

Platelet-rich gel for the adjuvant treatment of wound healing of transposed flap for arteriovenous fistula in systemic sclerosis

Dear Editor,

End-stage renal failure (ESRF) requiring dialysis is a complication of systemic sclerosis.

The challenge of performing a distal arteriovenous fistula (AVF) on a scleroderma patient is mainly related to the thickness of the skin. Due to the excessive fibroproliferative response to tissue injury, the closure of the surgical site can lead to compression and clotting of the anastomosis. Skin flap may help the closure but it can be affected by non-healing skin ulcers. These ulcers are often slow healing and unresponsive to traditional treatments; consequently, the patient's quality of life and prognosis may be severely affected (1).

We report the effects of a platelet gel for wound healing in a 58-year-old male with scleroderma and renal failure, following AVF surgery. The skin suture compression caused the failure of the fistula on the day after the intervention (2). During a second look we performed a second anastomosis 3 cm over the previous one. We encountered the same anastomosis compression while we were closing the skin, even though the anastomosis was efficient. While the vessels were suitable for a good anastomosis, the skin thickness caused by scleroderma was the main issue for a negative outcome. We performed a second skin incision with an angle of about 60 degrees starting from the distal angle of the main incision, creating a skin flap (Fig. 1A).

This skin flap was transposed on the skin wound above the anastomosis and sutured with absorbable stitches on the subcutaneous layer and the side above the anastomosis with non-absorbable stitches. The skin wound above the anastomosis was closed with no compression on the fistula, ensuring its good performance. The other side was left open (Fig. 1B). After 5 days from the last operation we checked the wound (Fig. 1C).

To heal the wound left by the skin transposition we chose to apply heterologous platelet-rich gel (PRG) (3) (Fig. 1D),

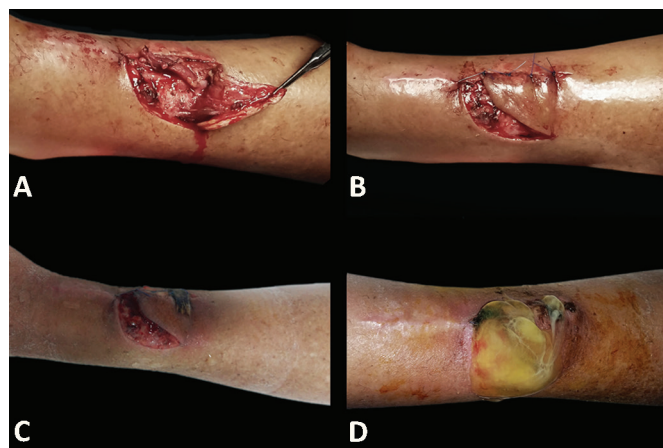


Fig. 1 - Creation of a skin flap (A); partial closure of the skin of the flap (B); control after 5 days (C); application of platelet-rich gel (D).



Fig. 2 - Granulation after one week (A); granulation tissue after two weeks (B); last application of platelet-rich gel at fourth week (C); healing at fifth week (D).

whose efficacy has been demonstrated in both in vitro and in vivo models (4).

Four-weekly medications were performed with this device. Before applying the PRG, the wound was cleaned each time with saline solution. After the application the gel was covered with Bactigras®.

After one week, the first granulation spots appeared (Fig. 2A). After two weeks, the wound cleaning showed that the granulation tissue covered all of the wound (Fig. 2B) and the wound edges appeared narrower. By the fourth week, with the last application of PRG, we obtained a coherent granulation (Fig. 2C). In the fifth week we just cleaned the wound and applied Bactigras® (Fig. 2D).

We decided to treat the skin portion left open using heterologous PRG that was already used for the treatment of skin ulcers from systemic sclerosis (1). Satisfying results have been also achieved on uremic and diabetic patients suffering from diabetic ulcers, with ulcer healing and a reduction of disease-associated morbidity and lowering health-care costs (5).

Our experience confirmed the utility of PRG on wound healing, particularly on a patient suffering from systemic sclerosis.

Disclosures

Financial support: No grants or funding have been received for this study.

Conflict of interest: None of the authors has financial interest related to this study to disclose.

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Published online: January 3, 2017

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