

# Rapid Development of Perifolliculitis Following Mesotherapy

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## PRACTICE POINTS

- Mesotherapy—the delivery of vitamins, chemicals, and plant extracts directly into the dermis via injections—is a common procedure performed in both medical and nonmedical settings for cosmetic rejuvenation.
- Complications can occur from mesotherapy treatment.
- Patients should be advised to seek medical care with US Food and Drug Administration–approved cosmetic techniques and substances only.

To the Editor:

Mesotherapy, also known as intradermotherapy, is a cosmetic procedure in which multiple intradermal or subcutaneous injections of homeopathic substances, vitamins, chemicals, and plant extracts are administered.<sup>1</sup> First conceived in Europe, mesotherapy is not approved by the US Food and Drug Administration but is gaining popularity in the United States as an alternative cosmetic procedure for various purposes, including lipolysis, body contouring, stretch marks, acne scars, actinic damage, and skin rejuvenation.<sup>1,2</sup> We report a case of a healthy woman who developed perifolliculitis, transaminitis, and neutropenia 2 weeks after mesotherapy administration to the face, neck, and chest. We also review other potential side effects of this procedure.

A 36-year-old woman with no notable medical history presented to the emergency department with a worsening pruritic and painful rash on the face, chest, and neck of 2 weeks' duration. The rash had developed 3 days after the

patient received mesotherapy with an unknown substance for cosmetic rejuvenation; the rash was localized only to the injection sites. She did not note any fever, chills, nausea, vomiting, diarrhea, headache, arthralgia, or upper respiratory tract symptoms. She further denied starting any new medications, herbal products, or topical therapies apart from the procedure she had received 2 weeks prior.

The patient was found to be in no acute distress and vital signs were stable. Laboratory testing was remarkable for elevations in alanine aminotransferase (62 U/L [reference range, 10–40 U/L]) and aspartate aminotransferase (72 U/L [reference range 10–30 U/L]). Moreover, she had an absolute neutrophil count of  $0.5 \times 10^3$  cells/ $\mu\text{L}$  (reference range  $1.8\text{--}8.0 \times 10^3$  cells/ $\mu\text{L}$ ). An electrolyte panel, creatinine level, and urinalysis were normal. Physical examination revealed numerous 4- to 5-mm erythematous

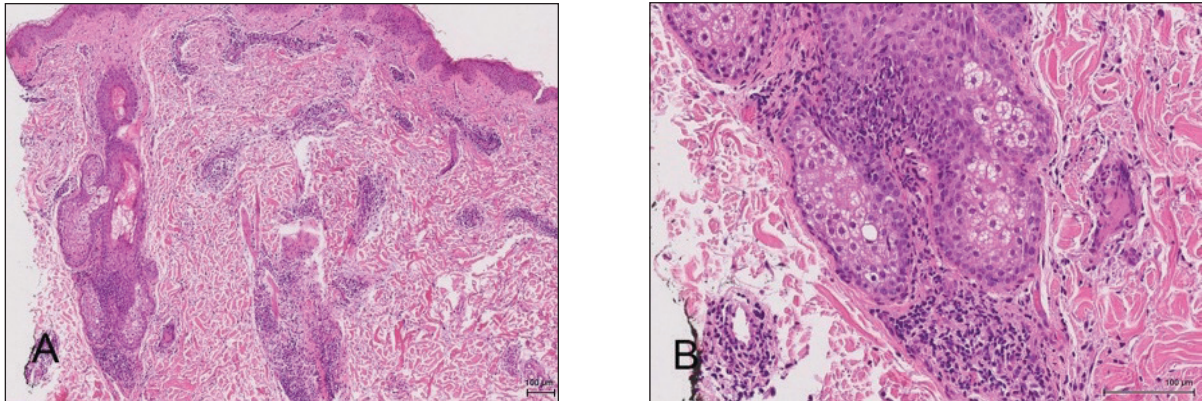


**FIGURE 1.** Numerous erythematous papules in a gridlike distribution across the neck and chest 2 weeks following mesotherapy with an unknown substance.

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**FIGURE 2.** A, Histopathology showed a perivascular and perifollicular infiltrate that spanned the dermis (H&E, original magnification  $\times 4$ ). B, Focal granulomatous changes were present (H&E, original magnification  $\times 10$ ).

### Side Effects of Mesotherapy

Reference (Year)	Substance Injected	Side Effect
Tor and Lee <sup>6</sup> (2008)	Unknown	Delirium with psychotic features
Al-Khenaizan <sup>7</sup> (2008)	Unknown	Facial cutaneous ulcers that healed with erythematous hypertrophic scars
Davis et al <sup>8</sup> (2008)	Deoxycholate	Noninfectious granulomatous panniculitis and consequent scarring
Kadry et al <sup>5</sup> (2008)	Unknown vitamins	Subcutaneous fat necrosis and scarring alopecia secondary to multifocal scalp abscess
Beer and Waibel <sup>9</sup> (2009)	Unknown	Disfiguring scarring following <i>Mycobacterium cosmeticum</i> infection
Carbonne et al <sup>4</sup> (2009)	Unknown	Nontuberculous mycobacterial subcutaneous infections
Nabavi et al <sup>10</sup> (2009)	Unknown	Orbital fat inflammation
Babacan et al <sup>11</sup> (2010)	Unknown	Behçet disease
Kim et al <sup>12</sup> (2010)	Unknown	Ischemic colitis
Orjuela et al <sup>13</sup> (2010)	Unknown	Cutaneous tuberculosis
Rallis et al <sup>14</sup> (2010)	PPC	Urticaria
Ramos-e-Silva et al <sup>2</sup> (2012)	Unknown	Oleoma appeared 2 y after mesotherapy injections
Calonge et al <sup>15</sup> (2013)	Carboxytherapy	Subcutaneous emphysema
Park et al <sup>16</sup> (2013)	PPC, sodium deoxycholate	Marked inflammatory infiltration with microabscess formation in dermis; septal and lobular panniculitis
Rodriguez-Gutierrez et al <sup>17</sup> (2014)	Silica, triiodoacetic acid, and artichoke oil	<i>Nocardia brasiliensis</i> infection
El-Komy et al <sup>18</sup> (2017)	Dutasteride 0.005%, IGF-1, basic fibroblast growth factor, vascular endothelial growth factor, copper tripeptide 1, multivitamins, amino acids, and minerals	Hair loss and scarring

Abbreviations: PPC, phosphatidylcholine; IGF, insulinlike growth factor.

papules in a gridlike distribution across the face, neck, and chest (Figure 1). No pustules or nodules were present. There was no discharge, crust, excoriations, or secondary lesions. Additionally, there was no lymphadenopathy and no mucous membrane or ocular involvement.

A 4-mm punch biopsy from a representative papule on the right lateral aspect of the neck demonstrated a perifollicular and perivascular lymphohistiocytic infiltrate with some focal granulomatous changes. No polarizable foreign body material was found (Figure 2). Bacterial, fungal, mycobacterial, and skin cultures were obtained, and results were all negative after several weeks.

A diagnosis of perifolliculitis from the mesotherapy procedure was on the top of the differential vs a fast-growing mycobacterial or granulomatous reaction. The patient was started on a prednisone taper at 40 mg once daily tapered down completely over 3 weeks in addition to triamcinolone cream 0.1% applied 2 to 4 times daily as needed. Although she did not return to our outpatient clinic for follow-up, she informed us that her rash had improved 1 month after starting the prednisone taper. She was later lost to follow-up. It is unclear if the transaminitis and neutropenia were related to the materials injected during the mesotherapy procedure or from long-standing health issues.

Mesotherapy promises aesthetic benefits through a minimally invasive procedure and therefore is rapidly gaining popularity in aesthetic spas and treatment centers. Due to the lack of regulation in treatment protocols and substances used, there have been numerous reported cases of adverse side effects following mesotherapy, such as pain, allergic reactions, urticaria, panniculitis, ulceration, hair loss, necrosis, paraffinoma, cutaneous tuberculosis, and rapidly growing nontuberculous mycobacterial infections.<sup>1-5</sup> More serious side effects also have been reported, such as permanent scarring, deformities, delirium, and massive subcutaneous emphysema (Table).<sup>2,4-18</sup>

Given the potential complications of mesotherapy documented in the literature, we believe clinical investigations and trials must be performed to appropriately assess the safety and efficacy of this potentially hazardous procedure. Because there currently is insufficient research showing why certain patients are developing these adverse side effects, aesthetic spas and treatment centers should inform patients of all potential side effects associated with mesotherapy for the patient to make an

informed decision about the procedure. Mesotherapy should be a point of focus for both the US Food and Drug Administration and researchers to determine its efficacy, safety, and standardization of the procedure.

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