



## SURGICAL APPROACH TO MALIGNANT SKIN LESIONS: A CASE REPORT USING THE FIGUEIREDO TECHNIQUE

### ABORDAGEM CIRÚRGICA DE LESÕES MALIGNAS DE PELE: RELATO DE CASO COM A TÉCNICA DE FIGUEIREDO

### ABORDAJE QUIRÚRGICA DE LAS LESIONES CUTÁNEAS MALIGNAS: REPORTE DE CASO UTILIZANDO LA TÉCNICA DE FIGUEIREDO



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#### ABSTRACT

**Background:** Squamous cell carcinoma (SCC) is an aggressive cutaneous malignancy with potential for local invasion and metastasis, particularly in areas chronically exposed to ultraviolet radiation. Surgical excision with tumor-free margins is the gold standard; however, wound closure remains challenging in functionally and aesthetically critical regions, especially in patients with comorbidities that impair healing. The Figueiredo Technique, by redistributing tension and precisely aligning wound edges, enhances healing, reduces complications, and optimizes functional and cosmetic outcomes.

**Methods:** This retrospective, observational, descriptive case report was based on the analysis of medical records of a patient under follow-up at the Oncologic Surgery Follow-up Department of a philanthropic teaching hospital in Esp rito Santo, Brazil. Clinical data, lesion characteristics, operative technique, healing time, complications, and outcomes were collected. The surgical description was supported by medical records and literature on the Figueiredo Technique.

**Results:** An elderly diabetic patient presented with advanced, large-dimension SCC of the forearm. Wide excision with tumor-free margins was performed, followed by wound closure using the Figueiredo Technique. The approach minimized tension, facilitated healing, and yielded satisfactory aesthetic and functional results. No infection or dehiscence occurred. In diabetic patients, the technique also contributes to the management of microvascular alterations, reducing necrosis risk and promoting adequate cellular repair in the medium term.

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**Conclusion:** The Figueiredo Technique proved effective for closure of extensive oncologic wounds, particularly in patients with comorbidities. In this case, it ensured proper healing and absence of complications, reinforcing its functional and aesthetic advantages. Continuous specialized follow-up remains essential in clinical practice.

**Keywords:** Cutaneous Neoplasms. Wound Closure Techniques. Surgical Oncology.

## RESUMO

**Introdução:** O carcinoma espinocelular (CEC) é uma neoplasia cutânea de comportamento agressivo, com potencial de invasão local e risco de metástase, particularmente em áreas cronicamente expostas à radiação ultravioleta. A ressecção cirúrgica com margens livres é o tratamento padrão, mas o fechamento da ferida pode ser um desafio em regiões de importância funcional e estética, especialmente em pacientes com comorbidades que comprometem a cicatrização ou em caso de feridas amplas. A Técnica de Figueiredo, ao redistribuir a tensão e alinhar precisamente os bordos, favorece a cicatrização, reduz complicações e otimiza resultados estéticos e funcionais.

**Objetivo:** Relatar o caso de uma paciente idosa e diabética com carcinoma espinocelular avançado e de grandes dimensões em antebraço, descrevendo a abordagem cirúrgica e a aplicação da Técnica de Figueiredo, enfatizando desafios e resultados.

**Método:** Estudo retrospectivo, observacional e descritivo, na modalidade relato de caso, baseado na análise de prontuário de paciente em acompanhamento no Ambulatório de Cirurgia Oncológica de um hospital-escola filantrópico no Espírito Santo. Foram coletadas informações sobre dados clínicos, características da lesão, técnica operatória, tempo de cicatrização, complicações e desfechos. A descrição cirúrgica foi fundamentada em registros médicos e literatura sobre a Técnica de Figueiredo.

**Relato de Caso:** A excisão ampla com margens livres é o padrão-ouro para lesões malignas. Em pacientes com comorbidades, a cicatrização é mais complexa. A Técnica de Figueiredo reduz tensão, melhora resultados estéticos e minimiza complicações, mostrando-se eficaz em áreas expostas. Nesta paciente, a escolha da técnica favoreceu uma boa evolução, sem infecção ou deiscência, evidenciando segurança e efetividade. Ademais, seu uso em indivíduos diabéticos facilita o controle das possíveis alterações microvasculares, reduzindo riscos de necrose e promovendo reparação celular adequada em médio prazo.

**Conclusão:** A Técnica de Figueiredo demonstrou eficácia no fechamento de feridas oncológicas de grandes dimensões, sobretudo em pacientes com comorbidades. No caso relatado, proporcionou cicatrização adequada e ausência de complicações, reforçando suas vantagens funcionais e estéticas. Na prática, reforça a importância de um acompanhamento especializado e contínuo.

**Palavras-chave:** Neoplasias Cutâneas. Técnicas de Fechamento de Ferimentos. Oncologia Cirúrgica.

## RESUMEN

**Introducción:** El carcinoma de células escamosas (CCE) es una neoplasia cutánea de comportamiento agresivo, con potencial de invasión local y riesgo de metástasis, particularmente en áreas crónicamente expuestas a la radiación ultravioleta. La resección quirúrgica con márgenes libres es el tratamiento estándar, pero el cierre de la herida puede ser un desafío en regiones de importancia funcional y estética, especialmente en pacientes con comorbilidades que comprometen la cicatrización. La Técnica de Figueiredo, al



redistribuir la tensión y alinear con precisión los bordes de la herida, favorece la cicatrización, reduce las complicaciones y optimiza los resultados estéticos y funcionales.

**Objetivo:** Reportar el caso de una paciente anciana y diabética con carcinoma de células escamosas avanzado en el antebrazo, describiendo el abordaje quirúrgico y la aplicación de la Técnica de Figueiredo, enfatizando los desafíos y resultados en un hospital-escuela filantrópico en Espírito Santo, Brasil.

**Método:** Estudio retrospectivo, observacional y descriptivo en la modalidad de reporte de caso, basado en el análisis de la historia clínica de una paciente en seguimiento en el Departamento de cirugía Oncológica de un hospital-escuela filantrópico en Espírito Santo. Se recopilaban datos clínicos, características de la lesión, técnica quirúrgica, tiempo de cicatrización, complicaciones y desenlaces. La descripción quirúrgica se fundamentó en registros médicos y literatura sobre la Técnica de Figueiredo.

**Reporte de Caso:** La escisión amplia con márgenes libres es el estándar de oro para las lesiones malignas. En pacientes con comorbilidades, la cicatrización es más compleja. La Técnica de Figueiredo reduce la tensión, mejora los resultados estéticos y minimiza las complicaciones, demostrando eficacia en áreas expuestas. En esta paciente, la elección de la técnica favoreció una buena evolución, sin infección ni dehiscencia, evidenciando seguridad y efectividad. Además, su uso en individuos diabéticos facilita el control de posibles alteraciones microvasculares, reduciendo el riesgo de necrosis y promoviendo una reparación celular adecuada a mediano plazo.

**Conclusión:** La Técnica de Figueiredo demostró eficacia en el cierre de heridas oncológicas, especialmente en pacientes con comorbilidades. En el caso reportado, proporcionó una cicatrización adecuada y ausencia de complicaciones, reforzando sus ventajas funcionales y estéticas. Esta práctica resalta la importancia de un seguimiento especializado y continuo.

**Palabras clave:** Neoplasias Cutáneas. Técnicas de Cierre de Heridas. Oncología Quirúrgica

## 1 INTRODUCTION

Malignant skin lesions represent a significant challenge in medical practice due to their high incidence and functional and aesthetic impact on the patient (INCA, 2023). Among the main types of skin cancer, basal cell carcinoma (BCC), squamous cell carcinoma (SCC), and melanoma stand out, each with distinct clinical characteristics, prognosis, and therapeutic approaches (SOUZA et al., 2021).

BCC is the most frequent type of skin cancer, characterized by slow growth and rarely metastatic, and is directly associated with chronic exposure to ultraviolet (UV) radiation (BRASIL, 2022). SCC, on the other hand, presents a more aggressive behavior, with a higher risk of metastasis, and is often preceded by premalignant lesions, such as actinic keratoses (SILVA; MENEZES, 2020). Melanoma, in turn, is the most lethal form of skin cancer, due to its high metastatic capacity, despite its lower incidence compared to other types (OLIVEIRA et al., 2019).

The treatment of these skin malignancies depends on factors such as disease stage, location, and histopathological characteristics of the lesion. Surgical excision is the standard approach, aiming at complete removal of the tumor with adequate safety margins to reduce the risk of recurrence (COSTA; ALMEIDA, 2021). However, surgical wound closure can represent a challenge, especially in areas with high aesthetic and functional requirements, such as the face and extremities (MARTINS et al., 2020) or in the case of large lesions.

In this context, advanced skin closure techniques have been studied to improve postoperative results. Figueiredo's technique stands out as an innovative approach, which prioritizes the uniform distribution of tension and the precise alignment of the wound edges, favoring healing and reducing complications, such as infections and dehiscence (FIGUEIREDO, 2018). In addition, its application is versatile, allowing for better aesthetic and functional results in different anatomical regions.

## 2 METHODOLOGY

This is a retrospective observational, descriptive and qualitative study, of the case report type, case of a patient who underwent resection of a malignant skin lesion with surgical closure using the Figueiredo Technique.

Data collection was performed through retrospective analysis of the patient's medical records, including information on age, comorbidities, location and characteristics of the lesion, operative technique employed, healing time, postoperative complications, and clinical outcomes. The description of the surgical procedure was based on medical records and a review of the literature on the Figueiredo Technique.

### 3 CASE REPORT

Female patient, 84 years old, diabetic, hypertensive, with a history of previous ischemic stroke, white, farmer, born and living in the rural area of Guarapari-ES. She attended the first appointment at the Oncological Surgery service of a philanthropic hospital in Espírito Santo, in September 2024, presenting an invasive, infected, and friable ulcer-vegetating lesion, with keratotic borders, located on the left forearm. The lesion measured 10 cm x 8 cm and invaded deep planes (Photos 1 and 2), with an incisional biopsy performed in February 2024, which confirmed the diagnosis of squamous cell carcinoma (SCC).

For better surgical planning, a computed tomography (CT) scan of the forearm was requested, which revealed alterations possibly related to sequelae of an old fracture, in addition to cutaneous-subcutaneous thickening in the lateral portion of the left forearm, with imprecise boundaries and extension of approximately 117 mm in the coronal plane, with no apparent associated muscle or bone involvement in the region.

Due to the large size of the lesion, the site of involvement, the multiple comorbidities and the advanced age of the patient, excision of the lesion was indicated (Photos 3 and 4) with closure using the Figueiredo technique (Photo 5). Due to the high cardiac risk, the immediate postoperative period in an Intensive Care Unit (ICU) bed was indicated. In the intraoperative period, there was prophylactic administration of cefazolin 2 g for 24 hours, with no major difficulties during surgery and the patient was discharged from the hospital within 48 hours after surgery.

At the first review visit, held on the 11th postoperative day (PO), the patient did not present complaints, and the surgical wound (FO), as well as the Figueiredo dressing, were in good shape (Photos 6 and 7). At the second follow-up visit, on the 18th postoperative day, the patient remained asymptomatic. The anatomopathological examination confirmed a well-differentiated invasive SCC, with an extension of 11 cm x 7.5 cm, without angiolymphatic or perineural invasion and with margins free of neoplasia, and was thus referred to the clinical oncology outpatient clinic for joint evaluation of the therapeutic strategy.

At the third follow-up visit, on the 23rd postoperative day, the patient maintained a good evolution, with only one area of fibrin in the dressing, with no signs of purulent secretion. At the fourth review visit, on the 39th postoperative day, the patient remained asymptomatic, and the Figueiredo dressing was then removed and replaced with a simple dressing with sunflower oil. The treatment was recommended to continue with the application of Kollagenase and chloramphenicol in the center of the wound, in addition to sunflower oil on its edges.

At the fifth follow-up visit, held on the 53rd postoperative day, the patient remained asymptomatic, presenting a wound with a good scarring appearance, with a fibrin area, but with satisfactory evolution. At the sixth review visit, on the 67th postoperative day, the OF showed improvement in relation to the previous visit, with a fibrin area, but no signs of purulent secretion. At the seventh revision visit, performed on the 102nd postoperative day, the surgical wound showed good evolution, now without areas of fibrin or secretion, and with the presence of granulation tissue.

At the eighth revision visit, on the 130th postoperative day, the patient remained asymptomatic and the FO already presented as an extensive hypertrophic scar with heterogeneous coloration (areas of hypopigmentation, hyperpigmentation, and erythema), areas of fibrosis, and moderate retraction, which was better for evolution (Photo 8).

#### **4 RESULTS AND DISCUSSIONS**

The surgical approach to malignant skin lesions, such as melanoma and more common subtypes of non-melanoma cancer (basal cell carcinoma and squamous cell carcinoma), is essential for effective treatment and prevention of recurrences, and involves complete excision of the lesion with free margins, being the gold standard for most of these conditions. The subsequent closure of the wound represents a major challenge, especially in patients with comorbidities, such as diabetes and hypertension, which can affect both the healing process and the postoperative course. The use of the Figueiredo Technique in wound closure after resection of the malignant lesion has been shown to be an effective and advantageous option, providing superior aesthetic and functional results, in addition to minimizing complications such as dehiscence, infection, and hypertrophic scarring.

In the case reported here, the elderly patient with a history of significant comorbidities, such as diabetes mellitus, hypertension, and stroke, had an advanced and large SCC in the left forearm, which required additional preoperative planning for better effectiveness in the approach. Figueiredo's technique was chosen not only for its ability to reduce tension at the edges of the wound (one of the main benefits), but also because of its ability to provide a more harmonious and aesthetically pleasing closure, which is crucial in areas of greater functional demand and high exposure.

According to the literature, wide resection of malignant skin lesions is considered the gold standard in the treatment of these cases, but the choice of technique may vary according to the surgeon's experience and the specific presentation of the lesion. Studies have shown that the complication rate and the occurrence of recurrences after the use of the Figueiredo technique are low, with generally favorable aesthetic results. These data are consistent with



the findings of this case, in which a good postoperative evolution and absence of significant complications were observed, demonstrating the efficacy of the Figueiredo technique, especially in patients with comorbidities that may predispose to complications. This was also evident in subsequent consultations, when the patient showed no signs of infection and the wound maintained a healthy, scarring appearance.

The use of the Figueiredo Technique in patients with comorbidities, as in the case described, is relevant, as minimizing tension and preserving healthy tissue can accelerate recovery and reduce the risk of complications to wounds under closure by second intention. Another important point to be discussed is the application of the technique in places that are difficult to resect or with a high risk of impaired healing. In this sense, the technique offers benefits both in terms of efficacy and safety, since precise removal and proper closure of the edges reduce the risk of postoperative complications. However, it should also be noted that, as in any surgical technique, the Figueiredo Technique presents challenges, such as longer healing time. However, the balance between the aesthetic and functional advantages of the technique in complex anatomical areas, such as the forearm, justifies its choice, especially in patients whose clinical conditions require delicacy and precision. The patient's follow-up also highlighted the importance of a rigorous follow-up in cases of malignant skin lesions because, although the technique showed an excellent result in terms of healing and preservation of forearm functionality, the healing time observed was relatively longer, which is an important consideration in diabetic patients. Diabetes mellitus can delay the inflammatory response and the cell repair process, making it essential to closely monitor the postoperative evolution. The patient, however, recovered without serious complications, such as infection or dehiscence, which demonstrated planning and effective use of the technique for the case.

Compared to other surgical techniques, such as simple excision or Mohs micrographic surgery, the Figueiredo technique is a viable option in selected cases, especially in less complex lesions and in less aesthetically challenging areas. Thus, Figueiredo's wound closure technique is a valuable alternative in the therapeutic arsenal for the treatment of malignant skin lesions, and the preoperative planning should always be adapted to the clinical profile of each patient and to the characteristics of the lesion. Future studies with a larger number of patients will be essential to further validate its efficacy in different clinical scenarios.

In summary, the Figueiredo technique proved to be an excellent option for wound closure in patients with malignant skin lesions, offering good aesthetic and functional results, especially in patients with multiple comorbidities. The choice of this technique, combined with strict postoperative follow-up, contributed to a satisfactory recovery and minimized the risk of



complications. Adequate surgical treatment, combined with a well-structured follow-up plan, is essential for the success of the treatment and for the patient's quality of life.

## 5 CONCLUSION

In view of the above, the Figueiredo Technique is an important therapeutic option for surgical closure of malignant skin lesions after resection, especially in patients with comorbidities. From this report, it was possible to observe a satisfactory postoperative evolution, with adequate healing and absence of significant complications, thus confirming the efficiency of the technique. Although the healing time may be longer in some cases, the reduction of tension in the suture, the good accommodation of the tissues, and the favorable aesthetic result reinforce its advantages, thus making it a valuable alternative to be considered in various clinical scenarios.

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## ANNEXES

**Photo 1 and 2:** Surgical site before the surgical approach

**Photos 3 and 4:** Surgical site after resection, before the application of Figueiredo's wound closure technique

**Photo 5:** Surgical site after application of the Figueiredo wound closure technique, still in the intraoperative period

**Photo 6 and 7:** Patient in postoperative outpatient follow-up

**Photo 8:** Appearance of the surgical site after removal of the Figueiredo dressing and healing consolidation

