






## IMAGING CASES

### Dermatologic clinical case

#### Caso clínico dermatológico

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A 17-year-old boy with an irrelevant medical history, except for acne being treated with homemade rue ointment, presented to the Pediatric Emergency Department in the summer with a cutaneous reaction on his right forearm lasting for two weeks. Initially, the lesion appeared as an erythematous linear rash accompanied by a burning sensation (**figure 1**). Over time, the rash progressed into a hyperpigmented brownish lesion, with areas of desquamation (**figure 2**). Two weeks later, the lesion evolved into post-inflammatory linear hyperpigmentation with more pronounced desquamation, which persisted for approximately two months. Eventually, the condition resolved completely.

**What is your diagnosis?**



**Figure 1** - Four days



**Figure 2** - Two weeks

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## DIAGNOSIS

Phytophotodermatitis caused by rue (*Ruta graveolens*).

## PATIENT'S MANAGEMENT

Rue eviction, sunscreen, and emollient.

## DISCUSSION

Phytophotodermatitis (PPD) is a phototoxic, non-allergic contact dermatitis.<sup>(1-3)</sup> It results from the skin contact with furocoumarins or psoralens, photosensitizing substances present in certain plants, followed by exposure to ultraviolet radiation (UVA).<sup>(1-3)</sup> The presence of both factors is required to cause PPD. The activation of the phototoxic substance requires only a little amount of UVA, and there is no need for previous sensitization.<sup>(1-4)</sup> Factors such as the degree of exposure, product concentration and contact time influence the severity and clinical presentation of PPD.<sup>(4)</sup>

One of the most frequently imputed plant is rue or *Ruta graveolens*, as presented in this case.<sup>(1)</sup> This plant has been used in traditional medicine for its analgesic, anti-inflammatory, antidiabetic, and insecticidal properties.<sup>(2)</sup> Other plants frequently involved are plants belonging to *Umbelliferae*, *Moraceae*, *Compositae* and *Ranunculaceae* families.<sup>(4-5)</sup>

Phytophotodermatitis (PPD) progresses in two phases. First occurs an **inflammatory phase** (Figure 1), 24 to 48 hours after exposure that is usually characterized by the appearance of a configurated erythematous burn-like lesion. It might present vesicles or bullae, edema, pain or paresthesias.<sup>(1,3-5)</sup> Thereafter, it progress into a **hyperpigmentation phase** (Figure 2), with an increased hyperpigmentation and darkening of the lesion, usually one to two weeks after initial exposure to plants containing furocoumarins.<sup>(1)</sup> From this point, there is a progressive desquamation, leaving areas of residual hyperpigmentation (Figure 3).<sup>(1,3,4)</sup> Residual dyschromia might persist for over a year, and permanent scarring is a possible outcome, hence the importance of using sunscreen afterward.<sup>(3,4)</sup> Some patients report sensitivity and erythema when the affected skin is re-exposed to ultraviolet or fluorescent light, heat, or exercise, sometimes for years afterwards.<sup>(4)</sup>

PPD requires a high level of clinical suspicion, and a thorough anamnesis is essential for the identification of the etiological agent.<sup>(1)</sup> If exposure to phototoxic plants occurs, early washing with water and soap might prevent the reaction. Thereafter, application of sunscreen and abstention from agent and sun exposure are strongly encouraged, particularly for the following 48 hours.<sup>(1)</sup> The effectiveness of other treatments, such as topical corticosteroids and oral antihistamines has limited evidence, particularly in the post-inflammatory phase.<sup>(1)</sup> However, topical corticosteroids may be useful in the initial phase to

minimize the extent of the reaction and acute inflammation.

The knowledge of this condition is essential for the correct diagnosis, avoiding unnecessary complementary exams. Therefore, the authors aim to present a case of rue-induced PPD to recall a condition that, despite being frequent, may be underdiagnosed.



Figure 3 - One month

## ABSTRACT

Phytophotodermatitis (PPD) is a skin reaction caused by contact with furocoumarins, photosensitizing substances present in certain plants, followed by exposure to ultraviolet radiation. Herein we report a case of a 17-year-old teenager who developed a cutaneous reaction after using rue (*Ruta graveolens*) as a homemade treatment for acne. The condition presented with a characteristic inflammatory phase, followed by a hyperpigmentation phase. A diagnosis of PPD due to rue was established, and with rue eviction there was a full resolution.

The authors aim to raise awareness about this condition which requires a high level of clinical suspicion for identifying the etiological agent. Prompt recognition and intervention are crucial in preventing the worsening and recurrence of the reaction.

**Keywords:** contact dermatitis; phytophotodermatitis; rue

## RESUMO

Fitofotodermatose (PPD) é uma reação cutânea que resulta do contato com furocumarinas, substâncias fotossensibilizantes presentes em certas plantas, seguido de exposição a radiação ultravioleta. Neste artigo relatamos o caso de um adolescente de dezassete anos que apresentou uma reação cutânea após o uso de arruda num tratamento caseiro para a acne. A condição apresentou-

se com uma característica fase inflamatória, seguida de uma fase de hiperpigmentação. O diagnóstico de PPD por arruda foi estabelecido, e com a suspensão do uso da planta houve resolução completa.

Com este caso, os autores pretendem alertar para esta condição, que exige uma elevada suspeita clínica para identificação do agente etiológico. O reconhecimento e intervenção precoces permitem prevenir o agravamento e recorrência desta reação.

**Palavras-chaves:** dermatite de contacto; fitofotodermatose; rue

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#### REFERENCES

1. Teixeira AL, Teixeira V. Fitofotodermatite: um diagnóstico a recordar – Relato de caso. *Rev Port Med Geral Fam.* 2021;37(4):362-5.
2. Pérez-Camelo JS, Barrios V, Gómez-Ortega V. Tanning Beds, Rue, and Major Burns: An Alarming Association. *Plast Reconstr Surg Glob Open.* 2022;10(2):e4106. doi: <https://doi.org/10.1097/GOX.0000000000004106>.
3. Eickhorst K, DeLeo V, Csaposs J. Rue the herb: Ruta graveolens-associated phytophototoxicity. *Dermatitis.* 2007;18(1):52-55. doi: <https://doi.org/10.2310/6620.2007.06033>.
4. Bravo BS, Balassiano LK. Fitofotodermatite por Ruta graveolens com manifestação cutânea extensa. *Rev Bras Queimaduras.* 2014;13(3):177-9.
5. Heskell NS, Amon RB, Storrs FJ, White CR Jr. Phytophotodermatitis due to Ruta graveolens. *Contact Dermatitis.* 1983;9(4):278-280. doi: <https://doi.org/10.1111/j.1600-0536.1983.tb04390.x>.
6. Morais P, Mota A, Cunha AP, Peralta L, Azevedo F. Phytophotodermatitis due to homemade ointment for Pediculosis capitis. *Contact Dermatitis.* 2008;59(6):373-4. doi: <https://doi.org/10.1111/j.1600-0536.2008.01451.x>.