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## NICOLAU SYNDROME ASSOCIATED WITH DICLOFENAC SODIUM SODIUM-CASE STUDY

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### ABSTRACT

*A 48 year old man visited the hospital with complaints of fever and body pain. He was treated with inj. Diclofenac sodium 150mg as a IM OD dose. After administration of injection he experienced multiple hemorrhagic patches with necrotic skin lesions in the gluteal region up to Knee joint (Nicolau Syndrome).*

**Key Words:** *Intramuscular injection, Nicolau Syndrome*

### INTRODUCTION

Necrotizing soft tissue infection is a rare but very severe type of bacterial infection. It can destroy the muscles, skin, and underlying tissue. The word "necrotizing" refers to something that causes body tissue to die. Many different types of bacteria can cause this infection. A severe and usually deadly form of necrotizing soft tissue infection is due to the bacteria *Streptococcus pyogenes*, which is sometimes called "flesh-eating bacteria." Necrotizing soft tissue infection develops when the bacteria enters the body, usually through a minor cut injury or scrape. The bacteria begin to grow and release harmful substances (toxins) that kill surrounding tissue and affect blood flow to the area. As the tissue dies, the bacteria enters the blood stream and rapidly spreads throughout the body [1].

Toxic shock syndrome (TSS) is a toxin-mediated acute life-threatening illness, usually precipitated by infection with either *Staphylococcus aureus* or group A *Streptococcus* (GAS), also called *Streptococcus pyogenes*. It is characterized by high fever, rash, hypotension, multiorgan failure (involving at least 3 or more organ systems), and desquamation, typically of the palms and soles, 1-2 weeks after the onset of acute illness.

Analgesics are the common drugs used for treatment of pain and pyrexia. Diclofenac sodium is a Non Steroidal Anti inflammatory Drug (NSAID) taken or applied to reduce inflammation and as an analgesic reducing pain in certain conditions. It is marketed as or contained in medications under a variety of trade names. The name "Diclofenac Sodium" derives from its chemical name: 2-(2, 6-dichloranilino) phenylacetic acid.

We report a case of a 48 years old man who developed clinical manifestations of allergic reaction after taking diclofenac sodium which was progressing towards Nicolau syndrome.

### CASE REPORT

A 48 years old male apparently normal a week back had fever which was indented low grade fever. He went to a tertiary care hospital where he was given the injection on right lower limb. After that fever subsided for 3 days. He developed swelling at the Injection site, gluteal region with pain and discoloration of skin. He had difficulty in moving the right lower limb apart from any other symptoms within 28 hours of receiving diclofenac sodium. The patient presented with complaints of burning sensation and redness on the gluteal region. Over the duration of 48 hours the rash spread to involve the right lower limb upto the knee. He also developed fever, swelling of the gluteal region in the next 3 days. There was no history of any other drug being taken for the last 6 months. He is a farmer by profession and hence, regularly exposed to sunlight for the past 30 years. There was no history of similar complaints.

On examination, he was febrile, mild icterus and bilateral pedal edema were present. Right lower limb grossly edematous. Dermatological examinations revealed multiple hyper pigmented well defined plaques diffuse over the right gluteal region, Necrosis and skin peeling with induration., a large irregular patchy ecchymosis of size 40×10 cm antero lateral part of right thigh with patchy blackish discoloration. Symptoms of acute renal failure present.



**Figure1:** Nicolau syndrome

Red blood cells are macrocytic and are admixed with normocytic cells. White blood cells are normal in count with increase in neutrophils showing toxic granules and vacuoles. Platelets are reduced in number (thrombocytopenia), blood urea 145mg/dl, creatinine 3.9mg/dl indicating acute renal injury probably due to Sepsis.

### DISCUSSION

Diclofenac Sodium is a non-steroidal anti-inflammatory drug (NSAID) taken or applied to reduce inflammation and as an analgesic reducing pain in certain conditions. Because of its good Pharmacokinetic profile and high tolerability, it is widely used as a part of analgesic and it's a preferred drug. It is usually administered in a dose of 150 mg daily. It is mainly metabolized and also excreted by kidney. The excretion of renal route is mostly by glomerular filtration and about 30% actively transported by renal proximal tubular cells. "The elimination half-life is 2 hours". The incidence of side effects are nausea, vomiting; diarrhea, constipation; headache, dizziness, drowsiness.

Type-4 hypersensitivity reactions are usually localized to exposed areas of the skin with generalized involvement occurrence in rare. Drugs causing Allergic reactions are COX-2 inhibitors.

Administration of appropriate antibiotic regimen may be considered when there is evidence of infection. Since cell damage may be reversible in the acute phase of Nicolau syndrome, starting early supportive care saves tissues [2].

The first case of Nicolau Syndrome was described in 1925 by Nicola following IM injection of bismuth salt. Later it has been reported following the IM or subcutaneous injection of a wide range of other medications [3-5].

Although in most cases of Nicolau Syndrome, the buttocks are involved, it has also been described in the shoulder, thigh, knee, and ankle. In our case, Nicolau syndrome occurred in the gluteal region after IM injection [6].

As there is no confirmatory test, the diagnosis of Nicolau Syndrome is based on present history, past medical history and the clinical manifestations. Therefore Nicolau Syndrome should be considered as a possible diagnosis for anyone who presents with severe localized pain following an IM injection [7-12].

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