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### Authors

Wise, Kelsey  
Warren, Donald  
Diaz, Lucia

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# Unilateral striae distensae of the knee after a steroid injection for the treatment of Osgood-Schlatter disease

Kelsey Wise BA<sup>1</sup>, Donald Warren MD<sup>2</sup>, Lucia Diaz MD<sup>2</sup>

Affiliations: <sup>1</sup>University of Texas Medical Branch at Galveston, Texas, <sup>2</sup> Department of Dermatology, University of Texas, Austin Dell Medical School

Corresponding Author: Kelsey Wise, Email: [klwise@utmb.edu](mailto:klwise@utmb.edu)

## Abstract

We report a 12-year-old girl with new diagnosis of right knee Osgood-Schlatter who developed horizontal purple striae below the right tibial tubercle two months after a right knee intra-articular steroid injection. She is the second reported case of unilateral localized striae after an intra-articular steroid injection and the first with triamcinalone as the corticosteroid.

*Keywords: dermatology; striae; knee; steroid*

## Introduction

Corticosteroids are used as a second- or third-line treatment for a variety of bone and joint diseases in pediatrics [4, 6, 10, 14]. Osgood-Schlatter disease is a common disease in adolescence, characterized by pain and swelling of the tibial tubercle following a rapid growth spurt. Corticosteroid injections are not recommended because of potential side effects such as pain, hemorrhage, ulceration, atrophy, pigmentary changes, calcification, secondary infection, granuloma formation, allergic reactions, and in very rare cases, striae [2, 11]. Despite these risks, some physicians have presented corticosteroid injections as an option for cases of the disease resistant to more conservative forms of treatment, including rest from activity and NSAIDs [8]. The appearance of striae following intra-articular injection of corticosteroids is a rare, but widely accepted complication, which to our knowledge, has only been documented in one other study when several patients had injections of methylprednisolone [11].

## Case Synopsis

A 12-year-old girl with asthma presented to an orthopedic surgeon with a history of right knee pain

and swelling of several weeks duration. She played basketball and volleyball but denied a history of knee trauma. She was diagnosed with Osgood-Schlatter disease based on physical exam and MRI findings. After 3 months of conservative treatment with NSAIDs as needed for pain, the patient was treated with a 40mg intra-articular injection of triamcinalone to her right knee. Two months after the injection, the patient noted tender, purple linear streaks on the inferior right knee that slowly grew over the next seven months. She denied having fever, weight changes, bruising, slow wound healing, or hyper-extensible joints. There were no topical or oral medications other than oral NSAIDs used for pain. No one in the family had similar skin lesions. The patient was sent to a dermatology clinic for diagnosis and treatment recommendations for the growing skin lesions.

In the dermatology clinic the patient appeared healthy and well-developed. Purple, atrophic linear plaques measuring 3.5x6 cm were noted on the inferior right knee (**Figure 1**). There was pain noted on deep palpation of the knee but not with light touch of the affected skin. The legs were symmetrical and the rest of the exam was unremarkable.

## Case Discussion

Striae distensae, more commonly referred to as “stretch marks”, are a form of dermal scarring that result in red, purple, or hypopigmented linear striations. Predisposing factors include drug exposure (topical or systemic corticosteroids), obesity, pregnancy, rapid weight change, and underlying diseases such as Cushing syndrome, collagen tissue disorders, or Marfan syndrome [5]. Striae are also a common finding in adolescence and may affect up to a third of individuals who are 12 to 15 years old [3,



**Figure 1.** Purple striae on the right lower inferior knee that developed two months following intra-articular corticosteroid injection.

12]. The onset of striae in adolescence correlates with development of pubic hair, external genitalia, and seborrhea of the face; the striae appear symmetrically in various areas of the body including the buttock, lower back, knees, thighs, and calves [3, 12]. Striae rubra are the earliest presentation of striae distensae and are characterized by purplish streaks. Over time, striae rubra evolve into striae alba, which appear hypopigmented, and scar-like. The pathogenesis is not well understood and is likely multifactorial. Mechanical factors resulting in increased tension on the skin, intrinsic alterations in skin structure or function, and hormonal components (excessive cortisol levels) are all believed to contribute to striae distensae [3]. Therapeutic intra-articular injections with corticosteroids, a risk factor for the development of striae, are utilized in children and adolescents with various orthopedic conditions such as monoarticular or oligoarticular inflammatory arthritis, especially after the failure of more conservative treatments, such as non-steroidal agents [2, 4, 6, 8, 10, 14].

Striae distensae can be diagnosed clinically based on the characteristic location along skin tension lines as well as the distinct linearity of pink, purple, or hypopigmented atrophic plaques. Striae are a known side effect of steroid injections, and whereas there are no medical consequences of the striae, these plaques are frequently associated with aesthetic concerns. Therapies to reduce the appearance include pulsed dye lasers, fractional lasers, and topical retinoids [7,

9, 13].

Our patient's development of horizontal, purple striae of the right knee was likely a result of the triamcinalone intra-articular injection she received. The first clinic-documented signs of developing striae occurred two months after the patient's injection. This time delay is consistent with a previously documented latency period of 2 to 3 months between intra-articular steroid injection and onset of skin changes [1]. She was not using any topical or oral medications and did not have a systemic disease that would cause striae. Although she had a growth spurt over the last year, she did not have striae elsewhere, which would be expected with growth spurts. Although few patients will develop striae after an intra-articular corticosteroid injection, it is important that those administering the injections understand and explain the potential risk to patients.

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