INTERNATIONAL JOURNAL OF MEDICAL SCIENCE AND DENTAL HEALTH

Volume04 Issue12, Dec-2018, pg. 01-04

Published Date: - 01-12-2018

E-ISSN: 2454-4191
P-ISSN: 2455-0779

REGAINING DEXTERITY: A CASE REPORT ON PROSTHETIC REHABILITATION OF A LOST FINGER USING HEAT CURE ACRYLIC RESIN

Heena Bhawnani

Dept. Of Prosthodontics, A.C.P.M Dental College, Dhule, Maharashtra, India

Abstract: This case report presents the successful prosthetic rehabilitation of a patient who experienced the loss of a finger due to a traumatic accident. The rehabilitation process involved the use of heat cure acrylic resin to fabricate a custom-made finger prosthesis, aiming to restore both the aesthetics and functionality of the lost digit. The patient, a 42-year-old male, underwent careful assessment and measurements to ensure the precise design and fit of the prosthesis. The heat cure acrylic resin, known for its biocompatibility and durability, was utilized to create a lifelike and flexible prosthesis. The fitting process involved iterative adjustments to achieve optimal alignment and comfort for the patient. As a result of the prosthetic intervention, the patient regained dexterity and experienced a significant improvement in daily activities and overall quality of life. This case report highlights the effectiveness of heat cure acrylic resin in finger prosthetics and underscores the importance of individualized approaches in achieving successful outcomes for patients with digit loss.

Keywords: Prosthetic rehabilitation, finger prosthesis, heat cure acrylic resin, traumatic finger loss, custom-made, dexterity restoration, biocompatibility, functionality, case report.

INTRODUCTION

The loss of a finger due to a traumatic accident can severely impact an individual's ability to perform everyday tasks, affecting their quality of life and overall functionality. Prosthetic rehabilitation offers a promising solution to restore both the aesthetics and function of the lost digit, enabling patients to regain dexterity and independence. Various materials and techniques are employed in finger prosthetics, and heat cure acrylic resin has emerged as a popular choice for its biocompatibility, durability, and versatility in replicating natural tissue appearance. This case report presents a comprehensive account of the prosthetic rehabilitation of a 42-year-old male patient who suffered a traumatic finger loss. The utilization of heat cure acrylic resin in the fabrication of a custom-made finger prosthesis is detailed, highlighting the successful restoration of dexterity and the significant improvement in the patient's quality of life.

METHOD

Patient Assessment:

Published Date: - 01-12-2018

E-ISSN: 2454-4191
P-ISSN: 2455-0779

The patient's medical history, mechanism of injury, and residual finger condition were thoroughly evaluated to determine his eligibility for prosthetic rehabilitation. Additionally, the patient's expectations and functional goals were discussed to guide the prosthetic design.

Measurements and Digital Imaging:

Precise measurements of the remaining finger and adjacent anatomical structures were taken to ensure the accurate design of the prosthesis. Digital imaging technology was employed to create a 3D model of the patient's hand, aiding in the fabrication process.

Prosthesis Design:

Based on the patient's specific anatomical requirements and desired aesthetics, a custom-made finger prosthesis was designed using computer-aided design (CAD) software. Special attention was given to replicate the appearance and texture of the natural finger.

Heat Cure Acrylic Resin Fabrication:

The finger prosthesis was fabricated using heat cure acrylic resin, a biocompatible material known for its strength, lightweight nature, and ability to simulate human tissue color. The fabrication process involved carefully layering and curing the resin to achieve the desired shape and appearance.

Fitting and Adjustments:

The fabricated prosthesis was meticulously fitted to the patient's residual finger, ensuring a comfortable and secure fit. Iterative adjustments were made to achieve optimal alignment and functionality.

Training and Rehabilitation:

The patient underwent training and rehabilitation to adapt to the prosthetic finger, learning how to use it effectively in various activities of daily living. Physiotherapy and occupational therapy were incorporated to enhance the patient's motor skills and functional abilities.

Follow-Up and Evaluation:

Regular follow-up visits were conducted to assess the prosthesis's performance, patient satisfaction, and any issues requiring further adjustments. Objective measurements were taken to evaluate the improvement in dexterity and functional outcomes.

This case report showcases the successful prosthetic rehabilitation of a lost finger using heat cure acrylic resin, highlighting the efficacy of this material in achieving a natural appearance and functional restoration. By employing a patient-centered approach and leveraging advanced technology, the restoration of dexterity was accomplished, significantly enhancing the patient's ability to perform daily tasks and contributing to an improved quality of life.

Published Date: - 01-12-2018

E-ISSN: 2454-4191
P-ISSN: 2455-0779

RESULTS

The prosthetic rehabilitation of the patient with a custom-made finger prosthesis using heat cure acrylic resin yielded remarkable results. The fabricated prosthesis closely resembled the patient's natural finger in appearance and texture, providing a lifelike and aesthetically pleasing outcome. The biocompatibility and durability of the heat cure acrylic resin ensured the prosthesis's safety and longevity during daily use. Through meticulous fitting and iterative adjustments, optimal alignment and comfort were achieved, enabling the patient to utilize the prosthesis effectively.

DISCUSSION

The successful restoration of dexterity in this case report exemplifies the efficacy of heat cure acrylic resin in finger prosthetics. This material's properties, such as biocompatibility and lightweight nature, make it an ideal choice for replicating human tissue characteristics. By employing digital imaging and CAD technology, a custom-made prosthesis was designed, taking into consideration the patient's unique anatomical requirements and functional goals. The use of heat cure acrylic resin allowed for precise fabrication, ensuring a seamless integration with the remaining finger and enhancing the overall functionality.

Moreover, the patient's rehabilitation process played a crucial role in the success of the prosthetic intervention. By providing training and support, the patient learned to adapt to the prosthesis and effectively utilize it in various activities of daily living. The incorporation of physiotherapy and occupational therapy further contributed to the patient's motor skill development, promoting enhanced dexterity and independence.

The psychosocial impact of the prosthetic rehabilitation should not be overlooked. As the patient regained the ability to perform daily tasks with increased confidence and independence, the prosthetic intervention positively influenced his overall well-being and quality of life. The restored dexterity offered renewed hope and optimism, allowing the patient to engage more actively in social interactions and personal pursuits.

CONCLUSION

The prosthetic rehabilitation of the patient with a lost finger, utilizing heat cure acrylic resin, exemplifies the effectiveness of this material in achieving functional and aesthetic restoration. The successful outcome of this case report underscores the importance of individualized approaches and advanced technology in finger prosthetics. By employing digital imaging, CAD design, and heat cure acrylic resin fabrication, a custom-made finger prosthesis was created, enabling the patient to regain dexterity and independence in daily activities.

Published Date: - 01-12-2018

E-ISSN: 2454-4191
P-ISSN: 2455-0779

The rehabilitation process, including training and therapy, further enhanced the patient's adaptation to the prosthesis, contributing to improved motor skills and functional outcomes. The patient's regained confidence and improved quality of life are testaments to the positive impact of prosthetic interventions.

As the field of prosthetics continues to advance, the utilization of materials like heat cure acrylic resin and the integration of comprehensive rehabilitation strategies hold promise in further improving the lives of individuals with digit loss. This case report serves as a valuable contribution to the prosthetic rehabilitation literature, inspiring further research and innovation to enhance the efficacy and accessibility of finger prosthetics, ultimately empowering patients to regain dexterity and reclaim their independence.

REFERENCES

1. Vikas B. Kamble et al. Finger Prostheses for Multiple Finger Amputations: Two Case Reports. Nat J Med Dent Res 2013; 1(2) : 38-42
2. Aydin C, Karakoca S, Yilmaz H. Implant-retained digital prostheses with custom-designed attachments: A clinical report. Journal of Prosthetic Dentistry. 2007; 97: 191-95.
3. Pereira BP, Kour AK, Leow EL and Pho RW. Benefits and use of digital prostheses. J Hand Surg Am 1996; 21(2): 222–228.
4. Pilley MJ, Quinton DN. Digital prostheses for single finger amputations. J Hand Surg [Br] 1999; 24(5):539-41
5. Jean Pillet, Evelyn J. Mackin.O and P Library Aesthetic Restoration. Atlas of Limb Prosthetics: Surgical, Prosthetic, and Rehabilitation Principles: Partial-Hand Amputations.
6. Udita S Maller KaSM. Maxillofacial prosthetic materials past and present trends. JIADS. 2010; 1(2):25-30