Fractional CO\textsubscript{2} Laser Treatment for Cutaneous Leiomyomas in a Patient with Reed’s Syndrome

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Sir,

Reed’s syndrome, also known as syndromic multiple cutaneous and uterine leiomyomatosis (MCUL), multiple leiomyomatosis, or leiomyomatosis cutis et uteri (Online Mendelian Inheritance in Man 150800), is a rare genodermatosis that was first described by Blum and Jean in 1954.\cite{1} Hereditary leiomyomatosis and renal cell cancer (HLRCC) variably predisposes to 1) cutaneous leiomyomatosis; 2) uterine leiomyomatosis (rarely with uterine leiomyosarcoma); and 3) elevated risk of malignant renal tumors.\cite{2} The diagnosis is made by the presence of multiple cutaneous leiomyomas with at least one histologically confirmed leiomyoma or by a single leiomyoma in the presence of a positive family history of HLRCC.\cite{3}

A 62-year-old female patient presented with a 30-year history of numerous painful cutaneous eruptions on her back and right leg. On dermatological examination, several small, firm, pink-to-skin-colored papules on the right leg and back were observed [Figures 1 and 2]. She had undergone a hysterectomy at the age of 35 for multiple uterine leiomyomas. Her mother had undergone a hysterectomy for multiple uterine leiomyomas at the age of 27 and also her sister at age of 32. There was no other symptom or finding on physical examination, and there was no history of kidney disease. Laboratory examinations were within normal ranges. A punch biopsy was performed from one of her lesions for a diagnosis. On histopathological examination, there were tumor cells characterized by spindle cell bundles crossing in the dermis [Figure 3]. The tumor cells were positive with smooth muscle actin and desmin [Figure 4].

According to the clinical and histopathological findings, the diagnosis was Reed’s syndrome. The patient had used oral analgesics and nifedipine before, but this treatment was minimally effective. Treatment with total excision was difficult because of the spread of the lesions over a large area. For these reasons, fractional CO\textsubscript{2} laser treatment was started after general information about laser therapy. After local anesthetic application of lidocaine, fractional laser treatment was performed at 8.0-18.0 W, 74 mJ/dot (surgical and traumatic scar mode with YouLaser). Three passes were applied for each lesion. There were no complaints or symptoms related to laser therapy except mild pain. One month after the first session of laser treatment, swelling of all the lesions was reduced approximately 50% [Figures 1 and 2]. Although we planned to apply another session of laser treatment, she did not accept to continue the treatment because pain in the lesions had resolved.
Cutaneous leiomyomas (CLMs) are benign neoplasms that arise from smooth muscle. Depending on where they originate, there are three types of leiomyomas: angioleiomyomas (vascular smooth muscle), genital leiomyomas (smooth muscle in the genital region), and piloleiomyomas (arrector pili muscle). Piloleiomyomas are the most common type of leiomyoma in MCUL. CLMs are often the first manifestation and the most sensitive and specific clinical marker of HLRCC. CLMs appear at a mean age of 25 years, anywhere from the trunk to the extremities to the face and increase in size and number with age. CLMs characteristically present as papules and/or nodules and range from flesh to pink-brown in color. They are smooth and shiny in appearance, measure 0.2-2.0 cm in size and may appear as single lesion or manifest in thousands. CLMs should be differentiated from dermatofibroma, neurofibroma, eccrine spiradenoma, and angiolipoma. The pain associated with the contraction of muscle fibers or the association with pseudo-Darier suggests the diagnosis, but the definitive diagnosis can be made from the histopathologic findings. Histologically, leiomyomas are composed of well-differentiated interlacing bundles of smooth muscle fibers with elongated nuclei giving a cigar-shaped appearance. Smooth muscles stain dark red with the Masson trichrome stain. On immunohistochemical staining, the muscle spindle stains positive for smooth muscle actin.

Although a part of the triad, renal cell carcinoma will not develop in all individuals with HLRCC. Only 10-16% of individuals with cutaneous leiomyomas had a renal tumor at the time of imaging. Treatment options for the cutaneous leiomyomas include surgical excision, cryoablation, carbon dioxide (CO₂) laser ablation, and medications such as calcium channel blockers or alpha blockers.

We found two previous reports of cutaneous leiomyomas treated with CO₂ laser ablation in the literature. Michajłowski et al. reported a case of 41-year-old man with multiple cutaneous leiomyomas treated successfully with CO₂ laser (Total power output - 10 W, spot size - 1 mm).[6,7] The muscle mass of the lesion and associated sensory nerve fibers are the targeted tissues in the treatment of cutaneous leiomyomas. Archer et al. reported that symptoms decreased following liquid nitrogen cryotherapy of cutaneous leiomyomas and the proposed mechanism being the destruction of nerve fibers. Based on this knowledge, the mechanism of fractional CO₂ laser may depend on the destruction of nerve fibers and muscle mass of leiomyomas. Because tumors arising intradermally require deeper penetration, we recommend that more than one pass should be performed with multiple sessions.[7,8]

We conclude that patients with cutaneous leiomyomas should be investigated for renal cell carcinoma. It should be kept in mind that fractional CO₂ laser treatment is an effective therapeutic option both cosmetically and symptomatically for disseminated painful cutaneous leiomyomas.

Declaration of patient consent
The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest
There are no conflicts of interest.

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Hibernoma of the Eyelid
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Sir,
A hibernoma is a rare tumor that originates from the brown adipose tissue.[1] This tumor is benign, with no known potential for malignant transformation.[1] Hibernomas are highly metabolically active, as evidenced by their hypervascularity and increased uptake of fluorine-18 fluorodeoxyglucose on positron emission tomography (PET).[1,2] The lesion is diagnosed primarily through biopsy.[1,2] However, imaging characteristics of hibernomas on ultrasound, computed tomography, magnetic resonance imaging, and PET scanning have been characterized.[1]
The treatment can be accomplished through complete or incomplete surgical excision.[1,3] However, incomplete surgical excision can leave a potential for recurrence.[1]
A 50‑year‑old male presented to clinic for an evaluation of a 3.5 mm pigmented subcutaneous nodule on left upper eyelid near inner canthus [Figure 1]. This mass was gradually increasing in size over the last year. The patient denied any bleeding, discharge, tearing, pain, or change in visual acuity related to the mass. An elliptical incision around the lesion was performed and submitted for pathology. On multiple sections, a 2.5 mm well‑circumscribed hamartoma with multivacuolated brown fat cells and abundant granular eosinophilic cytoplasm were noted [Figure 2]. The staining for vimentin was positive as well [Figure 3]. However, the lesion was nonreactive for S100 and Melan A (Mart 1). Hibernomas previously have been found commonly in the thigh, shoulder, back, neck, chest, and arm.[4] These are regions of the body where normal brown adipose tissue is often present. However, as far as we are aware, a hibernoma has never been found in the eyelid. There are multiple etiologies for why a hibernoma would form in the eyelid. One possible etiology is related to cytogenetics, as there is a recorded association between hibernomas and rearrangements in the 11q13 and 11q21 chromosomal regions.[4,5] Of note, the brown adipose tissue is commonly present in infants, where it plays an important role in thermogenic stability. However, there is no known established role that brown fat would have in adults.
There are four histologic variants of hibernomas as follows: typical (82%), myxoid (9%), lipoma‑like (7%), and spindle (2%).[1] Our case describes a lipoma‑like hibernoma. The changes diagnostic of lipoma‑like hibernomas include the presence of brown fat cells and the complete lack of atypia.[5] Lipoma‑like hibernomas should be differentiated histologically from atypical lipomas and liposarcomas.[4] Prior descriptions of lipoma‑like hibernomas commonly...