Journal of Case Reports and Medical History

(ISSN: 2831-7416) *Open Access*

Short Communication Volume 2 – Issue 8

A Brief Report on the Effect of Covid 19 Pandemic on Patients Undergoing Skin Graft Surgery in a Burns Hospital from March 2019 to March 2020

Hamidreza Alizadeh Otaghvar[1], Arian Karimi Rouzbahani[2,3], Golnaz Mahmoudvand[2,3], Sepehr Moghaddam[4], Saina Adiban Afkham[5] and Zahra Sadat Razavi[3,4,*]

[1]Division of Plastic Surgery, Trauma and Injury Research Center, Iran University of Medical Sciences, Tehran, Iran

[2]Student Research Committee, Lorestan University of Medical Sciences, Khorramabad, Iran

[3]USERN Office, Lorestan University of Medical Sciences, Khorramabad, Iran

[4]Department of Medicine, Islamic Azad University of Medical Sciences, Tehran Medical Branch, Tehran, Iran

[5]Systems Artificial Intelligence Network (SAIN), Universal Scientific Education and Research Network (USERN), Tehran, Iran

[*]**Corresponding author:** Zahra Sadat Razavi, USERN Office, Lorestan University of Medical Sciences, Khorramabad, Iran and Department of Medicine, Islamic Azad University of Medical Sciences, Tehran Medical Branch, Tehran, Iran

Received date: 11 Nov, 2022 | **Accepted date:** 30 Nov, 2022 | **Published date:** 09 Dec, 2022

Citation: Otaghvar HA, Rouzbahani AK, Mahmoudvand G, Moghaddam S, Afkham SA, et al. (2022) A Brief Report on the Effect of Covid 19 Pandemic on Patients Undergoing Skin Graft Surgery in a Burns Hospital from March 2019 to March 2020. J Case Rep Med Hist 2(8): doi https://doi.org/10.54289/JCRMH2200138

Abstract

Introduction: The Covid 19 virus has affected the lives of all people on the planet. To deal with it, the virus's behavior at all levels of work must be examined, as, in this article, we have tried to discuss the behavior of this virus with skin graft surgery patients.

Methods: In this study, about 5,000 patients from March 2019 to March 2020 referred to Motahhari Burns Hospital were about 155 candidates for skin graft surgery. Skin graft surgery involves removing a layer of a person's skin and placing it on the affected area. The doctor selects a matched tissue close to the affected area, removes the skin, and grafts it where it needs to be repaired.

Results: Out of 155 patients included in this study, 101 were men and 54 were women. The patients' age ranged from 13 to 75 years. All patients had positive PCR tests and CT scans confirming Covid 19. The success rate of surgery was 0.445 in men and 0.388 in women.

Discussion: In some cases, reconstructive surgeries such as skin grafting may be required for patients with coronavirus. As Iran has been among countries with the highest number of COVID-19 cases. The success rate of surgery was 0.445 in men and 0.388 in women affected by coronavirus. There is scarcity of data on the association between COVID-19 and skin grafting success. The statistical findings of this study indicated that COVID-19 increased the likelihood of skin graft rejection significantly.

Conclusion: The findings of this study showed that COVID-19 increased the likelihood of skin graft rejection significantly.

Keywords: Covid19; Plastic Surgery; Skin Graft; Skin Transplantation; Burn

Abbreviations: WHO: World Health Organization, SARS-CoV: Acute Respiratory Syndrome Coronavirus

Introduction

Coronaviruses are a big family of viruses that include the common cold virus and the causative agent of SARS **[1,2]**. Chinese corona or Wuhan coronavirus is a new respiratory virus that started in late 2019 and early 2020 in Hubei province and Wuhan city of China and has killed many people. The disease is called "Acute Respiratory Syndrome Coronavirus 2" (SARS-CoV-2) **[3,4]**, and the World Health Organization (WHO) named the virus 19-COVID after the death toll exceeded 1,000. The virus is transmitted through drops in the air through coughing or sneezing, which close people can get through their nose, mouth, or eyes **[5,6]**. The viral particles in these droplets are rapidly transported to the back of the nasal passages and mucous membranes in the throat and attach to a specific cell receptor **[7]**. Coronavirus particles release proteins from their surface, and these clusters attach to cell membranes, allowing the virus's genetic material to enter human cells **[8]**. Swelling and disruption of oxygen flow, a side effect of being infected with the virus **[9]**, can cause lung areas to fill with fluid, pus, and dead cells: pneumonia, an infection of the lungs **[10]**. The virus has affected the lives of all people on the planet. To deal with it, the virus's behavior at all levels of work must be examined, as, in this article, we have tried to discuss the behavior of this virus with skin graft surgery patients.

Methods

In this study, about 5,000 patients from March 2019 to March 2020 referred to Motahhari Burns Hospital were about 155 candidates for skin graft surgery. Skin graft surgery involves removing a layer of a person's skin and placing it on the affected area. The doctor selects a matched tissue close to the affected area, removes the skin **[11,12]**, and grafts it where it needs to be repaired. Removal of the skin for transplantation is in two ways: 1- Half thickness: the transplanted skin has a thickness of about 0.2 to 0.8 mm less than one millimeter. 2- Full-thickness: It is about 0.8 to 1 mm thick **[13]**. Types of skin grafts: 1- Using the person's skin as a donor.2 - Using another person's skin **[14]** 3- Using other existing skin, such as pigs. In the case of 3, the chances of rejecting the link are very high. Because the body considers this bond as foreign and acts against it, the bond will fail. Methods of repairing skin defects **[3]**: In general, to repair the damage to the facial skin, the following three repair methods are used: 1- Primary repair method: In this method, by releasing the skin around the skin deficiency area **[11,14]**, the edges of the skin are Conducted and repaired with absorbent sutures, this method is done to eliminate facial skin defects in the elderly or people with loose skin **[15,16]**. 2- Flap: In this method, the skin is released from the areas around the affected area and is transferred to the skin defect site without separation from its bed **[17,18]**, such as repairing the skin defect with the help of the skin above the neck, whose skin is moved on the cheeks and is transferred. 3- Skin graft: In this method, the skin of other areas of the body is completely removed in a thin layer and is grafted on the damaged skin of the face **[19]**.

Results

Out of 155 patients included in this study, 101 were men and 54 were women. The patients' age ranged from 13 to 75 years. All patients had positive PCR tests and CT scans confirming Covid 19. The success rate of surgery was 0.445 in men and 0.388 in women. Regarding the underlying diseases, diabetes was considered as risk factor in this study. 20 patients had diabetes, 11 of whom received insulin and 9 received metformin. Further information is listed in **table 1**. In this article, the definition of successful and failed surgery was the acceptance of graft or non-acceptance of graft by patients' bodies or any abnormality in acceptance.

Table 1. Data related to patients undergoing skin graft surgery at Shahid Motahari Burns Hospital from March 2019 to March 2020

	Age range	Number of patients with covid 19	The success rate of surgery	Type of surgery
Man	15-75	101	0.445	Graft technique
Woman	15-75	54	0.388	Graft technique

Discussion

The COVID-19 pandemic has led to remarkable modifications in the plastic surgery procedures. Nevertheless, some procedures are unavoidable during the pandemic. To minimize the infection spread, risks and benefits of each procedure should be carefully evaluated. Third degree-burns have been categorized as tier 3-procedures that need to be managed without delay **[20]**. In some cases, reconstructive surgeries such as skin grafting may be required for patients with coronavirus. As Iran has been among countries with the highest number of COVID-19 cases **[1]**, we decided to conduct a study to investigate the effect of COVID-19 on skin graft surgery in patients referred to Motahhari Burns Hospital. The success rate of surgery was 0.445 in men and 0.388 in women affected by coronavirus. There is scarcity of data on the association between COVID-19 and skin grafting success. The statistical findings of this study indicated that COVID-19 increased the likelihood of skin graft rejection significantly. Moreover, the negative effects of diabetes on the outcomes of COVID-19 patients should be taken seriously. Impairment of innate immune response and cytokine dysregulation caused by hyperglycaemia can predispose patients to an extreme immune response even those with low viral load **[21]**. As we know, poor glucose control, high blood sugar variability, and diseases associated with diabetes, especially cardiovascular diseases and obesity worsen the prognosis in these patients **[22,23]**.

Conclusion

The COVID-19 pandemic has affected surgical patients in different ways **[24]**. The findings of this study showed that COVID-19 increased the likelihood of skin graft rejection significantly. Further studies are required to investigate the pathophysiology of skin graft rejection due to coronavirus.

References

1. Dorfman R, et al. (2020) The COVID-19 Pandemic and Plastic Surgery: Literature Review, Ethical Analysis, and Proposed Guidelines. Plast Reconstr Surg. 146(4): 482e-493e.
2. Kamar N, et al. (2021) Three doses of an mRNA Covid-19 vaccine in solid-organ transplant recipients. New England Journal of Medicine. 385(7): 661-662.
3. Ghajarzadeh K, et al. (2021) The Effect of Educational Curriculum Implementation Related to Tracheal Intubation on Preventing Clinical and Psychological Consequences of COVID 19-among Intensive Care Unit Personnel. Annals of the Romanian Society for Cell Biology. 25(2): 2449-2456.
4. Alsharif W and Qurashi A. (2021) Effectiveness of COVID-19 diagnosis and management tools: A review. Radiography (Lond). 27(2): 682-687.
5. Chi D, et al. (2021) Plastic Surgery in the Time of COVID-19. J Reconstr Microsurg. 37(2): 124-131.
6. Cao X. (2020) COVID-19: immunopathology and its implications for therapy. Nature reviews immunology. 20(5): 269-270.
7. Ghajarzadeh K, et al. (2021) The prominent chest CT findings in Covid-19 patients: A systematic review and meta-analysis. Annals of the Romanian Society for Cell Biology. 2466-2484.
8. Ghajarzadeh K, et al. (2021) Effects of Dexmedetomidine and Propofol on Hemodynamic Stability and Ventilation Time in Patients Suffering COVID-19 Admitting to Intensive Care Units. Annals of the Romanian Society for Cell Biology. 2457-2465.
9. Teitelbaum S, Diaz J, and Singer R. (2021) Can Outpatient Plastic Surgery Be Done Safely During a COVID-19 Surge? Results of a July 2020 Los Angeles Survey and Literature Review. Aesthet Surg J. 41(1):

98-108.

10. Nguyen AX, Gervasio KA and Wu AY. (2020) COVID-19 Recommendations From Ophthalmic and Plastic Reconstructive Surgery Societies Worldwide. Ophthalmic Plast Reconstr Surg. 36(4): 334-345.
11. Dahmardehi M, et al. (2020) Wound pH and autograft taking in burn wounds: An experimental study. Indian Journal of Burns. 28(1): 89.
12. Vennix PP, et al. (1994) Growth and differentiation of meatal skin grafts in the middle ear of the rat. Archives of Otolaryngology-Head & Neck Surgery. 120(10): 1102-1111.
13. Singh M, et al. (2015) Challenging the Conventional Therapy: Emerging Skin Graft Techniques for Wound Healing. Plast Reconstr Surg. 136(4): 524e-530e.
14. Otaghvar HA, et al. (2020) Causes of wound dehiscence in trauma patients with penetrating and non-penetrating abdominal wound in Rasool Akram Hospital within 2017-2020. Journal of Surgery and Trauma.
15. Kim HS, et al. (2019) Advanced drug delivery systems and artificial skin grafts for skin wound healing. Advanced drug delivery reviews. 146: 209-239.
16. Silva KA and Sundberg JP. (2013) Surgical methods for full-thickness skin grafts to induce alopecia areata in C3H/HeJ mice. Comparative medicine. 63(5): 392-397.
17. Przekora A. (2020) A concise review on tissue engineered artificial skin grafts for chronic wound treatment: Can we reconstruct functional skin tissue in vitro? Cells. 9(7): 16-22.
18. Pensler JM, et al. (1988) Reconstruction of the burned palm: full-thickness versus split-thickness skin grafts--long-term follow-uPlastic and reconstructive surgery. 81(1): 46-49.
19. Tschoi M, Hoy EA and Granick MS. (2009) Skin flaps. Surg Clin North Am. 89(3): 643-658.
20. Ozturk CN, et al. (2020) Plastic Surgery and the COVID-19 Pandemic: A Review of Clinical Guidelines. Ann Plast Surg. 85(2S Suppl 2): S155-s160.
21. Lisco G, et al. (2020) Hypothesized mechanisms explaining poor prognosis in type 2 diabetes patients with COVID-19: a review. Endocrine. 70(3): 441-453.
22. Jayaswal SK, et al. (2021) Detrimental effect of diabetes and hypertension on the severity and mortality of COVID-19 infection: A multi-center case-control study from India. Diabetes Metab Syndr. 15(5): 102248.
23. Han T, et al. (2021) The Association Between Anti-diabetic Agents and Clinical Outcomes of COVID-19 in Patients with Diabetes: A Systematic Review and Meta-Analysis. Arch Med Res. 53(2): 186-195.
24. Giunta RE, et al. (2020) The COVID-19 Pandemic and its Impact on Plastic Surgery in Europe - An ESPRAS Survey. Handchir Mikrochir Plast Chir. 52(3): 221-232.