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Favre-Racouchot syndrome: report of a case treated by plasma exeresis.

Plasma exeresis for solar comedo

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All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Favre-Racouchot syndrome: report of a case treated by plasma exeresis.

Favre-Racouchot disease (FRD), also known as solar comedo, is a disorder of cosmetic concern relatively common in middle-aged adults¹. It is characterized by the presence of multiple open and closed comedones in an actinically-damaged skin, with preferential localization to periorbital and

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temporal areas. Major risk factors for FRD seem to be chronic UV exposure, cigarette smoking and radiation therapy^{2,3,4}. Histologically FRD is characterized by significant actinic elastosis and epidermal atrophy⁵. Although FRD is a common condition, there are not many treatment options. No official guidelines are today available. Important preventive measures include avoidance of sun exposure and to stop smoking⁶. Main therapeutic options include topical retinoids and laser treatment^{7,8}. Based on the idea that it is a useful instrument both for sebaceous cysts and active acneic lesions⁹, we present a case of FRD treated with plasma exeresis (PE), a new technology in the field of aesthetic dermatology¹⁰. No other cases treated with this particular technique have been previously described. We describe the case of a 65 years-old man referred to a specialist for the presence of periorbital and malar cysts and comedones. The patient was a former smoker (>30 pack-year) and had a history of chronic sun exposure. The patient was diagnosed FRD and treated with PE, performed with Plexr (Gmv, Roma, RM, Italy), after obtaining informed consent. PE is an emerging technique to treat several skin conditions based on plasma generation by the instrument itself. According to the type of skin blemish requiring treatment, two different kinds of techniques can be used: a) spray technique (or continuous mode): for the removal of lesions like seborrheic keratoses, solar lentigos, fibromas, etc.; b) spot technique: used for the treatment of skin laxities through sublimation of punctiform areas with no overlaps, never lasting more than 2 seconds. PE was applied with the spray technique. No local anesthetic was necessary: topical anesthetic cream was applied by the specialist 30 minutes before the procedure. After disinfection, the creation of a tiny hole on the skin surface of each comedo and cyst was performed; the material was then extruded by applying uniform, centripetal pressure around the lesion using fingertips and gauze. For larger lesions (3 cysts of lower right eyelid), a Micro Hartman Alligator Ear Forceps was inserted into the hole to grab the capsule and help the content extrusion. The efficacy of the treatment was monitored during every follow-up visit both with physical examination and periodic acquisition of clinical images, collected by an 8 megapixel-iSight camera, with pixels of 1.5 um. Pictures were taken, once obtained informed consent, just before the treatment, immediately after the treatment session, and 60 days after. The

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patient was given written instructions for post-treatment care: cleansing only with water and neutral soap, disinfection with non-alcoholic solutions, sunscreen with total protection (SPF50+) for at least 40 days. A single treatment session was sufficient. All the lesions were successfully treated and no recurrence occurred (see Figure 1). A follow-up of 10 months was performed. No major adverse event (infection, ecchymosis, oedema, hyperpigmentation/hypopigmentation or scar formation) was registered. A light oedema was present for the first 24 hours. Crusts completely recovered in 5-7 days. In our experience PE is a very useful technique both for the rapidity of execution and the excellent cosmetic results. Key advantages of this technique include: lack of absolute contraindications, minimal intraoperative pain without the need of local anesthesia, quick treatment and fast recovery. Our data support the hypothesis that PE could represent a good and safe option to remove comedones and cysts in FRD patients. However, a larger cohort will be necessary to confirm those results.

References

1. Patterson WM, Fox MD, Schwartz RA. Favre-Racouchot disease. *Int J Dermatol*. 2004 Mar;43(3):167-9.
2. Hedelund L, Wulf HC. Favre-Racouchot disease provoked by UV-A1 and UV-B exposure. *Arch Dermatol*. 2004 Jan;140(1):129-31.
3. Vogel S, Mühlstädt M, Molin S, Ruzicka T, Schneider J, Herzinger T. Unilateral favre-racouchot disease: evidence for the etiological role of chronic solar damage. *Dermatology*. 2013;226(1):32-4.
4. Sutherland AE, Green PJ. Favre-Racouchot syndrome in a 39-year old female following radiation therapy. *J Cutan Med Surg*. 2014 Jan-Feb;18(1):72-4.

5. Breit S, Flaig MJ, Wolff H, Plewig G. Favre-Racouchot-like disease after radiation therapy. *J Am Acad Dermatol*. 2003 Jul;49(1):117-9.
6. Leeuwis-Fedorovich NE, Starink M, van der Wal AC. Multifocal squamous cell carcinoma arising in a Favre-Racouchot lesion - report of two cases and review of the literature. *J Dermatol Case Rep*. 2015 Dec 31;9(4):103-6.
7. Rallis E, Karanikola E, Verros C. Successful treatment of Favre-Racouchot disease with 0.05% tazarotene gel. *Arch Dermatol*. 2007 Jun;143(6):810-2.
8. Mavilia L, Campolmi P, Santoro G, Lotti T. Combined treatment of Favre-Racouchot syndrome with a superpulsed carbon dioxide laser: report of 50 cases. *Dermatol Ther*. 2010 Jan-Feb;23 Suppl 1:S4-6.
9. Rossi E, Mandel VD, Paganelli A, Farnetani F, Pellacani G. Plasma exeresis for active acne vulgaris: Clinical and in vivo microscopic documentation of treatment efficacy by means of reflectance confocal microscopy. *Skin Res Technol*. 2018 Feb 6.
10. Rossi E, Farnetani F, Mrakatelli M, Ciardo S, Pellacani G. Clinical and Confocal Microscopy Study of plasma Exeresis for Nonsurgical Blepharoplasty of the Upper Eyelid: A Pilot Study. *Dermatol Surg*. 2018 Feb; 44(2):283-290.

Legends

Figure 1. Plexr (Gmv, Roma, RM, Italy). Plasma exeresis consists on ionization of gases present in the atmosphere of the so-called “gap”, which is the empty space at the interface between the tip and the skin surface to treat (upper right panel). The instrument is very handy and easily manoeuvrable.

Figure 2. Clinical efficacy of plasma exeresis. Pictures were taken respectively (from left to right panel) before the procedure (T0), immediately after the treatment (T1) and 60 days after cyst

removal (T2). Left side is shown on upper panels, while right side is on the lower ones. Yellow circles in the first panel on left indicate the three cysts that needed capsule removal through forceps.



