Upper limb gangrene following intramuscular diclofenac: a rare side effect

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INTRODUCTION

Gangrene of limbs developing after injecting diclofenac intramuscularly may be a rare complication that has not been reported earlier. I have attended to a patient who developed gangrene of the left hand and forearm following diclofenac injection given intramuscularly in the left deltoid region. The patient ultimately ended up losing his limb.

CASE REPORT

A 56-year-old male patient presented to the emergency department of this hospital with the complaint of severe pain and blackish discolouration of the left hand and forearm. The patient gave history of attending one local hospital 2 days before coming to our hospital, with the complaint of mild pain on the left side of the abdomen for which an injection of diclofenac was given intramuscularly in the left deltoid region. Soon after getting the injection, the patient developed severe pain in his left hand. He also noticed some pale discolouration of his hand. Gradually the whole of the left hand and part of the forearm turned blackish in colour (Fig. 1). The patient had a known case of left renal calculi and had earlier undergone ureteroscopic retrieval of the calculi. The patient also had a Double J stent placed in situ, following stone retrieval.

Urgent Doppler scanning of the upper limb vessels was done, which revealed complete occlusion of both the radial and ulnar arteries on the injected side. Injection of heparin was started immediately, but the patient’s limb could not be salvaged. Below elbow amputation was done for the patient. There were no signs of arteriopathy in any other parts of the body as evidenced by clinical and Doppler study. All routine blood investigations, including lipid profile and serum CK levels, were found to be within normal limits. Antinuclear antibodies, C-reactive proteins and rheumatoid factors were all within normal ranges.

DISCUSSION

Non-steroidal anti-inflammatory drugs (NSAIDs) are frequently prescribed as analgesics. Known side-effects include peptic ulcer, bronchospasm, liver and renal toxicities. The development of skin, subcutaneous and even muscle tissue necrosis are rare but serious complications of intramuscular injections. Tissue necrosis as a serious complication of intramuscular drug injection was first discovered in the 1920’s by Freudenthal and Nicolau after administration of bismuth salts for syphilis treatment and has been referred to since then as Nicolau’s syndrome, livedo-like dermatitis or embolia cutis medicamentosa [1]. The necrosis may involve the skin, subcutaneous tissue and muscular layer. Recovery

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usually occurs over a few months, often leaving an atrophic scar [2]. Complications, such as neurological injury, extensive necrosis, limb ischaemia, sepsis due to superimposed infection and even death in children, have been reported. In addition to bismuth salts, injection of several other drugs has been reported to cause necrosis including NSAIDs, local anesthetics, corticosteroids, antihistamines, penicillin and other types of antibiotics, interferon, vitamin B complexes, iodine and several vaccine preparations [2, 3].

The pathogenesis of post-injection necrosis is not completely understood; however, damage to an end artery by massive inflammatory reaction induced by intra-arterial or para-arterial drug injection seems to be the leading hypothesis. Allergic, immunologic and mechanical vascular occlusion theories have been disproved [4, 5].

In our patient, according to the patient’s version, injection was given in the lower part of his arm and the injection might have been accidentally pushed into the brachial artery causing simultaneous occlusion of both radial and ulnar arteries leading to the gangrene of his hand and part of the forearm.

REFERENCES