



## Necrotizing Perineal Fasciitis, A Challenge in Treatment!

Liliana Grilo Miranda<sup>1,2\*</sup>, João Neves-Amado<sup>2</sup> and Paulo Alves<sup>2</sup>

<sup>1</sup>Unidade Local de Saúde de Trás-os-Montes e Alto Douro, Vila Real, Portugal

<sup>2</sup>Instituto Ciências da Saúde da Universidade Católica Portuguesa, Porto, Portugal

\*Corresponding Author: Liliana Grilo Miranda, Unidade Local de Saúde de Trás-os-Montes e Alto Douro, Vila Real, Portugal.

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### Abstract

**Objectives:** To present a case series of necrotizing perineal fasciitis; - To share expertise in the treatment of complex wounds with deep tissue infection, using Negative Pressure Wound Therapy.

**Methodology:** Case reports.

**Results:** We present three cases. First one of necrotizing perineal fasciitis in a female patient, and second and third of necrotizing fasciitis due to Fournier gangrene in males (ICD – 10 N49.3). After cleaning and surgical debridement in the operating room, extensive and deep lesions resulted, with muscular involvement in a difficult anatomical region requiring bypass of the intestinal transit. Treatment was started with Negative Pressure Wound Therapy with dressing replacement 2 times a week, initially as an inpatient and then at the outpatient clinic until complete healing of the lesions.

**Conclusion:** With the use of Negative Pressure Wound Therapy we were able to heal these extensive and deep lesions located in difficult anatomical areas, with a significant reduction in healing time, allowing an early discharge, also contributing to a better quality of life for the person.

**Keywords:** Necrotizing Fasciitis; Negative Pressure Wound Therapy; Healing

### Introduction

Necrotizing perineal fasciitis is a complex infection, that starts in external genitalia or perineum, most male sex, with high morbidity and mortality, mainly because most patients seek medical services late, at an advanced stage of the infectious process [1].

There are several studies that recommend the use of Negative Pressure Wound Therapy (NPWT) in the treatment of lesions of this nature, with benefit in the patient's well-being and in reducing healing time [2].

Necrotizing fasciitis, when not diagnosed and treated early, rapidly progresses to sepsis and multi-organ failure with reserved clinical outcomes, particularly in the elderly and in emergent surgery [2].

Initially, symptoms are sometimes non-specific and can delay diagnosis. Late intervention leads to progression of the infection to more distal anatomical regions, with the appearance of more typical symptoms such as blisters, purulent secretion, crepitus or necrosis, accompanied by systemic syndrome, sepsis, shock or Multiple Organ Dysfunction Syndrome (MODS), and even death [3].

Treatment includes targeted antibiotherapy, extended surgical debridements and the application of NPWT [1,2]. NPWT will speed up tissue repair, as well as allowing the exudate to be properly managed by suctioning it into a reservoir in a closed, water-tight circuit. There is often need for urine diversion by a bladder catheter and intestinal transit diversion with the construction of a colostomy [3,4].

Although aggressive surgical debridement, treatment with broad-spectrum antibiotics, intensive care and anaesthesia, mortality rates can be high [5]. Usually, complete debridement is rarely achieved with a single surgical operation in complex necrotising fasciitis [4].

The benefits of NPWT are significant compared to other approaches in the treatment of necrotising fasciitis. The greatest benefits of applying NPWT to necrotising fasciitis are early discharge, healing time and improved quality of life [4,5].

### Case Study

In our case study, we present a series of three case reports following patients with necrotizing perineal fasciitis. All patients were treated using NPWT after surgical debridement and cleaning with an electrolyzed solution of sodium hypochlorite and hypochlorous acid, specifically to address the multifaceted challenges of wound care, providing effective exudate management, infection control and creating ideal wound healing conditions.

#### Case report 1

A 58-year-old caucasian female patient with chronic venous insufficiency and dyslipidaemia was admitted to the Surgical Department with necrotizing perineal fasciitis in the buttocks, requiring surgical debridement in the operating theatre and the construction of a colostomy to bypass intestinal transit. During treatment, she was kept with a bladder catheter for better management of urinary elimination and better sealing. With NPWT applied progress was remarkable, with a reduction in inflammatory signs and in wound size, with healing after four weeks of treatment (figure 1).

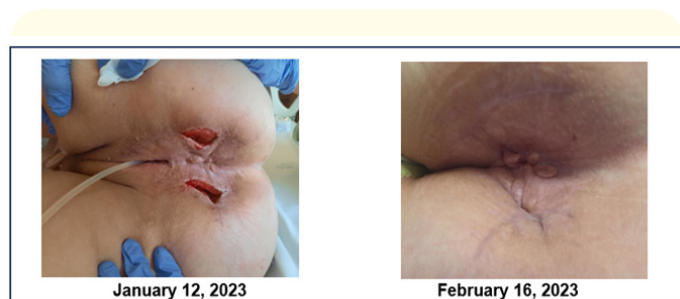


Figure 1: Status of the wound (case report 1).

	Beginning of treatment (Day 1)	The end of treatment (Day 34)
Wound size	2,6 cm x 6 cm	Healed
Exudate	Moderate	None
Wound bed	Granulation tissue (100%)	Epithelization tissue

Table 1: Case report 1: Wound status.

#### Case report 2

A 67-year-old caucasian man patient had Fournier’s gangrene extending from the scrotum to the anus. Surgical debridement was carried out in the operating theatre and NPWT was applied. There was also a need for a colostomy to divert intestinal transit, as well as a vesical catheter. The wound evolved favourably, with growth of granulation tissue and surface contraction, allowing suture approximation of the edges, maintaining NPWT to optimise healing, which took place five weeks after the start of treatment (figure 2).



Figure 2: Status of the wound (case report 2).

	Beginning of treatment (Day 1)	The end of treatment (Day 39)
Wound size	20 cm x 10 cm	Healed
Exudate	Moderate	None
Wound bed	Granulation tissue (100%)	Epithelization tissue

Table 2: Case report 2: Wound status.

#### Case report 3

A 63-year-old caucasian man patient with hypertension, dyslipidaemia and hyperuricaemia was admitted to the Emergency Department with extensive Fournier’s gangrene. He immediately went to the operating theatre for surgical debridement of the necrotic tissues and colostomy to divert intestinal transit, as well as

vesical catheterism for safe urine elimination. This resulted in an extensive, deep wound with scrotal exposure and extending to the region adjacent to the bilateral anus. After applying NPWT, the wound showed significant progress in terms of healing, with growth of granulation tissue, contraction of the edges and a reduction in exudate. After two weeks of treatment, it was possible to approximate the edges in the median region of the wound, maintaining NPWT. After six weeks of treatment, the NPWT was suspended and the wound was dressed with multi-layered polyurethane foam until it healed, for a further three weeks (figure 3).



Figure 3: Status of the wound (case report 3).

	Beginning of treatment (Day 1)	The end of treatment (Day 66)
Wound size	40 cm x 15 cm	Healed
Exudate	Moderate	None
Wound bed	Granulation tissue (80%) Fibrine layer (20%)	Epithelization tissue

Table 3: Case report 3: Wound status.

**Discussion**

Although advances in care in recent decades, the mortality rate associated with the presence of necrotising fasciitis remains high. NPWT, as an advanced wound healing technique, is the technique of choice in the adjuvant treatment of complex wounds such as those resulting from necrotising fasciitis, besides debridement [6].

Necrotising fasciitis, as a serious and potentially fatal soft tissue infection, is a surgical emergency due to the rapid progression of inflammation that leads to extensive necrosis and tissue destruction [7].

Diagnosis is not always easy due to the variable and non-specific clinical presentation, which contributes to high mortality rates. Early diagnosis and immediate and aggressive medical-surgical treatment, complemented by NPWT, are essential for positive results [7].

Complex wounds have a very significant negative impact on patients, and on the economy of healthcare systems, and cause pain, anxiety and an impact on quality of life [8].

NPWT offers several advantages over conventional debridement and drainage, such as, contracting the wound and reduction of exudate, resulting in excellent clinical results. We prove that NPWT is the gold standard of therapeutic option of choice when dealing with this type of complex wound, as well as the multidisciplinary team approach for a positive healing outcome, in Hospital environment [6,8].

This therapy appears to be a safe and effective alternative in the treatment of necrotising fasciitis, as an adjunct therapy to antibiotic and surgical treatment, reducing the length of hospital stay, healing and recovery time for patients [9].

**Conclusion**

Our case study was designed to investigate the efficiency and determine potential advantages of using NPWT. After cleaning and surgical debridement in the operating room, extensive and deep lesions resulted, with muscular involvement in a difficult anatomical region requiring bypass of the intestinal transit. Treatment was started with NPWT at 125 mmHg with dressing replacement 2x/week, initially as an inpatient and then as an outpatient clinic until complete healing of the lesions.

We were able to heal these extensive and deep lesions located in difficult anatomical areas, with the use of NPWT, achieving a significant reduction in healing time, and an early discharge, also contributing to a better quality of life for the person.

**Conflict of Interest**

We have no conflict of interest or financial interest to declare.

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