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WHAT IS HAPPENING WITH MAJOR VASCULAR INJURIES DURING THE UKRAINE WAR: ARE THE RESOURCES AND MEDICAL PERSONNEL ADEQUATE: ARE THE US AND WESTERN EUROPE DOING ENOUGH



DISCLOSURES

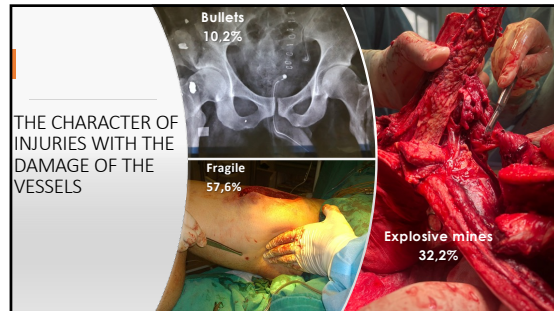
No Disclosures

During the war in Ukraine was recorded **more than 900 cases** of the injuries of the main vessels.



THE CHARACTER OF INJURIES WITH THE DAMAGE OF THE VESSELS

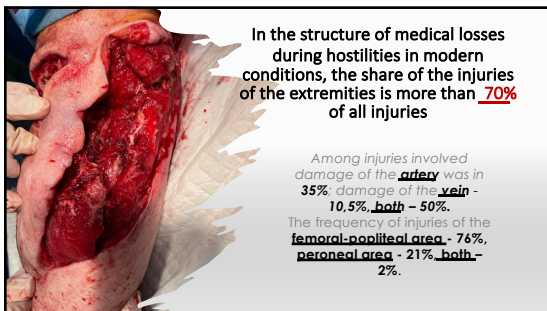
- Bullets 10,2%
- Fragile 57,6%
- Explosive mines 32,2%



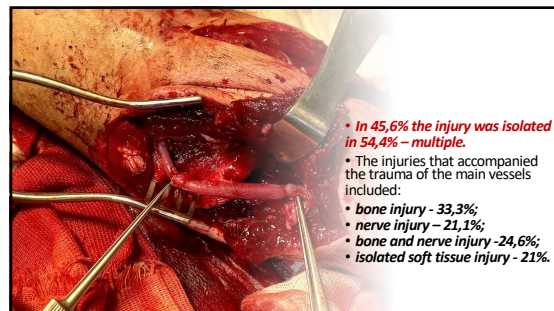
In the structure of medical losses during hostilities in modern conditions, the share of the injuries of the extremities is more than **70%** of all injuries

Among injuries involved damage of the **artery** was in 35%, damage of the **vein** - 10,5%, **both** - 50%.

The frequency of injuries of the **femoral-popliteal area** - 76%, **peroneal area** - 21%, **both** - 2%.



- In 45,6% the injury was isolated in 54,4% - multiple.
- The injuries that accompanied the trauma of the main vessels included:
 - bone injury - 33,3%;
 - nerve injury - 21,1%;
 - bone and nerve injury - 24,6%;
 - isolated soft tissue injury - 21%.



«DAMAGE CONTROL»

IN THE CONDITIONS OF PROVIDING ANGIOSURGICAL CARE IN UKRAINE, THE TACTICS OF **DAMAGE CONTROL** ARE STARTED IN THE **LEVEL II** INSTITUTIONS - MOBILE HOSPITALS AND DISTRICT HOSPITALS

ALL WOUNDS RECEIVED ON THE BATTLEFIELD ARE CHARACTERIZED BY SEVERE, MASSIVE TISSUE DAMAGE AND ARE CONSIDERED HIGHLY BACTERIALLY CONTAMINATED. MOST WILL BECOME INFECTED WITHOUT IMMEDIATE, APPROPRIATE TREATMENT

THE MAIN PROBLEMS:

- massive tissue defects;
- acute kidney injury;
- contaminated wounds;
- high risk of erosive bleeding

CHARACTERISTICS OF THE FORMATION OF A-B FISTULA AND ANEURYSM AS A CONSEQUENCE OF FIRE INJURIES OF VESSELS

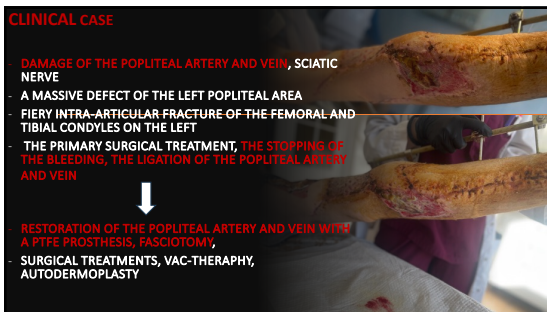
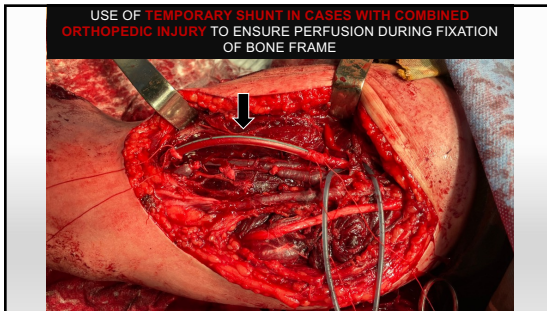
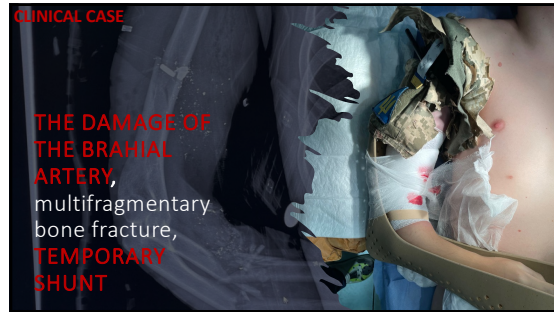
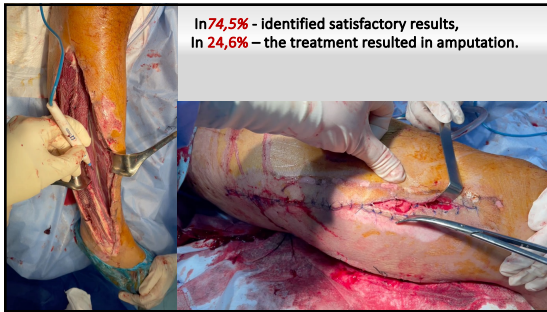
TRAUMATIC A-V FISTULAS AND ANEURYSMS OCCUR IN **4-7%** OF ALL VASCULAR INJURIES FRAGMENT INJURIES PREDOMINATE - **57.6%**

THE MOST FREQUENT TRAUMATIC ANEURYSMS AND AV FISTULAS OF THE **FEMORAL, POPULAR, SHOULDER ARTERY** OCCUR

ARTERIAL FALSE ANEURYSMS	ARTERIO-VENOUS FISTULAS	COMBINED
 Angiogram of the common femoral artery	 AV-fistula of the popliteal artery	 AV fistula and popliteal artery aneurysm

WORSE HEALING AND DEVELOPMENT OF PARAPROSTHETIC INFECTION CONTRIBUTE TO:

- Great trauma and operation duration (4-5 hours);
- Severe ischemia (including tourniquet, tight tamponade, hematoma);
- Late (more than 6 hours) surgical intervention;
- The presence of purulent-necrotic processes distal to the reconstruction zone
- Errors in surgical treatment of wounds;
- Traumatic shock, anemia, hypoproteinemia...



CLINICAL CASE

- DAMAGE OF THE **POPLITEAL VEIN**.
- **HEAVY INTRA-ARTICULAR FRACTURE OF THE MEDIAL CONDYLE OF THE FEMUR**.
- **TOURNIQUET SYNDROME (13 HOURS)**.
- **STOPPING OF THE BLEEDING, SUTURING OF THE POPLITEAL VEIN DEFECT, FASCIOTOMY**.
- **STABILIZATION OF THE FRACTURE OF THE FEMORAL-SHIN TYPE**.
- **ACUTE KIDNEY DAMAGE**.
- **COMPARTMENT SYNDROME**



Surgical treatments, installation of the VAK-system, autodermoplasty



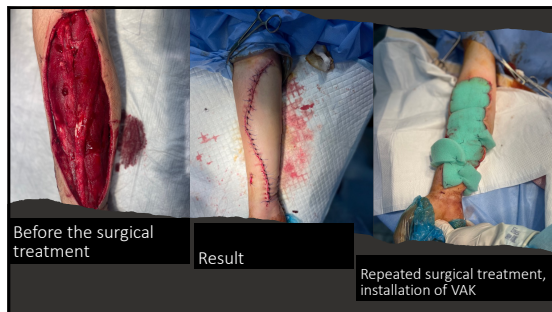
Surgical treatments, installation of the VAK-system



The result of the treatment of the popliteal area after the surgical treatments, the installation of the VAK-system, autodermoplasty

CLINICAL CASE

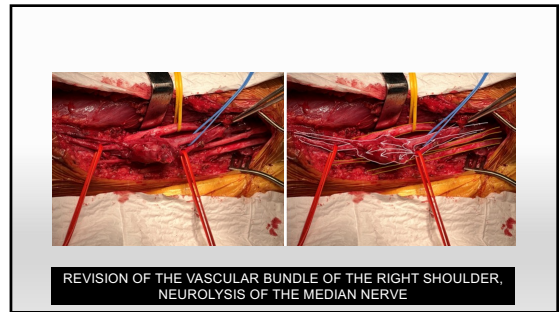
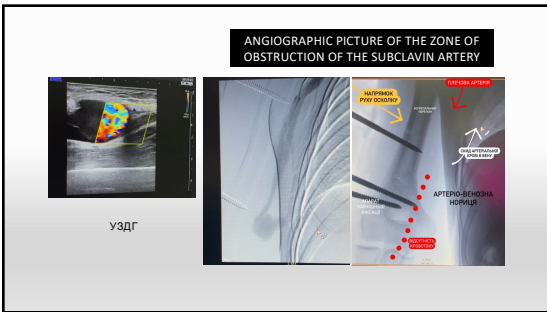
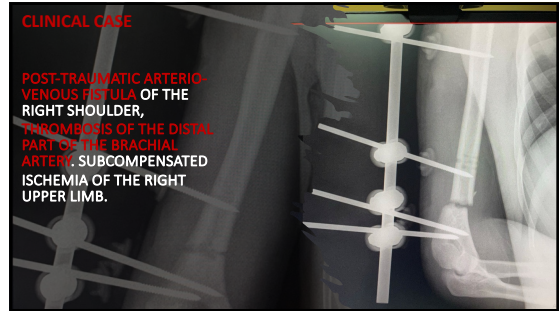
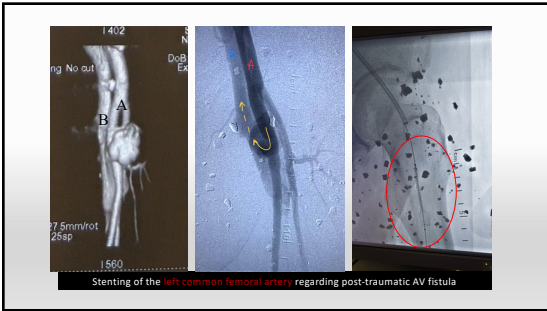
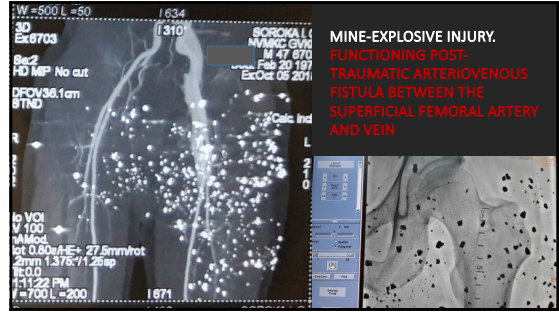
- **DAMAGE TO THE VASCULAR BUNDLE**
- **THE FRACTURE OF THE RIGHT ULNAR ARTERY**
- **INSTALLATION OF THE SHUNT OF THE RIGHT RADIAL ARTERY, FASCIOTOMY**
- **THROMBOSIS OF THE TEMPORARY SHUNT, ISCHEMIA OF THE RIGHT UPPER EXTREMITIES**.
- **REMOVAL OF THE TEMPORARY SHUNT OF THE RIGHT RADIAL ARTERY, THROMBECTOMY, FASCIOTOMY**
- **INSTALLATION OF THE RIGHT RADIAL ARTERY**

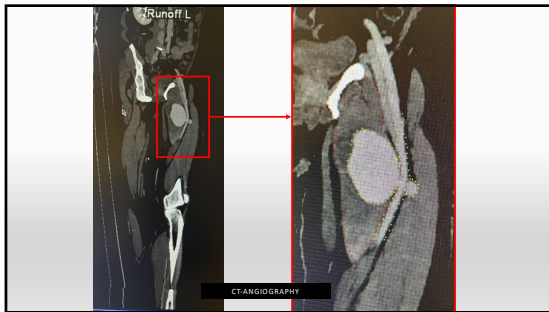
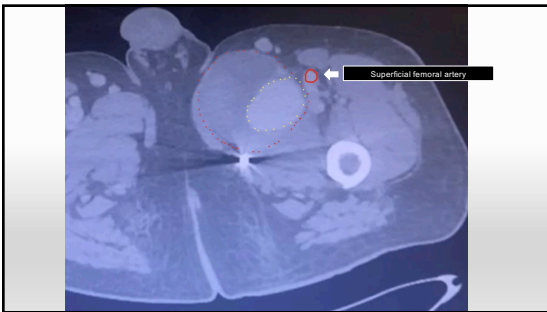
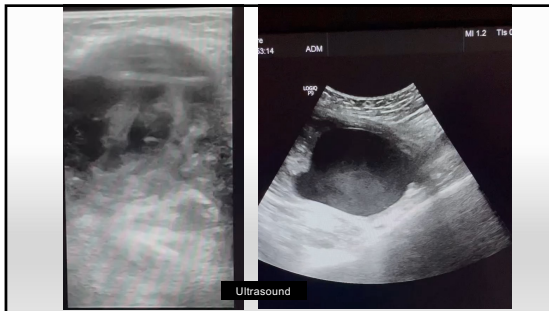
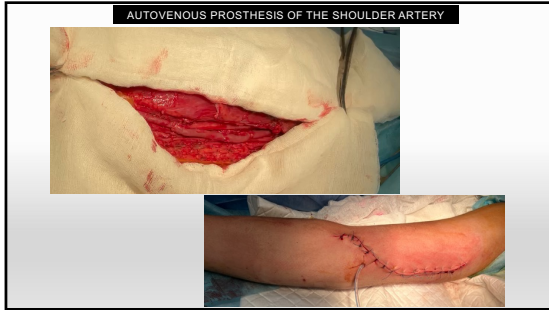
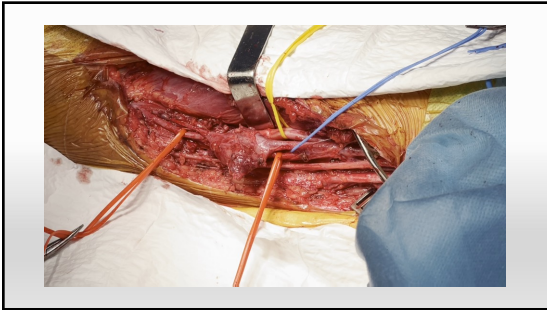


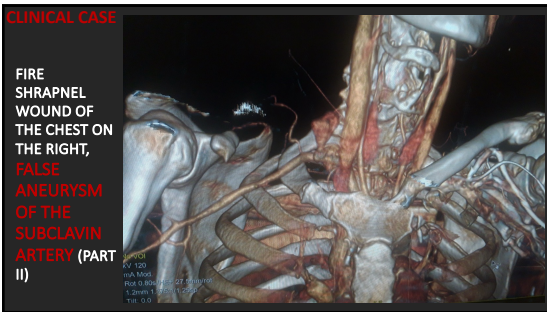
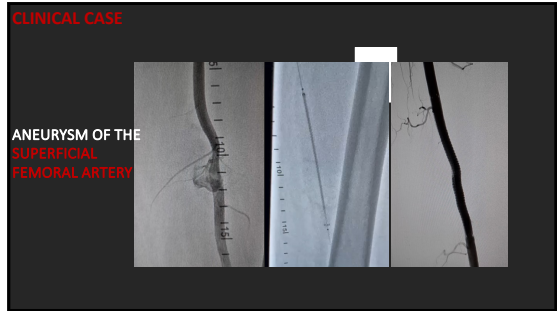
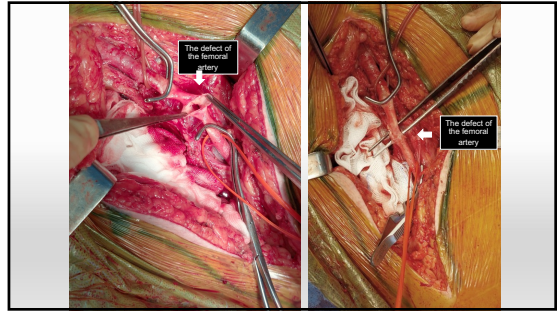
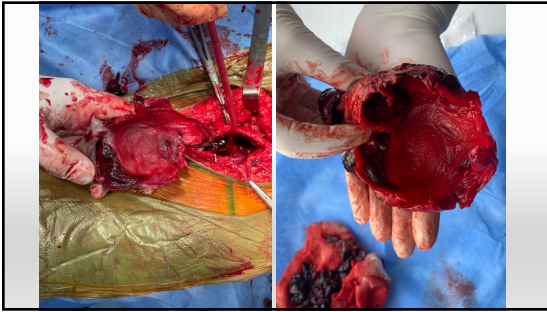
Before the surgical treatment

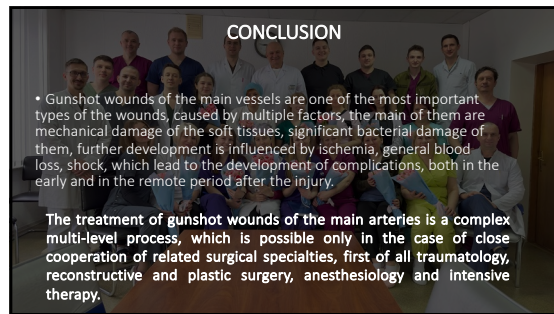
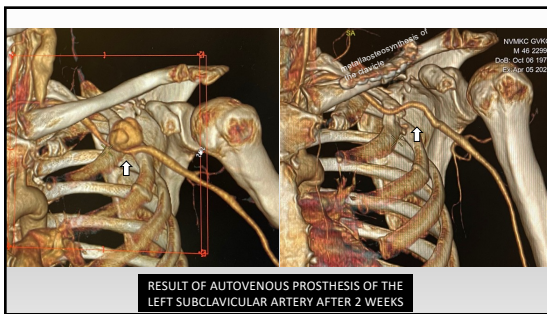
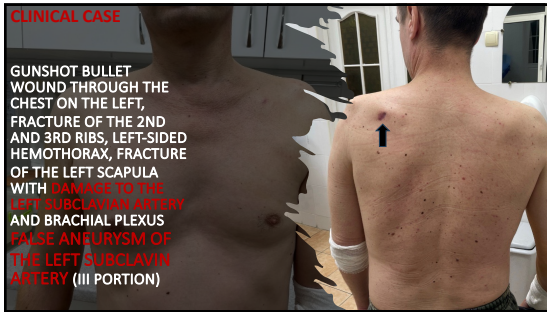
Result

Repeated surgical treatment, installation of VAK









CONCLUSION

- The basis of the prevention of complications after the injury of the main vessels is the adequate provision of primary care related to stopping bleeding, restoring blood flow in the damaged segment as soon as possible, and preventing infectious complications in the wound.
- ❖ All medical measures after reconstructive surgery on the damaged vessels have three main tasks: maintaining the patency of the graft, fighting infection in the wound and final closure of the wound surface.

