

## DESMURGY

Before the imposition of each type of dressing should be used elements of communication skills: Standard algorithm collecting complaints and medical history and physical examination standard algorithm and conducting medical procedures.

### 11. Capeline bandage

- the patient is given a comfortable position for applying dressings;
- bandage length of 80-100 cm (tie) placed on the middle part parietal area of the head and ends dipped down in front of ears strained state (end keeps himself injured or assistant);
- basic bandage make two circular fixing tours around the head of the eyebrow arches and under the occipital hump (1);
- then bandage wrapped around the left end and ties leading to the previous direction on his head, covering the previous course bandage on  $\frac{1}{2}$  (2);
- then bandage wrapped around the right end of the ties and lead towards the forehead, covering the previous round (3);
- Tours bandage is repeated until all the cranial vault will be closed bandage (4-16);
- the last tour impose circularly, cut lengthwise end of the bandage and tied around the head (you can fix the bandage end node near ties, pins or pin flash);
- straps fixed end nodes in the chin.



### 12. Cap Hippocrates.

- with bandage width of 7-10 cm in length and 5.7 m prepared by two head bandage uniform twisting the ends to the middle;
- mid forehead bandage put on his head and both are back in the area (indicated by arrow);
- bandage on his head crosses, then right circular head bandage continue to progress, and left - performing longitudinal course through the middle of the head on the forehead (1);
- there is a circular head right round the bandage covering the longitudinal course and making a bend, keep it on his head, covering part (1 / 2-2 / 3) preliminary course where the bend through a circular motion and drive back, covering the other side of the first run ( 2);
- these alternating longitudinal and circular moves bandage continue until the whole area will be closed chapters (3-14);
- bandage fixed circular course bandage.

This dressing can be imposed by means of two separate bandages. Then a bandage used for fixing the tours and the other for applying dressings on the scalp (tours bandages imposed in the previous description).



### 13. bandage on occipital area.

- positioning circular tour around the imposing head across the forehead and occipital hump;
- on bandage lead over the ear live-ruch, drained bandage on the back, right, left and front of the neck;
- then drive bandage on the back of the neck, twisting the previous move above the right ear and circularly around the head;
- further rounds repeat bandage, overriding previous  $1/2$  or  $2/3$ ;
- complete circular bandage around his head round.



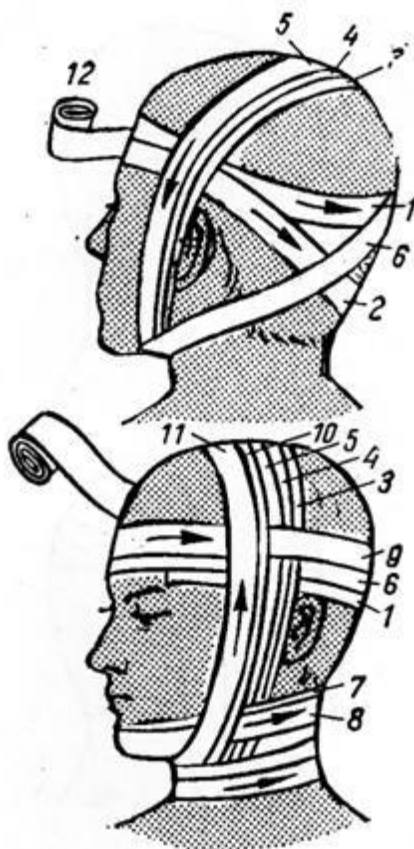
### 14. bandage on both eyes.

- - first do two tours through horizontal forehead and neck;

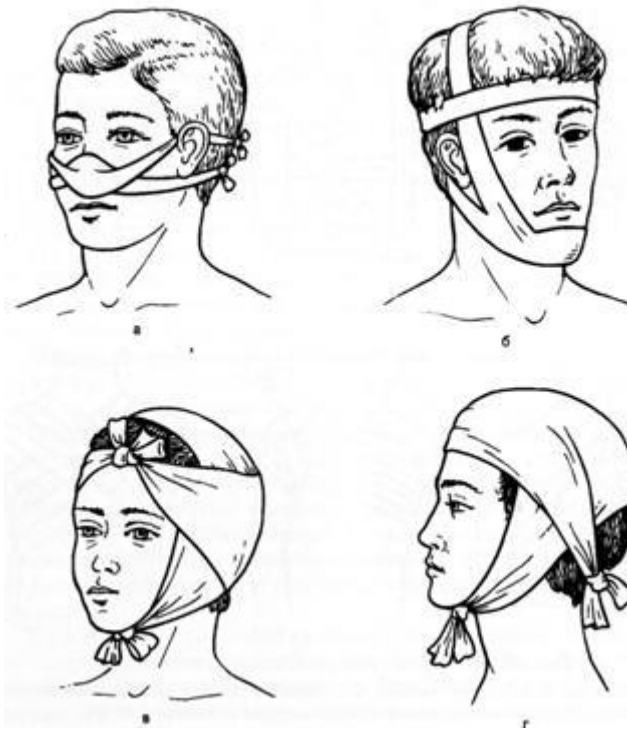
- the occipital area bandage drive under the right ear and turn on right eye, the left parietal hump and circularly around the head; - on a roller drive back through the right parietal hump on left eye, bottom left round the ear, leading to neck and fixed circular course through the forehead and neck;
- these passages alternating repeated several times until the closure of both eyes; bandage complete circular course around the head.



### 15. bandage "bridle".



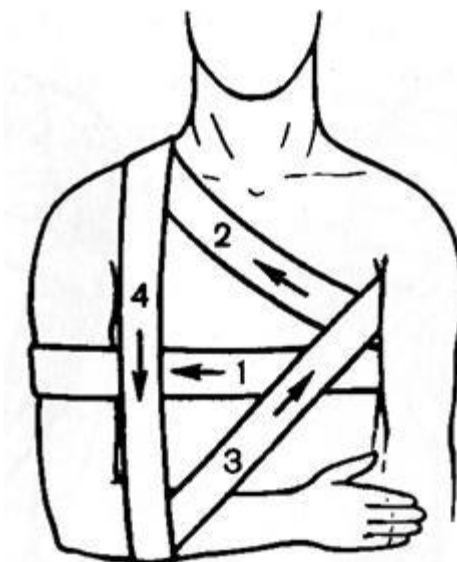
- start dressing two or three horizontal tours through the bandage around the head and neck areas of the frontal (1);
- then keep the bandage on the left temporal area of the ear and continue down to the rear, then right and front of the neck and transferred to the vertical course on the left cheek in front of the ear (2-3);
- carry out the required number of vertical strokes that cover all temporal and parietal areas (4-11);
- after the bandage from under the chin sent to the occipital area and transferred to a horizontal circular walk through the chin and neck, which fix bandage (6, 12);
- if necessary, for more reliable fixation bandages can be repeated circular tour around the head and then impose several rounds of vertical bandage;
- end fixing bandage around his head round.



### 16. Four tailed bandage

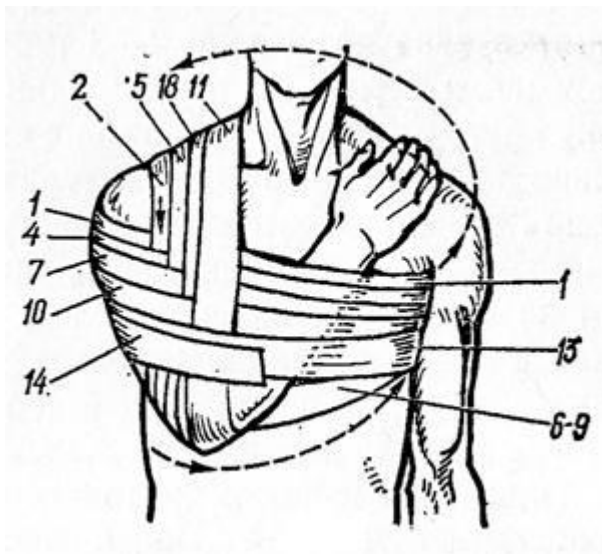
Sling - a strip bandage or cloth, both ends of which incised slit to the middle. The middle part of the sling is not cut and applied to the affected part, while the cut end of strings serve to secure the bandage. Sling made of the size of the body to which it is applied. Often this bandage used for blending in the area of the nose (a) and chin (b), occipital (c) and parietal (d) areas.

### 17. Desault's bandage



- fractures collarbone in the armpit area previously put cotton-gauze roll to prevent displacement of fragments;
- before the imposition of bandages arm bent at the elbow at a right angle and adjusted to the torso;
- start dressing bandage circular passages through the middle third of the arm around the chest of the patient to the healthy side (1);
- then steer the course of the bandage armpits good side to the front surface of the chest obliquely to the mountains on the opposite supraclavicular area (2);
- then vertically down the back of the shoulder to the overlapping of the forearm (3);
- further progress bandage encircles the arm and goes into the armpit healthy side, and then back on the sore shoulder and down at the elbow (4);
- drawing polygons around the elbow from front to back, round bandage on the back are a good side armpit, going on tour around the horizontal chest through the middle of the shoulder (repeating round 1);
- further rounds 2,3,4 repeated three or four times and the end of fixed bandage around the thorax.

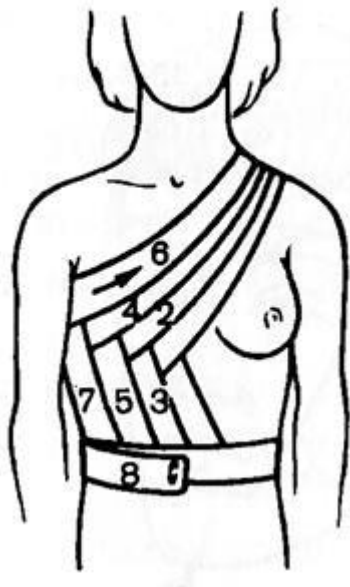
## 18. Velpeau's bandage



- used for dressing bandage width of 10-12 cm;
- fractures collarbone in the armpit area previously put cotton-gauze roll to prevent displacement of fragments;
- before the imposition of bandages arm bent at the elbow and wrist given to the opposite shoulder;
- hand fixed circular tour around the chest area from damage to the healthy side (1);

- bandage transferred to the shoulder of the damaged party (2);
- bandage round picks shoulder lateral side on the damaged side and puts a healthy armpit area (3-4);
- to further rounds of bandage repeated, with horizontal passages lie below the previous and vertical - inwards from the previous (5-18).

### 19. Bandage on mammary gland.



- for the better dressing for a wide bandage (10 cm);
- in imposing a bandage on the right breast head bandage is in the right hand and a bandage tours are from left to right and vice versa in the imposition of bandages on the left gland;
- bandage fixed circular tour around the chest under the breast;
- reaching the cancer bandage covering the lower part and inner bandage and lead to the opposite shoulder and the back to hold it under the inguinal fossa (2,4,6);
- covering the lower and outer part of the gland (3,5,7) and spend fixing bandage round (8);
- repeat previous rounds of bandage gradually closing the mammary gland.

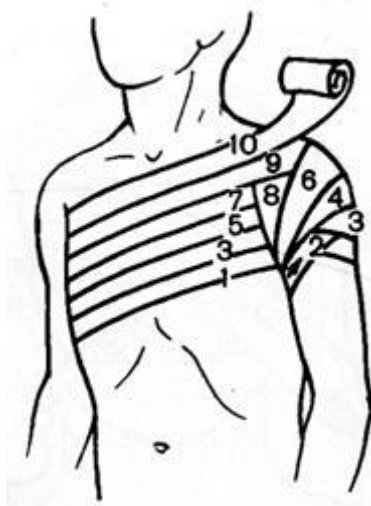
### 20. Overlay occlusive bandages with penetrating wounds of the chest cavity.

Overlaps with penetrating wounds of the chest with the development of an open pneumothorax.

- wound edges are processed alcoholic antiseptic solution;
- applied to the wound sterile diaper;

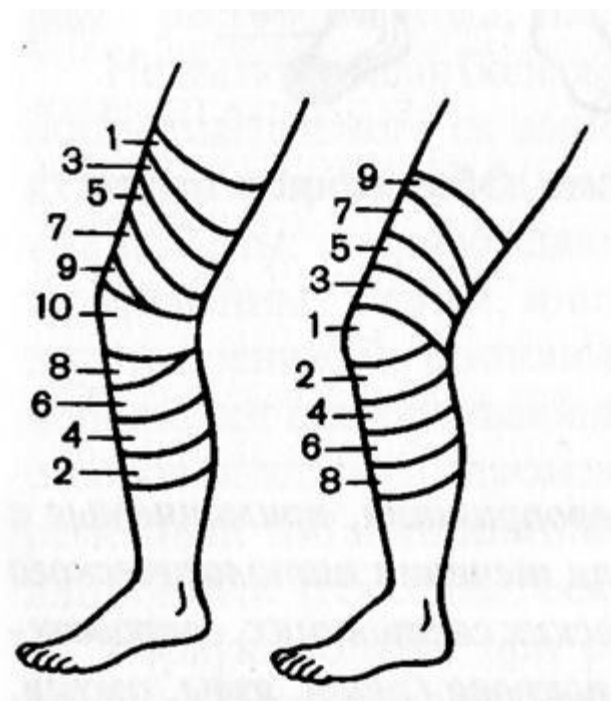
- diaper closed sterile air impermeable material (cellophane, oilcloth, rubber cloth, rubber, etc.), so that the material went beyond towel and lay on intact skin;
- bandage in this way is fixed to the chest or eight spiral shaped bandage.

### 21. Spike bandage on the shoulder joint.



- bandage is through healthy during inguinal hole on the front surface of the chest with the transition to the shoulder (1);
- rounding the shoulder bandage held on the inner surface of the shoulder and under the inguinal fossa rises obliquely on the shoulder (2);
- further bandage is on the back in the direction of healthy under the inguinal fossa, from the anterior surface of the chest, he returned to the shoulder, closing the preliminary round bandage half (3);
- Preliminaries repeated 3-5 times bandage and bandage fixed on the front chest wall (4-10).

### 22. "Turtle" bandage on the knee joint.



- used for bandages bandage width of 5.7 cm;
- impose a bandage after bending the knee at a right angle;

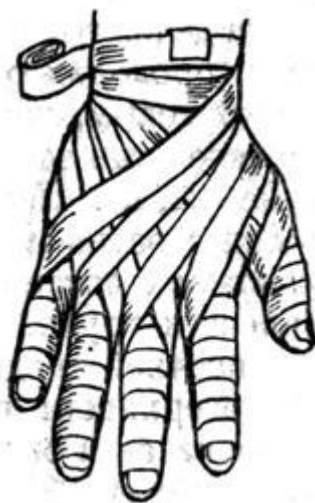
***a) divergent Turtle bandage (right picture)***

- fixing bandage impose tours in the middle of the knee joint through the patella (1);
- then run bandage tours, going to the higher, the lower fixing, covering 2/3 of each previous round (2-9);
- complete circular tours of bandage on the thigh;

***b) convergent Turtle bandage (left picture)***

- fixing impose tour in the upper third of the femur (1);
- then bandage are bent obliquely on the surface of the joint at the back of the thigh, skirting above his elbow (10);
- bandage return through the surface on ankle joint, covering the first rounds 2/3 (2);
- further moves bandage drive this way, approaches the center and twisting side joint (3-9);
- complete circular tours bandage bandage on the thigh.

### 23. Bandage "Knight's glove."



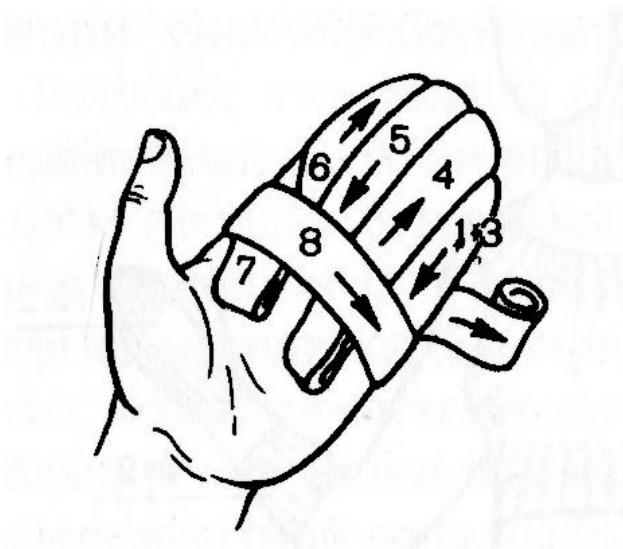
- on the left hand bandage start with five fingers, and on the right - the first;
- while imposing bandages wrist is in a position of pronation (palm down);
- fixing bandage begin with tours around the wrist;



- then at 2-5 finger bandage spiral bandages methodology, with the transition from a finger bandage on the finger needs to be done fixing the circular tour around the wrist;
- the first finger bandage is applied spiky;
- ends overlapping circular bandages round around the wrist.

#### **24. Bandage on wrist and finger type gloves.**

- to use narrow bandages bandage (width 3.5 cm);
- start fixing bandage tours around the wrist;
- then through the back of the hand bandage lead to the end of your finger, leads it in a spiral on the back of the hand moving to the wrist;
- after a circular tour around the wrist again lead bandage on his finger, placing it slightly overlapping strokes proximal;
- If necessary, you can repeat moves gradually moving to the base of the thumb;
- complete circular bandage bandage rounds in the area of the wrist.



### **BLEEDING. METHODS OF STOP**

Before each type of temporary stop bleeding should be used elements of communication skills: standard algorithm collecting complaints and medical history and physical examination standard algorithm and conducting medical procedures.

#### **25. Stopping arterial bleeding using finger pressing.**

A vessel by pressing a finger into the wound or over.

**Pressing the blood vessels in the wound.**

- wears sterile gloves or hands quickly processed alcoholic antiseptic solution (alcohol, chlorhexidine, kutasept, etc.).
- forefinger introduced into the wound, pressed against the vessel at the point where the source of bleeding is defined clinically by the blood stream.

**Vessels during pressing.** Produced on areas of the body where the main vessels are close to the bone, which vessel can be pressed.

a) the subclavian artery is pressed against the first rib at a point located above the clavicle outside the place of attachment sternocleidomastoideuse muscle to handle of sternum;

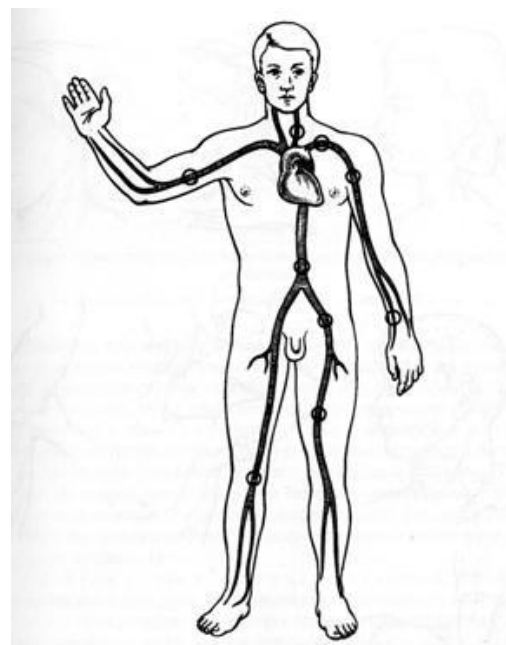
b) carotid artery pressed a finger to the transverse processes of the VI cervical vertebrae, corresponding to the middle point sternocleidomastoideuse muscle with its inside;

c) the axillary artery in the armpit pressed to the head of the humerus bone;

d) the abdominal aorta using fist pressed to the spine;

e) The femoral artery is pressed against the horizontal branches of the pubic bone below the mid inguinal ties.

f) pressing the popliteal artery is performed by compressing the tissue in popliteal fossa with the knee bent.



*The points determine of pulsation and pressing arteries throughout*

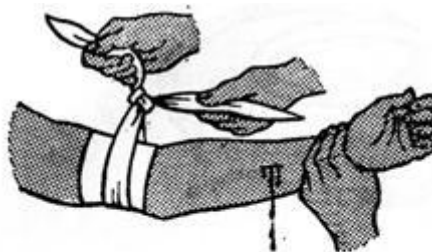
№	arteries	localization	formation
1	a. temporalis	2sm up and down from the opening of the ear canal	Temporal bone
2	a. facialis	2 sm forward from the angle of the mandible	Mandible
3	a. carotis communis	The middle of the inner edge sternocleidomastoideuse muscle	Sleepy hump transverse processes of C6
4	a. subclavia	According the clavicle in the middle third	I rib
5	a. axillaris	Forward limit the growth of hair in the armpit	The head of the humerus
6	a. brachialis	The medial edge of the biceps muscle in the middle third	The inner surface of the humerus
7	a. femoralis	The middle of inguinal folds	Horizontal branch of the pubic bone
8	a. poplitea	The top of popliteal fossa	The rear surface of the tibia

**26. Stopping arterial bleeding from the forearm using a tourniquet.**

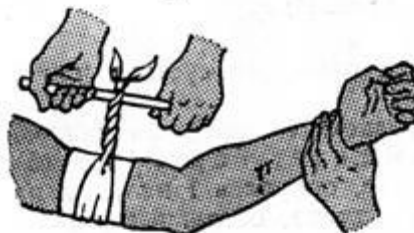
- tourniquet applied to the shoulders and not imposed in places where there are two bones (arm, leg);
- before the imposition of tourniquet given the patient a comfortable position and protected skin lining of clothing or other fabric (bandage, towel, gauze, etc.);
- imposing a tourniquet is placed on the outside limbs, face to face victim;

- tow fed from the inside limbs stretched out holding one hand on the middle, the other - by the end. Stretch wrap wiring limb delaying the first round to stop bleeding;
- subsequent rounds bundle (3-4) imposes a lower tension, but not allowing relaxation of the first round;
- each following round bundle should overlap the previous 1/3 width to prevent pinching her skin and necrosis;
- fixed bundle end;
- estimated accuracy imposing bundle: stop bleeding from wounds, no pulsation of blood vessels distal to place overlay harness appearance typical of marble and pale skin cooling;
- the wound dressing is applied and held aseptic transport segment immobilization of the affected limb;
- under tow in a prominent place must still note with the specified time of imposition of the latter;
- tourniquet can remain on ending no longer than 2 hours. If during this time can not carry out final stop bleeding, then to restore the collateral circulation in the tissues of every hour (and in winter - every 30 minutes) remove the tourniquet, press your finger artery (in the wound or within) and 3-5 min re-impose a tourniquet;
- if necessary hemostasis using tow more than 2 hours after its subsequent relaxation impose slightly above the previous location.

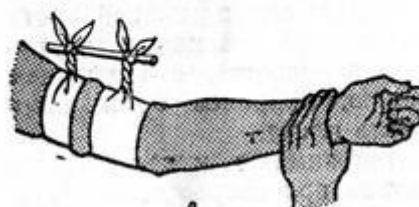
## 27. Stopping arterial bleeding from a forearm and shoulder using twist.



a



b



c

- imposed a similar twist tow proximal to the wound and closer to it, to reduce the area of tissue that are excluded from the blood supply;
- before the imposition of twist given to the patient a comfortable position and protected skin lining of clothing or other fabric (bandage, towel, gauze, etc.), especially by carefully twisting side;
- with suitable material (bandage, rope, cloth, kerchief, etc.) is formed as a ring twist appropriate diameter, by tying the ends (a);
- formed a ring set in place the overlay and twisted with a wooden stick or metal object to stop the bleeding and the disappearance of the pulse of the great arteries below the wound (B);
- wooden rod attached to the limb to prevent unwinding (c);
- the wound dressing is applied and held aseptic transport segment immobilization of the affected limb;
- under twist, a prominent place must still note with the specified time of imposition of the latter;
- twist ending can stay no longer than 2 hours. If during this time can not carry out final stop bleeding, then to restore the collateral circulation in the tissues of every hour (and in winter - every 30 minutes) remove it, press a finger artery (in the wound or over) and 3-5 min re-imposed;
- if necessary hemostasis using spin over 2 hours, the next time it imposes relax slightly above the previous location.

### **TRANSPORT IMMOBILIZATION OF INJURY upper and lower extremities (splint Cramer, Diterihs, Thomas)**

Before the transport immobilization to be used elements of communication skills: Standard algorithm collecting complaints and medical history and physical examination standard algorithm and conducting medical procedures.

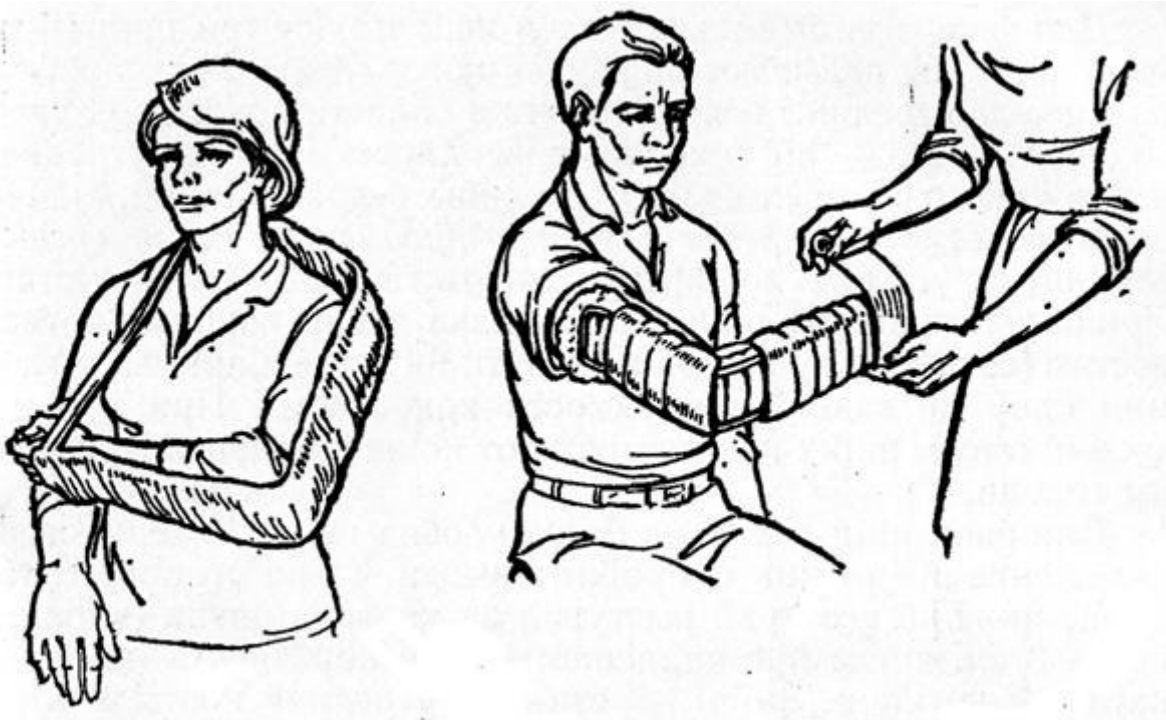
#### **28. Perform transport immobilization of the upper and lower limbs with standard splints.**

*Conducting of the transport immobilization with upper extremity injuries:*

##### **a) fractures of the shoulder (Fig. 1)**

- used splint Cramer;
- length Kramer splint should be such that it begins from the blade good side to the middle of the palm;
- the distance from the middle of the palm to her olecranon bent at right angles (bus simulation conducted on healthy limb victim or a person with equal stature);

- the tire is applied to the damaged limb so that the brush was in a position of pronation, the elbow arm bent at right angles;
- in the armpit put cotton-gauze roller bandage is fixed through a healthy shoulder;
- splint fixed to the arms and torso, imposing spiral bandage from the hand to the shoulder joint, and the upper end of the splint is fixed to the body or eight shaped bandage spiky;
- a piece of bandage connect the upper and lower end of the splint;
- After bandaging impose supporting kerchief or gauze bandage;



1

2

Transport immobilization of fractures of the shoulder (1) and forearm (2)

**b) fractures of the forearm (2)**

- Kramer splint modeling for healthy arm away from the metacarpophalangeal joints to the olecranon bending at a right angle;
- damaged hand laid on simulated tire so that the arm was in a position between the average pronation and supination;
- tire fixed spiral bandage the hand and arm hung by means of supporting or gauze bandages;

**c) fractures wrist and fingers:**

- transport immobilization carry plywood or mesh splint

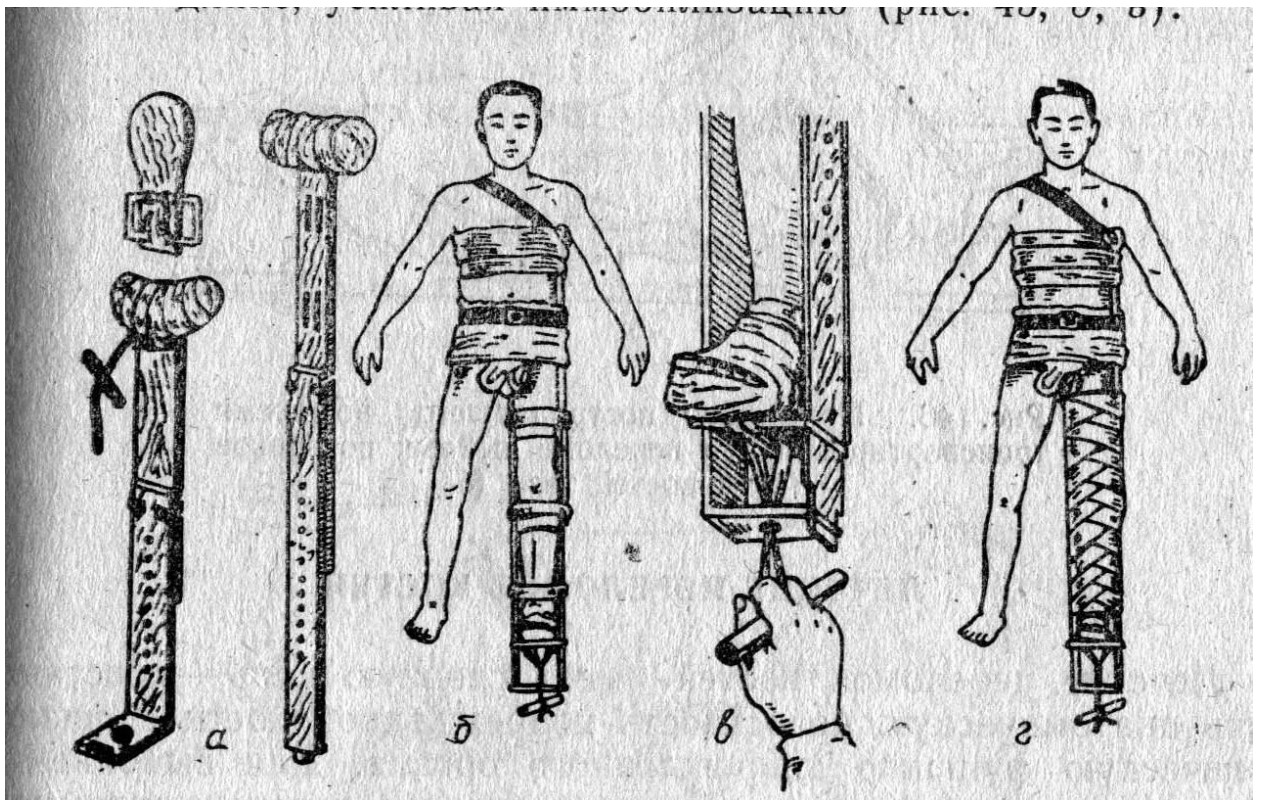
- length splint from elbow to fingertips;
- in the palm of the injured hand put cotton-gauze clump such size that the fingers were in a bent position;
- tire fixed to the spiral arms gauze bandage and placed on kerchief.

**Transport immobilization with lower extremity injuries:**

**A) hip fractures:**

At the turn of the hip is the most appropriate transport splint Diterihs (1), by which the immobilization and extraction limbs along the axis (2).

- internal and external crutches adjust the length of the limb so that the focus of foreign crutches relied axillary fossa and internal - in the crotch; the lower ends of both adding soffit should act on the sole of 10-15 cm;
- by means of connecting pins Extension arm of top plate through holes for fastening pins reliability can be secured multiple rounds of bandage;
- fixing the footstep to the sole of the foot (without removing shoes!) by using 8-shaped bandage, particularly securely attaching the rear section to five footstep, because that part falls the main thrust when pulling;



1

2

3

Fig. Splint Diterihs, general view (1); view of a patient with superimposed splint Diterihs; extraction of the axis of the limb using spin at imposing splint Diterihs (3).

- fix your sides external crutch, prompting the lower end Extension arm side through the eye of metal staples footstep;
- emphasis crutches record in the armpit piece of bandage, pre-stretched through the upper pair of slots that tie on the opposite shoulder;
- fixed internal crutch, holding the bottom end side through the eye of a footstep, and focus internal crutches fixed to the crotch bandage, stretched across the slot plate bandage around the thighs hold in the upper third;
- the lower ends of the two crutches interconnect connecting rod through the hole which carry a double twist cord and fix it to the bracket footstep. After that, the upper part fixed to the external crutch body spiral gauze dressing (bandage used width of 10-15 cm).
- internal crutch in the upper third fixed around the thigh bandage few rounds then proceed to extraction. Pulling by hand, gently pulling and twisting twist the foot (3). Stretching should not be excessive, so as not to cause additional pain affected.
- between crutches and bony protrusions placed cotton-gauze pads.
- tire firmly fixed with the bandage, imposing spiral bandage from the ankles to armpits.

***In the absence of splint Diterihs the transport immobilization of fractures of the femur can staircases by splint Cramer.***

- take 2-3 splints size 110x10 cm and connect them so as to obtain a tire length from the armpit to the outer edge of the foot;
  - impose a second tire of the gluteal folds on the back surface of the damaged limb to five, where they bend at right angles to the fingers;
- For greater strength can be overlaid and third splint Kramer on the inner surface of the limb from the perineum to the inner edge of the foot;
- in the joints and bone presentations should pave the cotton-gauze pads, and then the splint fixed with spiral bands from the area ankles to armpits, and fixing a foot by 8-shaped bandage.

***B) At the fracture of the tibia transport immobilization is carried out by staircases splint Cramer.***

- Kramer splint with a soft cotton lining for good modeling flexing limbs;
- the length of the splint must gluteal folds the back of the heel to the limbs and then bend at right angles to the fingers;
- tire gently placed on the back surface of the damaged limb, and the sides added two splints (or wooden staircases);
- in the joints and bone presentations should pave the cotton-gauze pads, and then the splint fixed with spiral bands from the area ankles to the upper third of the thigh, and fixing a foot by 8-shaped bandage.



***B) At the fracture of the foot the transport immobilization carried out, as a rule, staircases splint Kramer.***

- used splint length of the upper third of the tibia to the toes;
- splint modeled on the rear surface bends limbs and bent in the area of the heel at right angles;
- in the area of ankle paving cotton-gauze pads and splint fixed by bandage from the fingertips to the upper third of the tibia.

In the absence of standard splints transport immobilization can be made using a variety of materials at hand boards, sticks, canes, skiing, and other branches. You can also fixed damaged limb in several places to healthy feet.

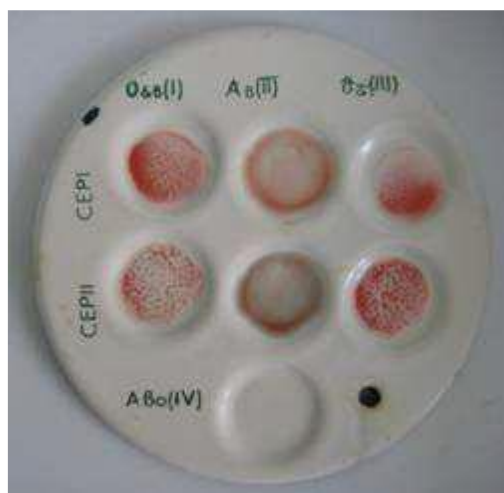
## **Transfusiology**

### **1. Determination of blood group using standard sera.**

1. Put on a clean white plate lettering on top of the blood groups: O(I) left in the middle of A (II) and the case B (III).
2. Apply under each individually labeled 1 drop (0.1) standard sera respective groups, the two series.
3. Treat flesh nail phalanx IV finger of his left hand swab with alcohol.
4. Puncture the skin scarifiers.
5. Remove the first drop of blood cotton ball.
6. Apply with a separate glass rod drop (0,01ml) of the blood on the plate along with serum (a ratio of 1:10).
7. Mix every drop of blood and serum together separate glass rod. Periodically shake the plate gently.
8. After 3 minutes. add 1 drop of 0.9% NaCl solution to drop, which occurred agglutination.
9. Continue shaking supervision at the plate to 5 minutes.
10. In establishing blood group AB (IV) necessary to control study of red blood cells with the serum group AB (IV). Proof of membership to this group is the lack of agglutination.
10. Evaluate the test result conducted.



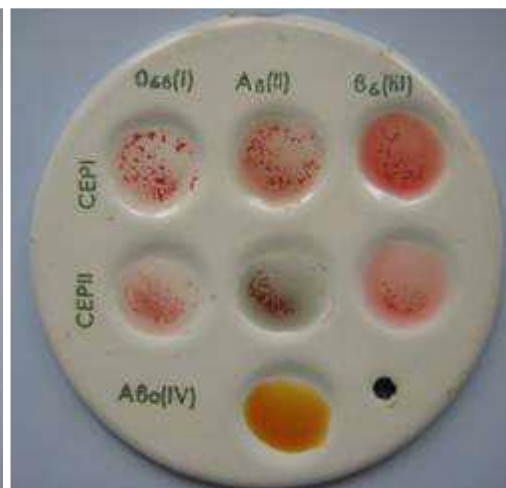
O(I)



A(II)



B(III)



AB(IV)

## 2. Determination of blood groupe by the standard erythrocytes.

1. On the patient of veins take blood for serum.
2. Marked plate put 3 drops of serum surveyed (0.1 ml) was added to each drop of 0.01 ml standard erythrocytes O (I) and A(II), B (III) blood.
3. Mix every drop of serum and erythrocyte standard stick together separate. Plate periodically shake slightly.
4. After 3 minutes. add 1 drop of 0.9% NaCl solution to drop, which occurred agglutination.
5. Continue with the observation shaking plate to 5 minutes.
6. Evaluate the outcome of ongoing tests.

## 3. Determination of blood groupe using monoclonal reagents Anti-A and Anti-B.

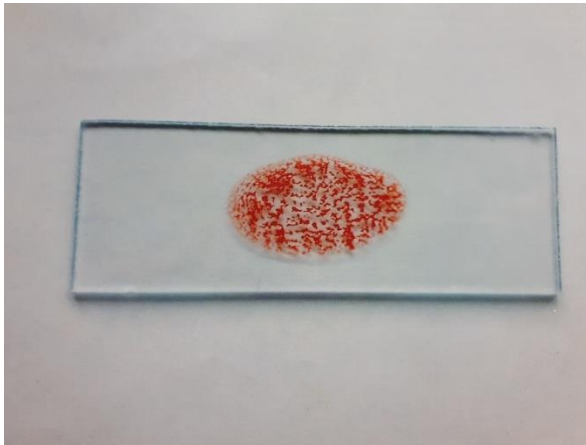
1. Put on a clean white plate inscriptions top anti-A, anti-B and anti AB.

2. Apply appropriate inscriptions during one drop (100 mkl) reagent anti-A, anti-B and anti-AB.
3. Along with drops of reagent apply one drop (50mkl) blood to be tested.
4. Mix a drop of blood and reagent separate glass rod.
5. Watch the progress of the reaction with mild rocking plate for 5 minutes.
6. Evaluate the outcome of ongoing tests.

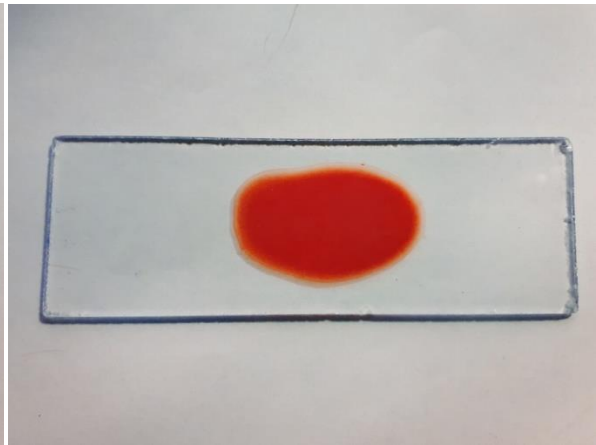


#### **4. Identification of individual blood compatibility donor and recipient.**

1. Take 5 ml of blood from a vein of the patient.
2. Centrifuged blood (or refrigerate for 12 hours.) for serum.
3. Apply a large drop pipette (0.1 mL) of patient serum to the plate.
4. Apply a drop of serum, along with a small recipient (0,01ml) drop of blood donor and mix.
5. Watch the reaction 5 min., Shaking the plate. Evaluate results.



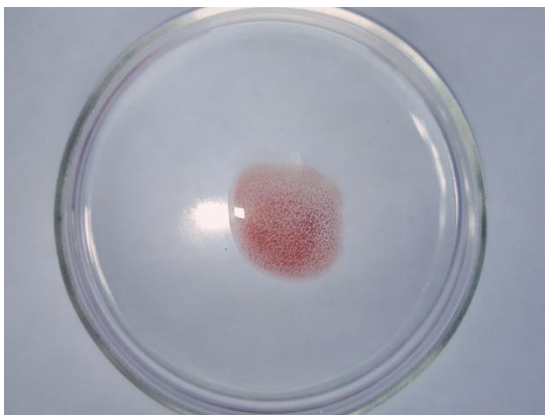
**Blood is not compatible**



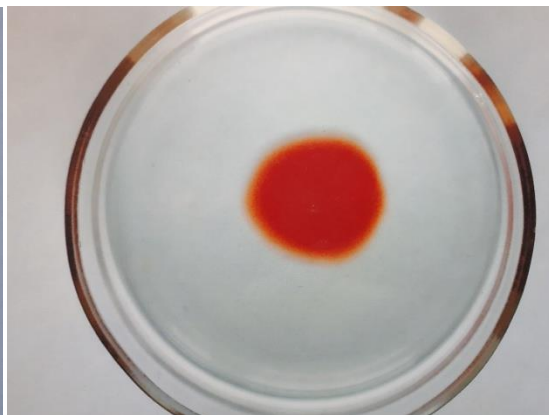
**Compatible blood**

#### **5. Determination of Rh compatible blood donor and the recipient.**

1. Take 5 ml of blood from a vein of the patient.
2. centrifuged blood (or refrigerate for 12 hours.) for serum.
3. Apply a petri dish pipette large drop (0.1 mL) of serum recipient and next to it a small drop (0,01ml) blood donor.
4. Mix the donor blood with serum from the patient.
5. Petri dishes put in a water bath at 44-48° C for 10 minutes.
6. Read the results by placing a petri dish on a white background.



**Blood is not compatible**



**Compatible blood**

## **6. Macroscopic estimation of high quality preserved blood.**

1. In spontaneous blood clotting or centrifugation are three layers:

- plasma transparent, light - straw color without a flake;
- white blood platelet layer thickness 3 - 4 mm, milky;
- red cells, cherry, without flakes, without the presence of bubbles.

2. Visually determined integrity bottle or plastic bag, term harvesting and storage, correct certification.



**not good quality blood  
(hemolyzed blood)**

**good quality blood**

## **7. Macroscopic estimation of high quality packed red blood cells.**

1. red cell mass must be:

- cherry, homogeneous structure, lack of globular clusters in the mass;
- should have been clear distinction between the globular mass and plasma;
- on the sediment should be transparent to the absence of turbidity, flakes, veins fibrin expressed hemolysis.

2. Visually determined integrity bottle or plastic bag, term harvesting and storage, correct certification.

## **8. Macroscopic estimation of high quality fresh frozen plasma after thawing.**

1. ascertain the integrity and tightness of the package.

2. Frozen plasma is thawed at or above 35-37°S with maintaining a constant temperature.

3. After thawing procedure should not be determined visually insoluble cryoprecipitate.

4. thawed plasma must be uniform mass of yellow-straw color.

5. Re-freezing the plasma is not allowed.

## **9. Macroscopic estimation of high quality native plasma.**

1. Native plasma should be:

- straw - yellow, amber, green-yellow, transparent, with no flakes and fibrin clots veins;

- turbidity or the appearance of so-called oily film on the surface are often caused by the presence in it a large number of neutral fat (called Chyleous blood) to distinguish Chyleous plasma of bacterial contamination, the bottle should be placed on 30 minutes. in warm water or at 37°S thermostat. Under these conditions, Chyleous film disappears plasma enlightened;

2. Visually determined integrity bottle or plastic bag, term harvesting and storage, correct certification.

### **10. Macroscopic assessment of purity Dry plasma.**

1. The dissolved dry plasma - is usually translucent opalescence of yellowish liquid.

2. It should not contain sediment, flakes, clots and any - any insoluble parts.

3. Dissolve dry plasma immediately prior to transfusion and plasma should be used immediately after dilution. Dissolution carried out under strict aseptic rules saved.

4. Visually assess the integrity of the bottle, the term harvesting and storage, correct certification.