Linear scar sarcoidosis on thin blepharoplasty line mimicking a hypertrophic scar: A case report

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Abstract
Sarcoidosis is a multisystem inflammatory disease of unknown aetiology. Skin involvement has been reported in 12%–27% of patients with systemic disease, and scar sarcoidosis is a form of sarcoidosis developing in previous cutaneous scar areas. Scars due to all kinds of trauma, including surgery, vaccines, cosmetic tattoos, and herpes zoster infection, have been reported to be associated with sarcoidosis. Upper eyelid blepharoplasty is a mainstay of aesthetic procedure and of surgical rejuvenation of the orbital region. There have been relatively few reported scar sarcoidosis on blepharoplasty scar, considering many blepharoplasty procedures done for the last century. We report a case of 47-year-old woman presented with abruptly forming bilateral scar sarcoidosis on upper eyelid linear scars of 20 years of duration.

Keywords
Blepharoplasty, cicatrix, sarcoidosis

Introduction
Sarcoidosis is a systemic disease that is characterized by non-caseating naked granulomas, with the lungs, lymph nodes, and the skin being the most common organs involved. Skin involvement is the second most common presentation. Scar sarcoidosis is a relatively rare cutaneous form of sarcoidosis developing in previous cutaneous scar areas.

Blepharoplasty is a plastic surgery procedure to correct defects and disfigurations of the eyelids medically and to modify a single eyelid to a double eyelid aesthetically by removing or repositioning a certain amount of skin or fat tissue around the eyelids. Double-eyelid surgery, also called Asian eyelid surgery, is performed to create the upper eyelid crease, resulting in bigger eyes. In contrast to a large number of double-eyelid surgeries performed in Asia, scar sarcoidosis on blepharoplasty scars has rarely been noticed or reported.

Case report
A 47-year-old woman presented to the dermatology clinic for evaluation of a new linear growth on both previous blepharoplasty scars on her upper eyelids. She first noticed the new lesions 6 months before her visit, and the thickness of the lesions had gradually increased. She had no remarkable medical history, and she had a surgical history of bilateral blepharoplasty, performed approximately 20 years ago. Physical examination revealed tiny erythematous and firm papules in a linear array along the upper eyelid blepharoplasty scars (Figure 1). There were no palpable lymph nodes, pulmonary symptoms, or eye complaints (Table 1). There was no other skin lesion except the bilateral upper eyelids lesions. Under the first presumed impression of hypertrophic scar, a punch biopsy was performed. Histopathologic examination showed non-necrotizing, non-caseating granulomatous inflammatory structures composed of epithelioid cells and Langerhans giant cells with lymphocytic infiltration, consistent with sarcoidosis (Figure 2). There was no evidence of microorganisms on periodic acid-Schiff or Grocott’s methenamine silver stains. Further work-ups, which included a chest radiograph and measurement of angiotensin-converting enzyme (ACE) levels, were within normal limits (Table 1). The lesions almost cleared after the patient applied prescribed dexamethasone eye ointment for about 4 months.
Discussion

Sarcoidosis is a multisystem granulomatous disease characterized by non-caseating granuloma development. Lungs are the most commonly affected organ. However, the condition also affects lymph nodes, liver, eyes, and skin. Skin involvement is known to be the second most common presentation, and it has been reported in 12%-27% of patients with systemic disease, but eyelid involvement is very rare, and scar sarcoidosis occurring in an old eyelid scar is even rarer. It is not easy to diagnose cutaneous sarcoidosis initially before excluding systemic sarcoidosis because of possible systemic involvement of sarcoidosis although the incidence is relatively rare; therefore, patients with cutaneous sarcoidosis should be monitored for pulmonary symptoms, eye complaints, right upper quadrant abdominal pain, and peripheral lymphadenopathy. Cutaneous sarcoidosis is one of the ‘great mimickers’, and almost every morphologic type of dermatologic disease can be manifested, including papules, nodules, lupus pernio, erythroderma, and granulomas in a scar. The most common cutaneous sarcoidosis presentation is the papular form. Not uncommonly, cutaneous sarcoidosis may occur in a scar tissue, which is referred to as scar sarcoidosis.

Scar sarcoidosis is a variant of cutaneous sarcoidosis that develops on an inactive scar. Scars due to various types of trauma, including surgery, vaccines, cosmetic tattoos, and herpes zoster infection, have been reported to be associated with sarcoidosis. The lesions initially occur as purplish red erythema and subsequently turn brown and do not itch. The differential diagnosis of scar sarcoidosis includes infectious skin diseases such as mycobacterium infections, hypertrophic scars, keloids, and foreign body granulomatous disease. Although the pathogenesis of scar sarcoidosis is unknown, several studies have indicated that macrophages on phagocytosed foreign bodies may cause the release of ACEs and lymphokines, which lead to the development of granulomas.

Blepharoplasty is a plastic surgical operation that was originally employed to correct defects or deformities of the eyelids. Nowadays, in Asia, double-eyelid surgery is being historically performed for modification of Asian eyelids with a single fold for obtaining bigger and beautiful eyes from an aesthetic view, especially in East Asia. Considering the fact that blepharoplasty is performed quite frequently worldwide, there have been relatively few reports of eyelid scar

Table 1. The investigations performed in this case to rule out systemic sarcoidosis.

| Physical examination | Lymph node examination |
|----------------------|------------------------|
| Radiological examination | Pulmonary examination |
| Laboratory examination | Ocular examination |
| | Chest X-ray |
| | Serum ACE levels |
| | Complete blood count |
| | Liver enzymes |
| | Blood urea nitrogen |
| | Creatinine |
| | Urinalysis |

ACE: angiotensin-converting enzyme.

Figure 1. Multiple thin erythematous firm papules clustered in a linear arrangement on both upper eyelid blepharoplasty scars.

Figure 2. The dermis shows non-necrotizing, non-caseating granulomatous inflammatory structures composed of Langerhans giant cells and epithelioid cells: (a) H & E, ×40 magnification and (b) H & E, ×200 magnification.
sarcoïdosis. This can be explained by the fact that comparing the incidence of skin scar formation as a whole, the incidence of scar sarcoïdosis is minimal. Second, scar formation after blepharoplasty is generally subtle, since upper eyelid skin is very thin. As a result, the occurrence of scar sarcoïdosis on blepharoplasty incision line became even more unusual. If a patient with previous blepharoplasty scar complains of sudden morphological changes on the scar line, the possible occurrence of scar sarcoïdosis should be taken into consideration, not regarding it as a mere scar with hypertrophic change regardless of the period of the original scar formation.

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Inform consent
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