

Tissue necrosis following intramuscular diclofenac injection

Kas içi diklofenak enjeksiyonunu takiben gelişen doku nekrozu

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ABSTRACT

Following intramuscular drug injections, livedoid dermatitis (also known as *embolia cutis medicamentosa* or *Nicolau Syndrome*), characterized by pain, skin discoloration, and cutaneous necrosis, may rarely be observed. In the present study, we present a 32-year-old male patient who developed Nicolau Syndrome after intramuscular injection of single-dose diclofenac sodium 75 mg due to renal colic pain. The physical examination revealed skin discoloration in his left gluteal region, and a skin necrosis. Case is very interesting because of rarely.

Key words: diclofenac sodium; Nicolau syndrome; intramuscular injection.

ÖZET

İntramüsküler ilaç enjeksiyonları sonrasında ağrı, deride renk değişikliği ve deri nekrozu ile karakterizedir. Nadiren görülen bu sendrom, livedoid dermatitis veya embolia kutis medikamentosa (Nicolau Sendromu) adıyla anılır. Bu yazıda renal kolik ağrısı sebebi ile tek doz 75 mg. intramüsküler diklofenak sodyum enjeksiyonu yapılmış 32 yaşındaki erkek olguda gözlenen Nicolau Sendromu sunuldu. Olgunun fizik incelemesinde sol gluteal bölge derisinde renk değişikliği ve nekroz mevcuttu. Olgu, nadir görülmesi nedeniyle oldukça ilgi çekicidir.

Anahtar kelimeler: Diklofenak sodyum; Nicolau sendromu; intramüsküler enjeksiyon.

INTRODUCTION

Tissue necrosis associated with intramuscular drug injection, is observed due to phenylbutazone, local anesthetics, antihistaminics, antiinflammatory agents, corticosteroids, and penicillins.^{1,2} Typically, necrosis develops following hyperemia, skin discoloration, livedoid and hemorrhagic patch formation at the injection site. This clinical profile is termed as

'*livedoid dermatitis*' or '*embolia cutis medicamentosa*' or '*Nicolau Syndrome*'.³

In this study, we presented a case of Nicolau Syndrome developed after diclofenac sodium injection.

CASE REPORT

Thirty-two-year-old male patient presented to our clinic with skin discoloration in his left gluteal region, and the physical examination revealed a skin necrosis with a size of approximately 10x10 cm (Figure 1).

The patient received a single-dose intramuscular injection of diclofenac sodium 75 mg due to renal colic pain in a different health center one month before visiting us. The health center recommended no treatment for the severe pain that occurred in the injection site after the injection. The patient observed skin discoloration at the injection site one day after the injection and presented to the health center again after approximately 10 days due to development of a black-colored, dry wound at the same site. The patient was monitored and received daily dressing for 15 days, but due to no sign of healing, he was referred to the Department of Plastic and Reconstructive Surgery. When the patient presented to our clinic, debridement was applied to the necrotic wound which was not painful anymore. The resultant defect was repaired with a skin graft of half the size (Figure 2).



Figure 1. The view of the cutaneous necrosis.



Figure 2. Early postoperative appearance of the case.

DISCUSSION

Nicolau Syndrome (*livedoid dermatitis* or *embolia cutis medicamentosa*) is a considerably rare clinical entity characterized by pain, skin discoloration, and necrosis, which occurs following intramuscular (IM) drug injection.⁴ This syndrome may manifest itself within a spectrum of symptoms ranging from simple skin ulcerations to sepsis and extremity amputations⁵.

Livedoid dermatitis has been first seen in the 1920s, following delivery of bismuth salts used for syphilis treatment³. The syndrome has been defined by Freudental in 1924 and by Nicolau in

1925⁵. Pathophysiology of the syndrome is not yet understood clearly.⁶ Most probable reasons behind its pathophysiology are direct damage in peripheral arteries, arterial embolism caused by the microcrystals of crystalloid drugs, and use of cytotoxic drugs. Moreover, inhibition of prostoglandin synthesis is known to lead to vasospasms.³⁻⁵ In the pathogenesis of Nicolau Syndrome, which as a result of non-steroid antiinflammatory drugs leading to cyclo-oxygenase inhibition such as diclofenac sodium, this vasospasm probably plays an important role.

The priority in Nicolau syndrome is debridement. After that, depending on the degree of necrosis in the tissue, a primary repair, skin graft, or flap can be performed following application of early period or daily dressings.³

Studies with large series are needed to determine the pathogenesis mechanisms and treatment algorithms of Nicolau Syndrome. However, the possibility of forming a large series does not seem to be likely. As far as we know it, our patient is the 16th Nicolau Syndrome case associated with diclofenac sodium in the literature.

In conclusion, it should be borne in mind that Nicolau Syndrome characterized with pain, skin discoloration, and necrosis, can be observed following injection of diclofenac sodium, a nonsteroid anti-inflammatory drug. This case was interesting because of a rare observation and therefore presented.

REFERENCES

1. Uday PK. Nicolau syndrome. In: Valia RG, ed. What is new in Dermatology, Sexually Transmitted Diseases and Leprosy. Bombay: 2000:22-30.
2. Muller-Vahl H. Adverse reaction after intramuscular injections. *Lancet* 1983;1:1050.
3. Lie C, Leung F, Chow SP. Nicolau syndrome following intramuscular diclofenac administration: a case report. *J Orthop Surg* 2006;14:104-7.
4. Hamilton B, Fowler P, Galloway H, Popovic N. Nicolau syndrome in an athlete following intra-muscular diclofenac injection. *Acta Orthop Belg* 2008;74:860-4.
5. De Sousa R, Dang A, Rataboli PV. Nicolau syndrome following intramuscular benzathine penicilin. *J Postgrad Med* 2008;54:332-4.
6. Brethnach SM. Drug reactions, In: Champion RH, Burton JL, Burns DA, Brethnach S, eds. *Textbook of Dermatology*, 6th edn. London: Blackwell Science Ltd, 1998;3497.