of septic complications in this case?

- A. Introduction antygangrenous serum.
- B. immunostimulation therapy
- C. Antibiotics .
- D. Primary debridement .
- E. Introduction of tetanus toxoid .

4 . For emergency station entered a man, 39 years old, with a left hand injury . On examination found : cut wound in the area increase the thumb does not bend . What muscle is damaged ?

- A. The adductor muscles of the thumb.
- B. Long muscle - flexor of the thumb.
- C. Short diverter arm of the thumb.
- D. The juxtaposition of the muscle of the thumb.
- E. A short muscle - flexor of the thumb.

5 . In the laboratory study was conducted at the diagnosis of tetanus. What method of sterilization should be allocated to destroy culture tetanus ?

- A. autoclaving.
- B. boiling.
- C. Tendilization .
- D. Dry heat.
- E. pasteurization.

6. Was asked to provide first aid to a man who is half an hour ago, fell off his bike . On the outer surface of the right leg is hurt , there is a large laceration contaminated sand and dry grass. In your arsenal have a car kit . How much aid you give to the victim ?

7. In the hospital delivered a patient with a wound the size of Rosanna  $2.5 \times 0,4$  cm in the upper third of the right forearm , which he paid an unknown 2:00 back . What is the volume of surgical care should be given to the patient ?

8. B surgical ward admissions by laceration of the left thigh. Since wounds took 12 hours. On examination, there is a slight swelling of the tissues around the wound, the wound edge is rough, bluish. What kind of medical tactics you elect?

9. B emergency station kosopoperechnoyu delivered a patient with an infected wound Rosanna palmar surface of the right hand. Active folding movement interphalangeal joints II-IV no fingers. Of damage, which anatomical structures need to think about? What is your medical tactics?

10. The patient came to the emergency department with a blind stab wound of the left shoulder. The wound was 4 days ago. In the site of an injury is determined by the swelling, soreness. The wound is allocated seropurulent content in small quantities. The surgeon performed the acceptance department quality toilet wound tightly swabbed her swab moistened his hypertonic sodium chloride solution and bandaged. The patient made an emergency specific prevention of tetanus. What the surgeon made a mistake?

11. In the emergency station delivered a patient with a large scalp wound scalped head. Injury took 1.5-2 hours ago. Tetanus patient prischeplen. What is the amount needed to provide skilled care to the patient?

12. B local hospital delivered the boy, who was bitten by a snake half an hour ago. The child complains of pain in his right foot. Boy pritormozhenny, drowsy. Styles on the feet are two small wounds with hemorrhage in the area and severe edema. Your actions?

13. In the patient's medical record, P., 43 years old, hospitalized in a surgical hospital, surgeon on duty recorded on the primary surgical treatment of the wound. How much aid the surgeon performed?

14. V delivered to the surgical department of the affected F., 40 years old, who received a gunshot wound to the thigh 14 hours ago. What are the maximum permissible period of primary surgical treatment of wounds after injury?

15. V clinic delivered a boy, 9 years old, with a wound to the right shoulder. In the words of the victim, hit him with the edge of the chemical pencil friend's party. When viewed from the side of the shoulder is dotted with swelling around the wound. Next to it under the skin is determined by the size of the foreign body 0,3 x 0,5 cm. What kind of help you need to provide the child?

### **Case studies for the source of knowledge**

1. Bolnoy entered the hospital with lethal wounds of the frontal area, which he received 5 hours ago. How to treat a wound?

2. In the patient is determined by the wound of abdominal wall, which is located in the right zduhvinnom site. On examination: pale skin, blood pressure 100/60 mm Hg,

pulse 124/min . When the primary debridement found that it penetrates into the abdominal cavity.

Diagnose . What is the surgical approach ?

3. Bolnoy went over lethal wound of the left forearm , which he received 12 hours ago. The wound is not clean . The patient needs to be transported over a long distance . The edges of the wound bloodshot , swollen wound edges are not present. Featured whether primary debridement and what its characteristics?

4. In the surgical ward admissions with two Reza wounds on the palmar surface of the left wrist , which he got 3 hours ago. What features of the primary surgical treatment of such wounds ?

5. In the Doctor's Surgery Polyclinic delivered patient , whose 3:00 back biting an unknown dog . When viewed on the right leg revealed six - bitten lacerations filled with clotted blood , with a slight swelling and soreness around. How much aid should be given to the patient ?

### **Tests III level of complexity**

1 .. Development of infection in the wound contribute to many factors , other than:

- A) In the hematoma
- B) from nerve damage
- C) ) of blood loss
- D ) shock
- E ) Depletion
- F) lack of foreign bodies

2 .. In gunshot wound distinguish all the damage zone , except :

- a) In the area of the wound channel
- b) zone molecular tremors
- c) zone of hemorrhage
- d) the primary zone of necrosis
- e) zone parabolic
- f) zone of cell concussion

3. For fragmental wounds characteristic of all, except:

- A) In the complex anatomical lesions
- B) with the presence of foreign bodies
- C) high degree of infection
- D ) equal to the wound channel
- E) obligatory presence of input and output openings F) uneven skin lesions

4. For local signs of inflammation is characterized by all except :

- A) edema

- B) cyanosis
- C) temperature rise
- D) violation of the sensitivity of the skin
- E) dysfunction
- F) pain

5. In the wounds are more significant development of infection ?

- A) were playing
- B) bitten
- C) minced
- D) bullet
- E) placed on the face
- F) scalped

6. For primary surgical debridement is necessary to understand :

- A) excision of the edges and bottom of the wound in
- B) the disclosure of pockets
- C) removing the pus
- D) excision of the edges, sides and bottom of the wound
- E) washing the wound with antiseptic , hemostasis
- F) stop bleeding

7. Est wound with a limited portion of necrotic skin edges . What you can do ?

- A) conduct an emergency tetanus prophylaxis
- B) to assign to the wound with UHF
- C) bandage with hypertonic saline
- D) put a bandage with ointment Vishnevsky
- E) to drain the wound F) to carve half dead skin area

8. For Phase I of the wound process in a clean wound is characterized by all except :

- A) of acidosis
- B) an increase in the number of hydrogen ions
- C) an increase in calcium ions
- D) an increase in the amount of potassium ions
- E) an increase in vascular permeability F) of alkalosis

9. Suschestvuyut different types of wound healing , except for:

- A) primary
- B) delayed
- C) under a scab
- D) re
- E) of the secondary
- F) delayed

10. How signs typical of a stab wound

- A) small hiatus
- B) deep wound channel
- C) shaking the surrounding tissue
- D) secondary necrosis
- E) face tissue
- F) tissue necrosis

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**8. The distribution points are awarded to students:**

At mastering topic number 16 to content module 4 for training activities for students rated a 4-point scale (traditional) scale, which is then converted into points as follows:

<b>rating</b>	<b>Points</b>
5 (excellent)	5
4 (good)	4
3 (satisfactory)	3
2 (poor)	0

Guidelines prepared

Associate Professor, Department of General Surgery

Chorna I.O. \_\_\_\_\_