Case Report

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Accidental Intra-Arterial Injection of Diclofenac –Case Report

Surgery Section

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ABSTRACT

Diclofenac sodium is a very common drug used in medical practice for analgesia and is freely available over the counter without any medical prescription. The drug is also the most commonly used or misused by quacks working all over India. Many case reports have been published on upper limb catastrophe of unintentional intra-arterial injection of barbiturates, thiopental sodium, narcotics, and tranquilizers but only two cases of inadvertent intra-arterial injection of diclofenac have been reported till date. Potential serious complication of inadvertent intra-arterial injection of diclofenac sodium leading to gangrene has been recently reported in medical literature. It is a medical emergency and literature has shown that timely diagnosis with early intervention can salvage the limb. We hereby report a case of accidental intra-arterial injection of diclofenac sodium in the ulnar artery by a quack for pain abdomen leading to gangrene of the distal part of affected little, ring and part of middle finger of right hand.

Keywords: Diclofenac sodium, Gangrene, Intra-arterial injections, Medical emergencies

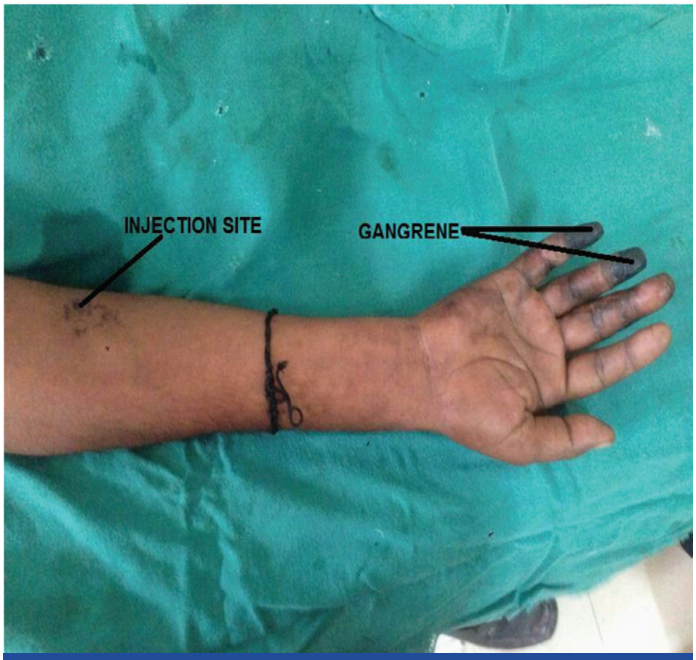
CASE REPORT

A 62-year-old male patient presented with dry gangrene of the distal part of his little, ring and part of middle finger of right hand with ecchymosis on ulnar aspect below right elbow [Table/Fig-1]. Patient gave history of injection of Voveran (diclofenac sodium) by a quack for pain abdomen about one month back. Patient developed severe excruciating pain at the site of injection with involvement of limb distal to the site of injection. Patient noticed swelling and bluish discoloration of three fingers of right hand when he woke up next morning. Patient was not given any treatment for the complication for the next 48 h. Patient was advised elevation of limb with oral pentoxyfylline (Trental 400 mg).

Patient received oral pentoxyfylline, 400mg three times daily for four weeks before he presented to us in OPD. Oedema of the hand subsided and blackening got restricted to the distal phalanx of little, ring, and middle finger of right hand. Doppler examination of right upper limb confirmed the site of injection in medial aspect of elbow near cubital fossa with course of ulnar artery. Patient has been advised to undergo amputation of distal part of affected fingers as there were no sensations in the area of dry gangrene. Patient underwent amputation of distal parts of affected fingers and post-operative recovery was uneventful.

DISCUSSION

It is difficult to establish the incidence of complication of intra-arterial injections as many cases go unreported. Estimates by certain authors place incidence of this complication between 1:3500 to 1:56000 [1,2]. Many commonly used drugs like phenothiazines, meperidine diazepam, promazine, barbiturates, tubocuraine, amphetamines and strophanthin have been found injurious when given intra arterially [3]. Recently toxic effect of intra-arterial injections of diclofenac sodium, a commonly used analgesic have been reported by Samantha S and Samantha S and similar case of diclofenac toxicity is being reported by us [3]. Any drug given intra-arterially should be considered toxic. Many case reports have been published on upper limb catastrophe following unintentional arterial injection [1,2,4-7]. Accidental intra-arterial injection occurs most commonly in the ante-cubital fossa where branches of the ulnar and brachial arteries are more superficial and easily entered. Anomalies of these vessels are common [5]. Therefore, we should be careful while injecting drugs in ante-cubital fossa region. According to Samantha S & Samantha S, benzyl alcohol preservative used in non aqueous preparation of diclofenac may be the cause of vasospasm due to endothelial oedema and capillary endothelial dysfunction [3]. Vasospasm, intravascular thrombosis, chemical endoarteritis are the proposed pathophysiological mechanism [7]. Complications of intra-arterial injection of non aqueous agents (phenytoin, propofol) and highly alkaline drugs (thiopentone) are well documented [2,8]. Though lipid soluble drugs are known to cause more complications if given intra arterially however anaesthetic drugs like atropine, fentanyl, vecuronium have been used without any deleterious effects [8]. Many hypothesis has been proposed for the arterial hypo perfusion or spasm which is final event leading to limb ischemia. Chances of complications are much common in postoperative period when patient is recovering from anaesthesia. In children especially in emergency situations, when intravenous access was difficult intentional induction using intra arterial route has been reported in literature [3,9]. Though guidelines are not available, case reports and review reported that water soluble drugs and drugs with pH closer to arterial blood pH may be used through intra-arterial route. The limb can be salvaged by immediate heparin and lignocaine administration in arterial line as done in second case described by Samantha S & Samantha S where diclofenac



[Table/Fig-1]: Showing site of injection and gangrene of fingers

was accidently administered. Radial arteries Doppler shown normal arterial pulse waves and affected limb remain uncomplicated even after seven days follow up with Doppler study [3].

CONCLUSION

We would like to remind our medical colleagues who may have to work with less trained staff for many reasons, at times beyond their control, that they should not depend too much on them. Injections are at times given by student nurses or ward boys in hospitals and by untrained staff in smaller nursing homes. These trainees may not realize the importance and difference in intravenous or intra-arterial route or may not be able to differentiate a wrong inserted line. Clinicians' incharge of the patient is vicariously liable for their act. It is true that there are less chances of occurrence of this type of catastrophe if medically trained physicians directly supervise the action of junior staff. How many clinicians are practically able to supervise the event? It requires Clinicians forced to work in such situations to introspect and take some time out to educate and train the staff.

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