IMPROVEMENT OF VARIOUS TREATMENT TACTICS IN THE COSMETIC TREATMENT OF SKIN TISSUES

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Abstract. Scientific publications devoted to the treatment of victims with extensive detachments of integumentary tissues were analyzed. The bulk of literary sources over the past 10 years have been published abroad. They especially note that in the diagnosis of open and closed detachment of integumentary tissues, not only anamnestic and clinical methods are used, but also a wide arsenal of instrumental and radiological methods. The treatment process is optimized by the participation of specialists in various fields, including plastic surgeons, which in most cases allows not only to avoid purulent-septic complications, but also to obtain the best possible aesthetic result of treatment.

Keywords. radiological methods, analyzed, cosmetic treatment.

The skin, which is the protective covering of the body, constantly undergoes various external mechanical influences. If the acting forces are large and exceed the reserve of resistance and elasticity of the skin and underlying tissues, damage occurs to the connective tissue elements of the dermis and subcutaneous tissue. The size of the damage sometimes reaches enormous size, covering large surfaces of the body [1].

The occurrence of traumatic skin detachment, which is a consequence of the rough mechanical action of various moving mechanisms, was described by the French surgeon Morel Lavallee in 1863 (cited by John F. Carroll, 2010, [2]). After this, - communications on this topic disappear for a long time from the pages of the medical press. Only in 1889, R. Kohler described the mechanisms of this type of injury and raised the problem of treatment (cited from Krasovitov V.K., 1947 [1]).

In Russian literature, the first report on decollement de la peau appeared in 1930 in the description of V.V. Alekseev [3], and the first journal article was prepared by S.M. Rubashev in 1936 [4]. Subsequently, the main domestic works on this topic were prepared and published in the last century [5-7]. It should be noted that until now, the description of detachment of integumentary tissues in domestic surgical manuals and textbooks has either not been given at all or is not complete [8, 9].

Epidemiology of traumatic detachment of integumentary tissues

Scientists disagree on issues of epidemiology. In Russia, given the lack of information on this topic, it can be argued that this pathology is either rare or attracts little attention from researchers.

I.G. Belenky et al. [11] note extensive detachment of integumentary tissue in 1.07-1.6% of cases of the total number of trauma patients. The authors point out that their treatment is a difficult and not completely resolved problem.

V.A. Sokolov [12] in different years observed traumatic detachment of the skin and subcutaneous tissue in 1.5-3.8% of victims with multiple and combined trauma; with an isolated injury, these injuries occur in the form of casuistic cases. By detachment, the author understands the separation of the skin and subcutaneous tissue from the underlying fascia over more than 1% of the body. For the period from 1998 to 2003, the author and his colleagues at the Moscow Research Institute of Emergency Medicine named after. N.V. Sklifosovsky treated 54 patients with closed traumatic skin detachment.

I.E. Mikusev et al. (2013) [8] provide an analysis of the treatment of 53 patients, of which 18 suffered from traumatic skin detachment due to a collision with a wheel of a bus, trolleybus, truck or car.

According to foreign literature, detachments are a common occurrence. In particular, E. Letournel and R. Judet (1993) [13] note closed detachment of the integumentary tissue in 8.3% of victims with fractures of the acetabular region, which is associated with a blow to the greater trochanter. They cite observations of Morel-Lavallee syndrome in 23 victims out of 275 cases of pelvic fractures.

P Tornetta and S. Tseng (2006) [14] summarize the experience of treating 90 patients with acute Morel-Lavallee syndrome, which was accumulated from 1994 to 2004 by analyzing the case histories of 1100 patients with pelvic fractures. Of the patients with detachment of integumentary tissue, 20 had fractures of the pelvic bones, seven had fractures of the acetabular region, and two had fractures of the hips. The severity of the injury was aggravated by the presence of lung contusions in three patients, damage to the spleen in two, and liver rupture in one.

D. A. Milcheski et al. (2010) [15] present the results of treatment of 21 patients over four years, of which 11 patients (52.4%) were injured at work and in 10 cases (47.6%) while riding a motorcycle.

P Wojcicki, W. Wojtkiewicz, P Drozd [16] described three severe cases over the past three years, KA Kudsk et al. (1981) [17] published data on 21 patients over nine years of observation, S. Dawre et al. (2012) [10] describe 19 cases of Morel-Lavallée syndrome.

DA Hudson (1995) [18] reported on seven victims (one man and six women) who suffered traumatic detachment of integumentary tissue over a period of five years. The

average age is 26.6 years. Six people were pedestrians at the time of the injury, and one was a passenger in a car. Detachments were combined with fractures in three people (clavicle, humerus, metacarpal).

A number of authors [16] indicate that sports injuries (football, wrestling) can also cause Morel-Lavallee syndrome. Although this type of injury is low-velocity, the tangential influence of damaging forces can also lead to severing of the connections between the subcutaneous fat and the superficial fascia.

Mechanisms of occurrence of integumentary tissue detachments

On the issue of the mechanisms of damage occurrence, no disagreements were revealed when comparing Russian-language and foreign literature. The detachment mechanism is typical for high-energy injuries and is as follows [12, 13]:

- dragging on asphalt, when a driving vehicle (car, bus, train) grabs a person by the clothes or arm and pulls him along the road surface or platform;
- pulling a limb, mainly the upper one, into moving mechanisms (machine tool, snow blower, etc.);
- tearing off skin and fiber by parts of a collapsing car during car accidents, metal and other objects during explosions;
- edge collision with a wheel of a car or train.

Since the muscles are in a closed fascial bag surrounding the bone, individual muscle fibers, as well as muscle and subfascial vessels, rupture. At the same time, the muscles serve as a shock absorber for bruises. In those places where the bone is surrounded by them on all sides (hip), injuries to the periosteum are extremely rare.

When a detachment forms, the mechanical force acts not directly, but tangentially, promoting the separation of skin and tissue from the fascia. The cavity at the site of a closed detachment can hold up to three liters of spilled blood, and if the detachment is not diagnosed, which often happens when it is localized in the buttocks, back and back of the thighs, then this is the cause of “unexplained hypotension and anemia.”

As a number of authors point out [1, 12], there are differences in the clinical picture in women and men, which is facilitated by the anatomical features of the skin and tissue. In women, detachment occurs 4-5 times more often, since the connective tissue bridges that fix the tissue to the underlying fascia are less pronounced in women than in men, and these bridges themselves are less strong.

Classifications of extensive traumatic soft tissue detachment

Since the time of Morel-Lavallee, all skin detachments have been usually divided into three groups: small, medium and large, but, unfortunately, without specifying the size of the damaged area.

Detachment can be open or closed. In the first case, there is a wound communicating with the cavity at the site of detachment; in the second, the skin is

completely intact, although there may be quite extensive abrasions, but the detachment cavity does not communicate with them.

The classification of extensive traumatic detachment of soft tissues in the domestic literature is presented by V.K. Krasovitov (1947) [1] and supplemented by I.E. Mikusev et al. (2013) [8]. The authors identify three main types of traumatic skin detachment. First type : crushing of the subcutaneous fatty tissue in the detachment zone prevails, dividing it into areas associated with the skin, and the remaining part with the fascia. Second type : the first place comes to a subcutaneous rupture of fatty tissue, not accompanied by gross disruption of it and the underlying tissues, while most of the subcutaneous fatty tissue comes off along with the skin. Third (mixed) type : areas of crushed subcutaneous fat alternate with areas where most of this fiber is preserved along with the skin in the form of a layer (mixed, combined closed skin detachment).

A.A. Proshakov et al. [5] divided all patients into 3 groups depending on the type, area of detachment and treatment tactics: Group 1 - traumatic skin detachment with an area of up to 200 cm2 , an increase in the volume of the limb, fluctuation; Group 2 - area 200-400 cm2 , pain in the area of the damaged segment, dysfunction of the limb, increased volume of the limb, with pronounced swelling of the limb, pulsation in the distal parts decreases, undulation symptom, the skin shifts into a fold - Keller's symptom; Group 3 - the area of detachment exceeds 400 cm2 , in most cases the pathological process spreads beyond one segment.

In case of direct injuries, the subcutaneous tissue has shock-absorbing properties, but under mechanical stress, the blood and lymphatic vessels are less resistant and, when damaged, form a cavity filled with lymph and blood, called a “pocket.” This concept was introduced by G.P. Istomin [26]. In this case, the lymphatic vessels are most affected. Damage to predominantly lymphatic vessels is due to the fact that they are less resistant to injury and are more likely to rupture than blood vessels [5, 6]. An accumulation of predominantly lymph forms under the skin, resembling a hematoma. The amount of contents in extensive detachments reaches 1.5-2 liters [7].

In foreign practice, the classification proposed by ZM Arnez, U. Khan, MPH Tyler in 2009 is used [8]. According to it, it is customary to distinguish four types of damage:

1) limited superficial scalping, there is tissue loss due to abrasive force;
2) non-circular scalp wound. Integumentary tissues are either absent or presented in the form of flaps. The damage area is limited to one layer (usually between the deep fascia and subcutaneous fat);
3) circular scalped wound with an area of tissue damage on the same plane;
4) a circular scalped wound with multiplanar damage zones, including trauma to muscles, periosteum, and bones.

Diagnosis of extensive detachments of integumentary tissues

Diagnosis of traumatic detachment of integumentary tissues at the present stage of development of medicine includes clinical, ultrasound, x-ray , radiological and microbiological research methods. At the same time, the examination of patients with closed and open forms has a number of its own characteristics, since the clinical manifestations of closed detachment do not always coincide with the results of instrumental diagnostics [11]; The severity of symptoms may intensify within several hours or days from the moment of injury.

Clinical manifestations are divided into general and local. When examining the damaged area, attention is paid to the presence of swelling and wounds, bulges, changes in body contours, changes in local temperature reaction, skin color, uneven consistency of soft tissues, fluctuations, and pathological mobility of the skin relative to the underlying tissues. It is possible to detect dysfunction of the joints, deformation and shortening of the limb, disorders of sensitivity and blood circulation distal to the damage zone [1].

The X-ray diagnostic method is not specific for detachment of integumentary tissues, but allows one to determine the condition of the bone tissue in this area [2].

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