

How to Cite:

Makhmudov, S., Babajanov, A., Toirov, A., Akhmedov, A., & Musoev, S. (2022). The features of autodermoplasty in traumatic wounds of the skin and soft tissues. *International Journal of Health Sciences*, 6(S1). <https://doi.org/10.53730/ijhs.v6nS1.6717>

The features of autodermoplasty in traumatic wounds of the skin and soft tissues

Saidinjon Makhmudov

Samarkand State Medical University, Samarkand, Uzbekistan

Email: saydin.makhmudov@gmail.com

Akhmadjon Babajanov

Samarkand State Medical University, Samarkand, Uzbekistan

Email: babajanov.axmadjon@gmail.com

Abdukhamid Toirov

Samarkand State Medical University, Samarkand, Uzbekistan

Email: toirov1945@mail.ru

Adkham Akhmedov

Samarkand State Medical University, Samarkand, Uzbekistan

Email: aiaxmedov@mail.ru

Sodikjon Musoev

Samarkand State Medical University, Samarkand, Uzbekistan

Email: sodikjon.musoyev@gmail.com

Abstract---Autodermoplasty with a skin flap is the main surgical solution for traumatic wounds of the skin and soft tissues. Split-skin grafting is a routine reconstructive technique associated with large variation in practice. To date, the technique of skin grafting with a skin flap has been brought to perfection mainly by the efforts of specialists – combustiologists. The authors have identified a number of features of autodermoplasty with a skin flap. Split-skin grafting for complex traumatic wounds of the skin and soft tissues was performed in 50 patients, good functional and cosmetic results were obtained.

Keywords---autodermoplasty, skin flap, traumatic skin defect.

Introduction

Autodermoplasty with split skin flaps occupies a special place in complex surgical treatment aimed at improving the condition of a patient with large-scale defects of the skin and soft tissues, and at reducing the length of hospital stay in patients

with limited deep lesions [3, 8]. A variety of surgical interventions for the closure of extensive skin wounds is an integral part of plastic surgery. It is possible to significantly reduce these negative aspects and increase the probability of recovery of a patient with a critical lesion if surgical treatment is performed in a timely, adequate and effective manner, which still remains the main problem of modern domestic surgery. Issues of timeliness and adequacy are resolved jointly with the resuscitation and anesthesiological services [2, 7, 9].

Aim of the research

Analyze the effectiveness of autodermoplasty in traumatic wounds of the skin and soft tissues.

Materials and Methods

An open prospective and retrospective study of clinical material was conducted using statistical and analytical methods of examination and treatment of 50 patients hospitalized in the department of 1-surgery of the Samarkand City Medical Association over the past 6 years. There were 28 men and 22 women.

Split-skin grafting for traumatic wounds was performed in all patients aged 20-75 years. The lower (35 patients) and upper (15 patients) limbs were most often affected. Household trauma occurred in 42 patients, industrial in 8. The area of traumatic wounds ranged from 10 to 1200 cm². Split-skin grafting in all patients was performed on granulating wounds within 15 to 45 days from the moment of injury. Preparation of wounds for plastic closure included the following stages: surgical treatment of post-traumatic wounds, subsequent local treatment using additional methods of influencing the wound process, complex conservative therapy aimed at correcting homeostasis disorders [5, 6]. Conservative local treatment of wounds complemented the surgical method and was carried out taking into account the phase and features of the course of the wound process using modern antiseptics (chlorhexedin, miramistin), multicomponent hydrophilic ointments, proteolytic enzymes and other drugs. In order to reduce the time needed to prepare wounds for reconstructive operations, we used the following additional methods of influencing the wound process: wound treatment with an air plasma stream containing nitric oxide (NO), physiotherapy (ultraviolet irradiation, alternating magnetic field, UHF).

Assessment of the readiness of wounds for plastic closure was carried out on the basis of a set of clinical and laboratory parameters, including data, clinical examination, qualitative and quantitative microbiological examination of wound exudate. The clinical diagnosis of the phase of the wound process was performed visually during the dressing, taking into account the nature and severity of granulation tissue, the presence or absence of foci of necrosis, inflammatory changes in the wound and surrounding tissues, the nature and amount of wound discharge [1, 4]. The remains of necrotized tissues were removed radically after chemical necrolysis with Shnyrev paste, daily change of dressings with various enzymes. A daily change of dressings with antiseptic solutions was performed to suppress the pathogenic microflora. Along with the ease of use, low injury rate when changing dressings, all patients had a decrease in purulent discharge from the wound surface after 23 dressings, a decrease in the level of bacterial

contamination of the wound, and an improvement in the nature of granulation tissue. With the low effectiveness of these drugs and the continued high contamination of granulating wounds, bandages with antibiotics were used. A positive effect was obtained with bandages with the cream "Connetivina plus". Other ointments containing antibiotics were also widely used. With excessive granulations appearing late after injury, hyoxyzone ointment or other preparations containing hydrocortisone were successfully used for their recovery. We rarely resort to the removal of granulations, since it is almost always possible to achieve their good condition by conservative methods. The degree of readiness of the wound bed for the perception of the skin flap was assessed visually, the presence of β -hemolytic streptococcus in the wound and a large contamination of wounds with microflora were considered contraindications for autodermoplasty. In the overwhelming number of patients (98%), continuous skin autografts were used; in severe patient condition caused by extensive skin defect and concomitant pathology of the cardiovascular and respiratory systems, mesh grafts were used. Of great importance for obtaining good functional and cosmetic results of treatment is the correct choice of the thickness of the cut skin flap. If 0.3 and 0.4 mm thick flap is sufficient to close wounds in functionally passive areas, then we use 0.5 and 0.6 mm thick flaps to close the joint area, and on supporting and constantly exposed surfaces (feet, palm surface of the hands, hip and shin stumps) we use 0.7 and 0.8 mm thick autografts.

The healing time of donor wounds after cutting flaps of this thickness increases to 33.5 weeks instead of 1.52 weeks when cutting thinner grafts. Due to the greater susceptibility of the thick graft to infection for the prevention of suppuration in the postoperative period, the grafts are protected by applying bandages with antiseptic solutions or antibiotics. In this regard, a dressing with a dimexide solution with hyoxyzone ointment is very effective, which is easily removed on the dressing without injuring the transplanted graft. The cosmetic and functional result also depends on the timing of autodermoplasty: the earlier the plastic closure of the wound defect is performed, the better the result of treatment.

Results and Discussions

Among 124 skin grafts, complete engraftment of autografts was noted after 105 (84.7%) operations, good and satisfactory after 12 (9.7%) and complete lysis of grafts was observed after 7 (5.6%) operations. The most common cause of transplant meltdown was the presence of β -hemolytic streptococcus in the wound. In contrast, the complete lysis of transplants in burned patients sometimes reached up to 9%, that is, it was almost twice as high as this indicator in the treatment of traumatic defects. This, in our opinion, is due to a significantly smaller area of traumatic defects in comparison with burn wounds, and consequently, less pronounced intoxication, more preserved indicators of homeostasis and, as a consequence, a better state of the receiving bed.

Conclusions

Thus, split-skin grafting for traumatic skin and soft tissue defects should be considered the method of choice, proper adherence to all principles of surgical treatment allows achieving good functional and cosmetic results in most victims.

References

1. Ablaza, V. J., Berlet, A. C., & Manstein, M. E. (1997). An alternative treatment for the split skin-graft donor site. *Aesthetic plastic surgery*, 21(3), 207-209.
2. Babajanov, A. S., Akhmedov, A. I., Salokhiddinov, J. B., Musoev, S. T., & Djalolov, D. A. (2020). Risk factors affecting the prognosis of autodermoplasty in patients with various skin defects. *Актуальные проблемы фундаментальной, клинической медицины и возможности дистанционного обучения*. DOI, 10.
3. D'iachenko, P. K., & Vodop'ianova, G. P. (1984). Free stamp-graft autodermoplasty in the treatment of granulating wounds and ulcers. *Vestnik Khirurgii Imeni II Grekova*, 132(5), 94-98.
4. Guogienė, I., Dobilinskas, A., Kievišas, M., & Rimdeika, R. (2018). The Complex treatment of a post-traumatic wound: A Case Report: poster. In *EWMA 2018-28th conference of the European Wound Management Association in cooperation with the Polish Wound management association" New frontiers in wound management"*: Krakow, Poland, 9-11 May 2018: access EWMA webcasts, e-posters, documents and abstracts/European Wound Management Association (EWMA). Krakow: EWMA, 2018.
5. Kryvoruchko, I., Goltsev, K., Ivanova, Y., & Cheverda, V. (2021). The use of negative pressure wound treatment of chronic non-healing wounds.
6. Pavlenko, I. V., Beschastnov, V. V., & Ryabkov, M. G. (2019). Dosed tissue stretching in the preparation of the donor site for chronic wounds split-skin grafting. *Wounds and wound infections. The prof. BM Kostyuchenok journal*, 6(1), 25-33.
7. Ponomarenko, O. V., & Pertsov, V. I. (2016). Optimized approach to surgical treatment of wound surfaces. *Запорожский медицинский журнал*, (6), 93-96.
8. Shvets, V. N., & Vnukova, Z. E. (1990). Effectiveness of treatment of deep and extensive wounds by skin microautografting. *Bulletin of Experimental Biology and Medicine*, 109(5), 628-631.
9. Zaki, I., Scerri, L., & Millard, L. (1994). Split Skin Grafting on Severely Damaged Skin. *Journal of Dermatologic Surgery & Oncology*, 20(12).