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17(9) 2022  
Editorial

## Hemicorporectomy rehabilitation

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Received: 11.10.2022;  
Manuscript No. jotsrr-22-78980;  
Editor assigned: 12.10.2022, PreQC  
No. jotsrr-22-78980 (PQ);  
Reviewed: 26.10.2022,  
QC No. 78980 (Q);  
Revised: 3.11.2022,  
Manuscript No. 78980 (R);  
Published: 9.11.2022,  
DOI. 10.37532/1897-  
2276.2022.17(10).72

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### Abstract

Hemicorporectomy is a surgical procedure that removes the lumbar spine and spinal cord, pelvic bones and contents, lower extremities, and external genitalia. The rehabilitation process is not only time-consuming and expensive, but also difficult. This article describes the rehabilitation process for hemicorporectomy and demonstrates innovative mobility solutions for paraplegic patients in two cases: case 1 due to traumatic spinal cord injury from a firearm injury and case 2 due to lumbosacral myelomeningocele. They had a chronic pressure ulcer that progressed to neoplastic transformation. (Marjolin's ulcer - squamous cell carcinoma) The patients underwent L4 hemicorporectomy and were rehabilitated to ensure the right to mobility independence for activities of daily living; social inclusion; comorbidity prevention; and disability pluralization.

Keywords: Assistive Technology, Amputation, Hemicorporectomy, Rehabilitation, Prosthesis, Case Reports

## INTRODUCTION

Hemicorporectomy, also known as translumbar amputation or translumbectomy, is a surgical procedure used to save someone who is in severe pain and at risk of death, in which the spine, lumbar spinal cord, pelvic bones and contents, lower extremities, and external genitalia are removed.

This permanent body modifying surgery is a sometimes curative treatment for trauma, ulcers, neoplasms, or locally extensive and advanced pelvic infectious processes that cannot be controlled by other treatments.

Pelvic traumatic crushing, osteomyelitis, squamous cell carcinoma, chondrosarcomas, and pressure ulcers complicated by Marjolin's ulcer are all examples of refractory and intractable situations. Before amputation, the patient's desire and acceptance, the stage of the disease that motivates the indication (tumour, infection, trauma, wound), the clinical and ethical conditions, the prognosis, and the patient's ability to support and socialise must all be considered. In other words, not just the chances of survival but also the risk of death and willingness to live with functional resumption should be considered. To understand and deal with the physical, functional, and emotional manifestations of hemicorporectomy, the patient's emotional and psychological conditions must be treated [1-4].

## CASE PRESENTATION

The rehabilitation of two consecutive cases treated at the Instituto de Medicina Física e Reabilitação of the Hospital das Clínicas of the Faculdade de Medicina of the Universidade de São Paulo, SP, Brazil (IMREA-HCFMUSP) was carried out after receiving patients' written informed consent and approval by the Ethics and Research Committee - Comissão de Ética para Análise de Projetos de Pesquisa - CAPP. The progression of the cases was evaluated before and after one year of rehabilitation, using standardised instruments validated for Brazilian Portuguese and routinely applied to IMREA-HCFMUSP patients, as shown below: The Functional Independence Measure (FIM):15 assesses a person's performance in daily activities. Each item has seven levels of difficulty, with level seven representing total independence and level one representing total dependency [5-7].

World Health Organization Quality of Life Instrument-Brief Version (WHOQOL-bref): A World Health Organization (WHO) instrument that assesses overall quality of life.

## DISCUSSION

Hemicorporectomy is a surgical procedure that removes a large body mass with perioperative morbidity. Ferrara et al. described the best postoperative outcome for pressure ulcer hemicorporectomy. Patients

with congenital paraplegia have a more facilitated rehabilitation process, according to Elliot P et al., because even the paralysed parts are functional, and they learn to take advantage of the full potential for functionality. These facts could have influenced our findings. Despite the lack of data in the literature on the subject, we can compare and rely on patients with proximal amputations, such as hip disarticulation and hemipelvectomy - which are more similar to hemicorporectomy. The morbidity of these amputations is higher. The greater the energy expenditure for prosthetic gait, the closer the amputation level. Furthermore, it is difficult to stabilise, balance, and balance with the prosthesis during gait, which makes the use of prostheses a less functional process in more proximal amputations.

However, as prosthetic technology advances, patients are increasingly choosing prosthetics for primary locomotion.

35 Patients in our study continued to use their prostheses for outdoor activities, short-distance walking indoors and outdoors, and social presentations.

Rehabilitation after hemicorporectomy is lengthy and difficult, but according to other studies<sup>5</sup>, many patients have been able to reintegrate into the labour force, returning to preoperative occupations and enjoying a higher quality of life. The patient in the first case, who was previously unemployed and reliant on government benefits, became an employer, had a more social life, married, and improved his and his family's economic circumstances. In the second case, the patient went from being unemployed to having two jobs, which improved his working conditions and social life [8,9].

In our institution's daily clinical practise, people with paraplegia consider removing their lower limbs and imagining how they would function without the legs. This type of behaviour, obviously, cannot be proposed or practised. However, these two cases show that in extreme situations, where there is a risk of death and previous attempts have failed, being without lower limbs through a specific body modifying procedure can be the solution that not only provides a question of survival, but also real gains in functionality, social participation, and productive life. We only report two cases of hemicorporectomy because it is a rare procedure. Although there has been no variation in surgical technique thus far, postoperative management, environmental conditions, and social support for each case have been different, making it difficult to form a homogeneous group. We only review patients' medical records, limiting the amount of data that can be gathered.

## CONCLUSION

Hemicorporectomy may be a therapeutic option for those in need because it restores functionality without the need for caregivers and re-establishes educational, professional, economic, and social aspects while improving quality of life.

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