

# Nicolau Syndrome Due to Diclofenac Injection: Case Report

## Diklofenak Enjeksiyonuna Bağlı Nicolau Sendromu

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**ABSTRACT** Nicolau syndrome is a rare and local complication of aberrant intramuscular injections of various drugs. It is characterized by a necrotic or hemorrhagic plaque, which follows a pale then consequently an erythematous macule on the injection area. It usually heals by leaving an atrophic scar. The exact pathogenesis is unknown. Nonetheless, a possible cause is the development of arterial spasm following tissue necrosis after the drug is injected into a blood vessel by mistake. Here, we presented a case of Nicolau syndrome occurring after the injection of diclofenac to the thigh region.

**Key Words:** Diclofenac; injections, intramuscular

**ÖZET** Nicolau sendromu, çeşitli ilaçların hatalı intramusküler enjeksiyonundan kaynaklanan nadir görülen lokal bir komplikasyondur. Enjeksiyon alanında önce soluk sonra belirgin eritemli maküli takip eden nekrotik veya hemorajik plak ile karakterizedir. Genellikle atrofik skar bırakarak iyileşir. Kesin patogenezi bilinmemektedir. İlacın kan damarına yanlışlıkla enjeksiyonunun ardından oluşan arteriyel spazmı takiben gelişen deri nekrozunun neden olduğu düşünülmektedir. Burada uyluk bölgesine diklofenak enjeksiyonunun ardından oluşan Nicolau sendromlu bir olgu sunulmaktadır.

**Anahtar Kelimeler:** Diklofenak; enjeksiyonlar, intramusküler

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**N**icolau Syndrome (NS) or Emboly Cutis Medicamentosis is a rare complication of intramuscular injection (im) of various drugs. It occurs as local, aseptic and cutaneous, subcutaneous or sometimes muscular necrosis at the area of injection.<sup>1</sup> Here we presented a case of NS after diclofenac injection, which developed at a localization previously not reported in adults.

### CASE REPORT

A 33-year-old female patient presented to our dermatology department with a painful indurated 3x1 cm plaque on her right thigh with a necrotic crust at the center and a purplish tissue around (Figure 1). The patient was healthy until 20 days before the development of the lesion. Additionally, she indicated that the lesion had developed after intramuscular injection of



**FIGURE 1:** Indurated plaque on the thigh with a necrotic crust at the center and purplish erythema surrounding it.

(See for colored form <http://tipbilimleri.turkiyeklinikleri.com/>)

diclofenac on her right front thigh for headache. She was diagnosed with Nicolau Syndrome according to the medical history and typical dermatological signs. Lesion biopsy was not conducted in order to prevent further damage. Conservative treatment was preferred. Consequently, the lesion regressed leaving a small scar behind.

## DISCUSSION

NS was first defined in 1920 by Freudenthal and Nicolau after using bismuth salt for treatment of syphilis.<sup>2</sup> Up to date, NS cases have been reported in relation with using antiinflammatory drugs, local anesthetics, corticosteroids, antihistamines, vitamin B complexes, sulfonamides, penicillin, recombinant interferon alpha and beta, vaccines (varicella and diphtheria-tetanus-pertussis), pyrazolone, and etanercept.<sup>3-10</sup>

A possible cause is the development of arterial spasm following a tissue necrosis after the drug is

injected into a blood vessel by mistake.<sup>1</sup> Actually, diclofenac is a cyclo-oxygenase inhibitor and inhibits synthesis of prostaglandin. This may lead to the vaso-constructive phenomenon.<sup>10</sup>

Typically, severe pain develops right after the intramuscular injection. Vasospasm leads to pallor, which is followed by an erythematous macule. Subsequently, within 24 hours, a livedoid patch occurs which may develop into a hemorrhagic or necrotic stage. Within the next 1-2 weeks, necrosis or demarcation develops including the muscle. Finally, it heals by leaving an atrophic scar behind.<sup>11</sup> NS may be accompanied with widespread cutaneous necrosis, ipsilateral limb ischemia, and various neurological complications and superimposed infections.<sup>3</sup>

For intramuscular injections, generally thighs are preferred in children and gluteal area in adults. In reported cases up to date, lesions have been compatible with these preferences. However, in our case, the lesion was in the thigh area although the patient was an adult.

There is no definitive treatment of this syndrome. Conservative approach is recommended such as covering the wound, debridement, bed rest, and pain control.<sup>12</sup>

Although the syndrome develops very rarely, it is an important cause for morbidity. It is an iatrogenic condition, especially practiced by nurses.<sup>13</sup> Thus, although it appears to be a very simple procedure for a healthcare worker, care must be taken during intramuscular injections. Aspiration must be practiced before the injection to ensure that the injection point is correct.

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