

BACKGROUND

Skin adhesives have an important role to protect the wounds and secure medical devices. The frequent changing of the Peripherally Inserted Central Catheter (PICC) dressing can result in damage and peeling of the skin layers and consequently skin's barrier function, making them susceptible to Medical Adhesive Related Skin Injury (MARSI)¹.

The incidence of Medical Adhesive Related Skin Injury (MARSI)¹ at the insertion site of a PICC can range from 26.4% to 33.99% in oncology.^{2,3}

Photobiomodulation therapy is used to accelerate tissue repair processes, due to its biomodulatory effects on cells, in a non-invasive way. They activate or inhibit physiological, biochemical and metabolic processes through photophysical or photochemical effects. These biomodulatory phenomenon promote the therapeutic effects of morphodifferentiation and cell proliferation, tissue neoformation, revascularization, edema reduction, greater cell regeneration, increased local microcirculation and vascular permeability.⁵ This is a field that needs to be further explored in the specialty of infusion therapy as an option to manage possible complications faster, more comfortably and more economically.

AIM

To report the tissue repair of a medical adhesive lesion on PICC insertion with photobiomodulation.

METHODS

LKM, female, white, 74 years old, retired, after an allogeneic bone marrow transplant 4 years ago due to Acute Myeloid Leukemia, hospitalized due to chronic intestinal obstruction, requiring absolute fasting. 5 days after admission, a triple lumen PICC was inserted in her right upper limb for parenteral nutrition, antibiotics, symptomatic drugs and blood components, by the Vascular Access Team nurse at the tertiary hospital.

Dressings were changed by nurses from the hematology department: after the first 24 hours, with 2% alcoholic chlorhexidine (CHG) and 70% isopropyl alcohol, and covered with CHG gel and transparent dressings every 7 days. Ten days after insertion of the PICC, there was hyperemia on insertion, with peeling of the skin, no secretion or other discomfort (figure 1). Red light (660nm) was applied at the site of the hyperemia and peeling, using a point technique, 2 J per point, a total of 4 points, with a potency of 100mW. The wound was covered with a sterile transparent silicone dressing

After 2 days, the patient was visited to check on progress, and showed a reduction in hyperemia. No secretion came out and there was no need to change the dressing (figure 2).

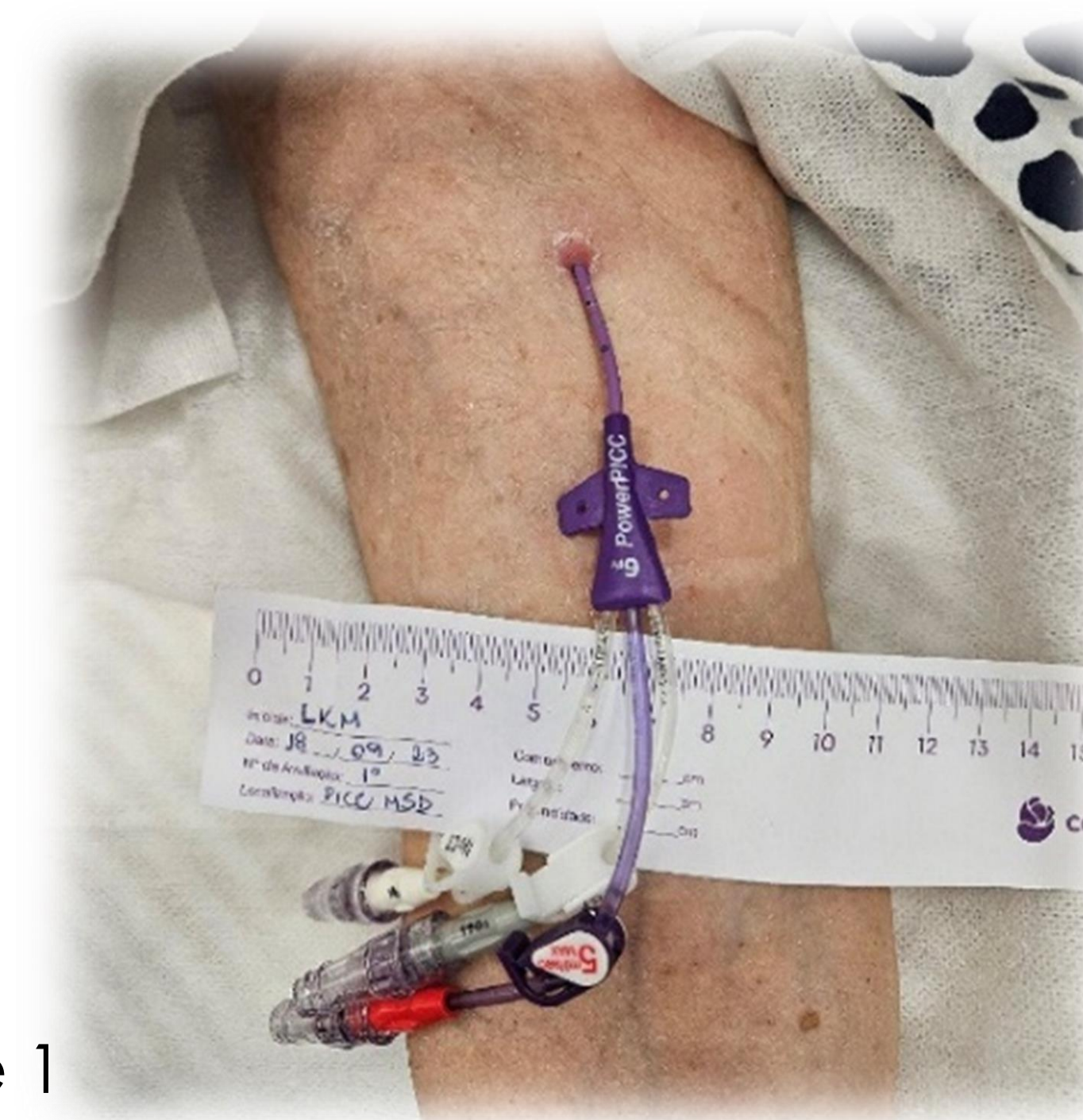


Figure 1

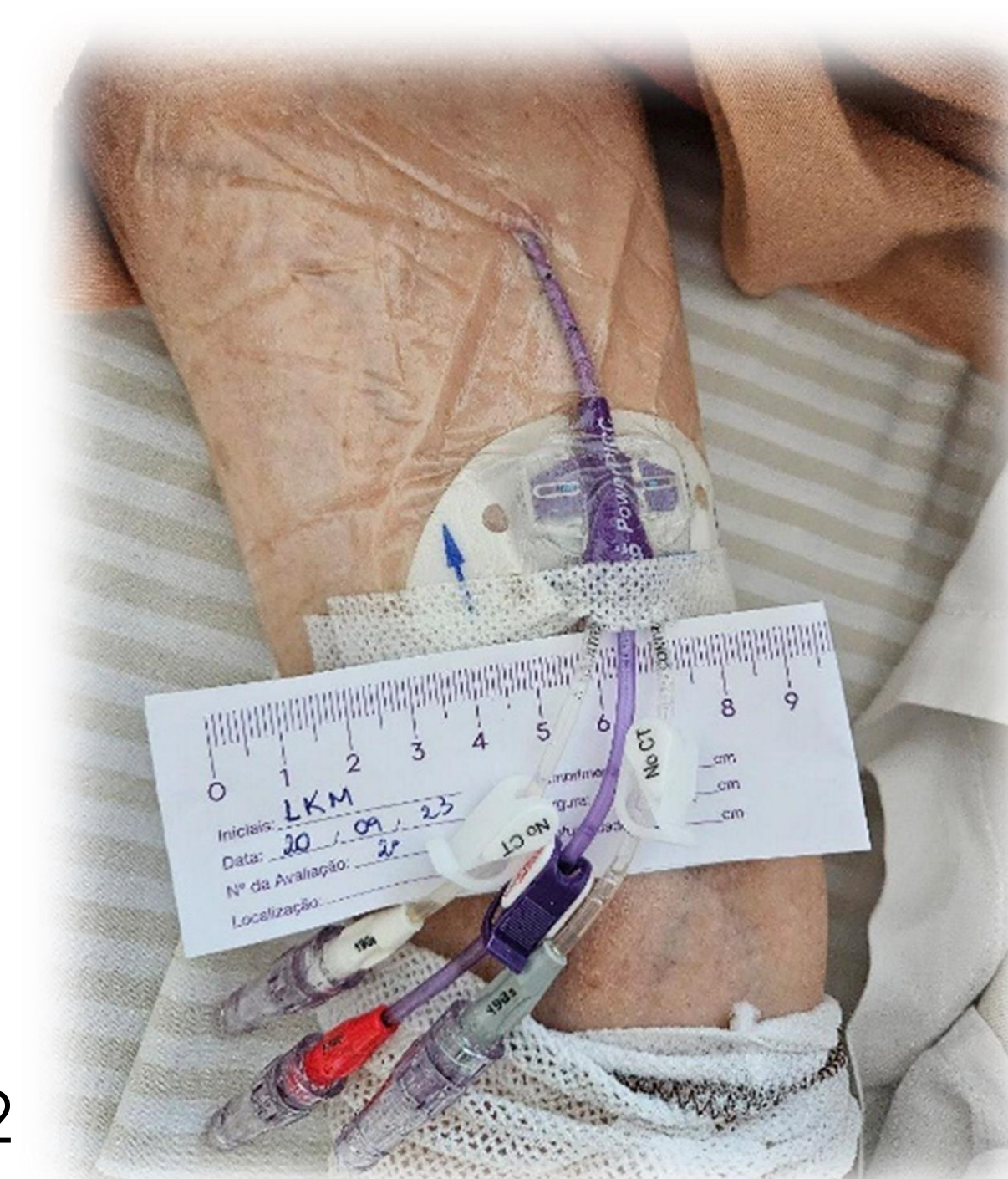


Figure 2

RESULTS

The application of red light to the hyperemia and peeling of the insert showed significant regression, without the need for a new photobiomodulatory approach or a change of dressing to treat the injury.

CONCLUSION

The use of new technologies to treat wounds improves patients' quality of life by facilitating and speeding up the healing process, avoiding early removal of the device and a higher risk of infection.

REFERENCES

1. McNichol L, Lund C, Rosen T, Gray M. Medical adhesives and patient safety: state of the science: consensus statements for the assessment, prevention, and treatment of adhesive-related skin injuries. Orthop Nurs. 2013;32(5):267-281. doi:10.1097/NOR.0b013e3182a39caf.
2. Zhao H, He Y, Wei Q, Ying Y. Medical Adhesive-Related Skin Injury Prevalence at the Peripherally Inserted Central Catheter Insertion Site: A Cross-sectional, Multiple-Center Study. J Wound Ostomy Continence Nurs. 2018;45(1):22-25. doi:10.1097/WON.0000000000000394.
3. Zhao H, Huang H, Wei Q, et al. Zhao H, Huang H, Wei Q, et al. Medical adhesive-related skin injury associated factors at PICC insertion site in patients with hematologic malignancies. Chin J Pract Nurs. 2017;33(5): 335-340.DOI: 10.3760/cma.j.issn.1672-7088.2017.05.004.
4. Broadhurst D, Moureau N, Ullman AJ. Central venous access devices site care practices: an international survey of 34 countries. J Vasc Access. 2016;17(1):78-86. doi:10.5301/jva.5000450.
5. Khan, I., Rahman, SU, Tang, E. et al. A cicatrização acelerada de queimaduras com terapia de fotobiomodulação envolve a ativação do TGF-β1 latente endógeno. Sci Rep 11 , 13371 (2021). <https://doi.org/10.1038/s41598-021-92650-w>