

can be surgically removed without recurrence⁵. In order to minimize the risk of skin implantation, it is recommended to use a 23-gauge or smaller needle and to release suction before needle withdrawal^{4,5}.

Although incidence of spontaneous metastasis of thyroid carcinoma is higher than implantation metastasis, we concluded that implantation is more likely for the several reasons in our case: (i) the recurrent tumor occurred at the insertion site of FNAB; (ii) implanted nodule was located above the surgical line; (iii) recurrent tumor was an absence of accompanying lymphoid or neurovascular tissue; and (iv) there was a central bluish papule on the implanted lesion, which suggestive of a previous needle injury^{4,5}.

We describe a case of cutaneous implantation metastasis of the papillary thyroid carcinoma following FNAB. If physicians discover the skin lesion at the site of FNAB during follow up, they must keep in mind the possibility of cutaneous implantation metastasis after FNAB.

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REFERENCES

1. Jung KW, Won YJ, Kong HJ, Oh CM, Lee DH, Lee JS. Cancer statistics in Korea: incidence, mortality, survival, and prevalence in 2011. *Cancer Res Treat* 2014;46:109-123.
2. Lewis CM, Chang KP, Pitman M, Faquin WC, Randolph GW. Thyroid fine-needle aspiration biopsy: variability in reporting. *Thyroid* 2009;19:717-723.
3. Polyzos SA, Anastasilakis AD. Clinical complications following thyroid fine-needle biopsy: a systematic review. *Clin Endocrinol (Oxf)* 2009;71:157-165.
4. Tamiolakis D, Antoniou C, Venizelos J, Lambropoulou M, Alexiadis G, Ekonomou C, et al. Papillary thyroid carcinoma metastasis most probably due to fine needle aspiration biopsy. A case report. *Acta Dermatovenerol Alp Pannonica Adriat* 2006;15:169-172.
5. Polyzos SA, Anastasilakis AD. A systematic review of cases reporting needle tract seeding following thyroid fine needle biopsy. *World J Surg* 2010;34:844-851.

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Fast Cicatrization of Extensive Livedoid Vasculopathy Ulcers under Treatment with Sildenafil

Lediane Moreira Lopes, Guilherme Gomes Dias Campos, Matheus Augusto Eisenreich, Aline Defaveri do Prado, Markus Bredemeier

Rheumatology Service, Hospital Nossa Senhora da Conceição-Grupo Hospitalar Conceição, Porto Alegre, Brazil

Dear Editor:

Livedoid vasculopathy (LV) is a microvascular thrombotic skin disease leading to cutaneous infarction and chronic, re-

current painful ulcers¹. Several therapeutic modalities have been used with variable success, but there are no randomized controlled trials attesting the efficacy of any treatment¹.

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Corresponding author: Markus Bredemeier, Serviço de Reumatologia do Hospital Nossa Senhora da Conceição, Avenida Francisco Trein, 596, sala 2048, Porto Alegre, RS 91350-200, Brazil. Tel: 55-51-33572493, Fax: 55-51-33627654, E-mail: markbred@terra.com.br

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Fig. 1. Evolution of the lesion located near the right lateral malleolus. (A) May 7th, (B) May 22nd, (C) July 13th, (D) August 25th.

Sildenafil is a selective inhibitor of phosphodiesterase-5 (PDE5), an enzyme that inactivates cyclic guanosine monophosphate (cGMP), which mediates the effects of nitric oxid. Increased intracellular cGMP inhibits calcium entry into the cell, causing smooth muscle relaxation and exerting vasodilatory effect. PDE5 inhibitors also have angiogenic and antithrombotic (inhibiting platelet aggregation) actions^{2,3}. Treatment with sildenafil in high doses (20 to 50 mg, 3 times a day) has promoted improvement of skin lesions caused by microvascular diseases, with few adverse effects²⁻⁵. Considering this, we report here the results of treatment with sildenafil in a patient with refractory LV.

On May 7th, 2015, a 46-year-old female patient, with diagnosis of LV made 15 years ago, required hospitalization due to severe pain caused by skin lesions on the lower limbs. A previous skin biopsy (2014) showed the presence of small luminal thrombi in capillaries of the upper dermis and associated mural fibrinoid necrosis, surrounding microhemorrhages, and absence of vasculitis. Laboratory tests for antinuclear and antiphospholipid antibodies were

negative, and she had no history of thromboembolic events. She underwent several unsuccessful treatments in the past, including prednisone (up to 40 mg/day) and dipyridamole, along with daily dressings. At admission, she reported that the ulcers became active 2 years ago and recently evolved with deterioration in their appearance and pain. On physical examination, *livedo racemosa* was present along with six lesions (1 purpuric plaque and 5 ulcers with necrotic areas) on both lower limbs, whose size ranged from 1.2 cm to 10.0 cm (Fig. 1). She was taking continuously nicotinic acid 1 g/day, warfarin, 5 mg/day; pentoxifylline, 400 mg/day; prednisone, 5 mg/day; and acetylsalicylic acid, 100 mg/day during the last year, without any substantial clinical improvement.

After removal of necrotic material by mechanical and hydrogel chemical debridements, oral sildenafil (12.5 mg, twice a day) was added to the drug scheme on May 19th, with the dosage progressively increased to 25 mg, 3 times a day over 2 weeks. Amitriptyline and methadone were prescribed for pain control at discharge. Eight weeks after the start of sildenafil, the patient had a significant reduc-

tion in pain (abandoning the use of methadone) and 4 lesions were completely healed, while other 2 lesions, located on the lateral malleoli, were recovering (Fig. 1). We then started a gradual reduction of the corticosteroid dosage, and warfarin and nicotinic acid were removed from patient's prescription. The last remaining ulcer was completely healed by August 20th. She reported never have experienced a higher rate of healing before, and no treatment-related adverse event occurred. At the last contact with the patient (December 30th), she was showing no evidence of disease activity.

The present case represents the first report of use of sildenafil or any PDE5 inhibitor in the treatment of LV, suggesting the possibility of an effective treatment alternative for this disease.

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REFERENCES

1. Kerk N, Goerge T. Livedoid vasculopathy-current aspects of diagnosis and treatment of cutaneous infarction. *J Dtsch Dermatol Ges* 2013;11:407-410.
2. Fries R, Shariat K, von Wilmowsky H, Böhm M. Sildenafil in the treatment of Raynaud's phenomenon resistant to vasodilatory therapy. *Circulation* 2005;112:2980-2985.
3. Farsaei S, Khalili H, Farboud ES, Khazaeipour Z. Sildenafil in the treatment of pressure ulcer: a randomised clinical trial. *Int Wound J* 2015;12:111-117.
4. Gonzalez ME, Kahn P, Price HN, Kamino H, Schaffer JV. Retiform purpura and digital gangrene secondary to antiphospholipid syndrome successfully treated with sildenafil. *Arch Dermatol* 2011;147:164-167.
5. Gertner E. Treatment with sildenafil for the healing of refractory skin ulcerations in the antiphospholipid syndrome. *Lupus* 2003;12:133-135.

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Contact Dermatitis due to Lubricant Oils in a Brass Musician

Elisa Haroun-Díaz, Rita Rodrigues-Barata¹, Javier Cuesta-Herranz, Luis Conde-Salazar¹

Department of Allergy, Fundación Jiménez Díaz, ¹Department of Occupational Dermatology, Instituto de Salud Carlos III, Madrid, Spain

Dear Editor:

While handling musical instruments there is a greater or lesser degree of direct contact between the skin and the instrument, which makes this collective to be more prone to develop some skin conditions.

Allergic contact dermatitis, irritant/traumatic dermatitis, in-

fectious events and miscellaneous skin conditions may occur in brass musicians¹⁻³.

We report a 21-year-old man who works as a trumpeter in the Spanish Orchestra since 2006. Shortly after he began playing the trumpet in the orchestra, he presented upper lip and tongue lesions, which he related with playing the

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Corresponding author: Elisa Haroun-Díaz, Department of Allergy, Fundación Jiménez Díaz, Avenida Reyes Católicos s/n 28040, Madrid, Spain. Tel: +34915504800, Fax: +34915448246, E-mail: elisaharoun@hotmail.com

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