



Acute limb ischemia due to diclofenac sodium iatrogenic intra-arterial injection: a case report

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Introduction: Diclofenac sodium is a nonsteroidal anti-inflammatory, the injection of which by the intra-arterial route can lead to serious vascular complications, including limb ischemia.

Case presentation: We report the case of accidental intra-arterial injection of diclofenac sodium in the brachial artery leading to acute limb ischemia.

Clinical discussion: Iatrogenic intra-arterial injection is rarely reported in the literature; however, it is toxic and can lead to limb amputation. Only two cases of intra-arterial injection of diclofenac have been reported in the literature. The proposed pathophysiological mechanism is vasospasm, intravascular thrombosis, and chemical endoarteritis. The most common anatomical location in accidental intra-arterial injection is the antecubital fossa, where branches of the ulnar and brachial arteries are more superficial.

Conclusion: The injection of medication must be as careful as possible, since the intra-arterial injection can affect the functional prognosis of the organ.

Keywords: diclofenac sodium, iatrogenic, injection, limb ischemia

Introduction

Diclofenac sodium is a nonsteroidal anti-inflammatory drug widely used in medical practice for swelling and pain, most commonly injected by the intravenous route. However, its injection by intra-arterial access can lead to serious vascular complications, including limb ischemia.

We report the case of accidental intra-arterial injection of diclofenac sodium in the brachial artery leading to acute limb ischemia.

Our case report was written according to the Surgical Case Report (SCARE) guidelines^[1].

Case report

We report the case of a 64-year-old male with no relevant medical history, especially no history of diabetes, hypertension, familial thrombophilia, heart dysfunction, and tobacco smoking.

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HIGHLIGHTS

- Iatrogenic intra-arterial injection is rarely reported in the literature; however, it is toxic and can lead to limb amputation.
- Only two cases of intra-arterial injection of diclofenac have been reported in the literature.
- Urgent care must be maintained for limb salvage.

He was admitted to the emergency room for acute ischemia of the left upper limb. On clinical examination, the axillary pulse was present with abolition of brachial and distal pulses, without motor or sensory deficit. Thus, the patient underwent a computed tomography angiography of the left upper limb, showing an arresting image in the brachial artery with recovery of the contrast product in the distal radial artery. Therefore, the patient benefited an embolectomy using a Fogarty catheter (3F) by approaching the humeral artery at the elbow crease, with issue of a fibrinocruoric clot, with good postoperative improvement. The surgical management of this case was performed by an experienced professor of vascular surgery with the aid of an assistant professor and two junior residents in the same speciality.

At the etiological assessment, thrombophilia tests showed no abnormalities. However, the patient reports the injection of diclofenac sodium at the elbow crease 15 days previously, in a provincial hospital, following post-traumatic pain ankle. Since the patient reports pain in the left upper limb, which worsened 2 days before admission, with notion of coldness and cyanosis of the limb, a treatment based on anticoagulant and platelet antiaggregant was prescribed on discharge of the patient, with regular follow-up at the consultation.

Discussion

The incidence of complications of intra-arterial injections is estimated to be between 1/3500 and 1/56,000^[2,3]. Iatrogenic

intra-arterial injection is rarely reported in the literature^[2–6]; however it is toxic and can lead to limb amputation, unless urgent and adequate care is maintained. The proposed pathophysiological mechanisms are vasospasm, intravascular thrombosis, and chemical endoarteritis^[6].

The most common anatomical location is the antecubital fossa, where branches of the ulnar and brachial arteries are more superficial. Thus, the practitioner must be careful when injecting drugs near this anatomical location^[7].

Many drugs commonly used, such as phenothiazines, meperidine, diazepam, promazine, barbiturates, tubocurarine, amphetamines, and strophanthin have been found injurious when injected by the intra-arterial access^[3]. Besides, complications of nonaqueous agents (phenytoin, propofol) and highly alkaline drugs (thiopentone) are well documented^[4–8]. However, anesthetic drugs like atropine have been used without any complications^[8].

Samantha and Samantha^[3] have reported limb salvage by immediate heparin and lignocaine administration in the arterial line in a case where diclofenac was accidentally administered. Kumar *et al.*^[9] have also reported on diclofenac toxicity.

There is no consensus regarding intra-arterial drug injection; nevertheless, we find in the literature case reports concerning the injection of drugs with a pH closer to the pH of arterial blood without iatrogenic complications. It is useful in emergency situations, especially in children, in whom vascular access may be difficult^[10].

Conclusion

The injection of medication must be as careful as possible since the intra-arterial injection can affect the functional prognosis of the organ.

Ethical approval

Applicable.

Patient consent

Written informed consent was obtained from the patients for publication of this study and accompanying images.

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Author contribution

Y.B., H.B., and S.B.: conception, literature review, analysis, data collection, and writing – reviewing and editing; A.R., A.B., and O.E.M.: conception, methodology, and supervision.

Conflicts of interest disclosure

There are no conflicts of interest between the authors.

Research registration unique identifying number (UIN)

This is not an original research project involving human participants in an interventional or an observational study but a case report. Registration is not required.

Guarantor

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