

## Skin Necrosis Caused by the Extravasation of Antibiotics: About A Case Report

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### ABSTRACT

Extravascular iatrogenic extravasation corresponds to the passage of a perfusion product and its tissue distribution at the injection site; its consequences depend on the nature of the product concerned, and the risk of progressive and disabling skin necrosis are major. We report the clinical case of a 45-year-old patient, followed for type 2 diabetes for 3 years and put on insulin, admitted initially for community-acquired pneumonia, for which she was hospitalized and put under amoxicillin protected by intravenous peripheral line in the right wrist. Four days later the evolution was marked by the onset of pain with tumefaction and severe edema at the site of the perfusion, drug extravasation was suspected which justified the immediate cessation of the perfusion, but the evolution was quickly marked by the appearance of extensive necrotic plate extending on the side face of the distal third of the right forearm and the right hand. We retained the diagnosis of skin necrosis secondary to extravasation of antibiotic therapy based on amoxicillin-clavulanic acid. Given the extension of necrosis, treatment consisted of amputation of the hand and putting the patient under antibiotics. The extravasation is to be considered as a serious complication of intravenous treatments and its management as a surgical emergency is absolute. Whatever the injected product, it is necessary to respect the recommended route of administration, and after extravasation of a product it is mandatory to control the injection site.

**Keywords:** Extravasation of antibiotics, Skin necrosis, Diabetes

### INTRODUCTION

Extravascular iatrogenic extravasation corresponds to the passage of a perfusion product and its tissue distribution at the injection site; its consequences depend on the nature of the product concerned, and the risk of progressive and disabling skin necrosis are major. The causes of skin necrosis originating from drugs or toxic vary widely. We report a case report.

### OBSERVATION

A forty five-year-old woman (E.F) is followed for type 2 diabetes for 3 years and put on insulin, she is also followed for asthma for 4 years and put under Beta-agonists and she has no other particular medical history. The patient was admitted for community-acquired pneumonia, for which she was hospitalized and put under amoxicillin protected by intravenous peripheral line in the right wrist. Four days later, the evolution was marked by the onset of pain with tumefaction and severe edema at the site of the perfusion, drug extravasation was suspected which justified the immediate cessation of the perfusion, but the evolution was quickly marked by the appearance

of extensive necrotic plate extending on the side face of the distal third of the right forearm and the right hand (**Figure 1**). We retained the diagnosis of skin necrosis secondary to extravasation of antibiotic therapy based on amoxicillin-clavulanic acid. Given the extension of necrosis, treatment consisted of amputation of the hand and putting the patient under antibiotics.

### DISCUSSION

Extravasation is the leakage of a liquid from a blood vessel toward the subcutaneous or perivascular space [1].

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The risk of extravasation depends on physiological and anatomical factors, such as venous condition, the perfused vessels size, blood flow; and techniques, such as experience of nurses, the number of venous punctures, the

type of catheter, the type and amount of product injected. The extreme ages of life are also a contributing factor due to vascular fragility [2].



**Figure 1.** Extensive necrotic plate extending on the side face of the distal third of the right forearm and the right hand

The extravasation results in a reaction ranging from local irritation to severe tissue necrosis of the skin, subcutaneous tissue, peripheral vascular system, ligaments or tendons [1]. The most classical medicinal causes of skin necrosis associated with injections are: Nicolau dermatitis corresponding to intra-arterial emboli of a medicament normally injected intramuscularly (IM) (but cases after intradermal mesotherapy are described); subcutaneous (SC) injections of a medicament intended for the IM route; extravasation of a product of sclerosis of varicose veins or vascular malformations, the chemotherapy extravasation, of carbonate or calcium chloride, or potassium; necrosis at the injection sites with heparin; necrosis at the injection sites of interferon in SC, necrosis due to extravasation of contrast material [3].

In our knowledge no cases of secondary cutaneous necrosis by extravasation of amoxicillin-clavulanic acid has been reported. Is it therefore a direct toxicity of the antibiotic, favored by a deleterious vascular bed on diabetes ground?

Beyond the functional and vital risks, it is necessary to take into consideration the psychological impact of the possible consequences of extravasation on the patient. Treated according to the usual methods, necrosis leaves room for chronic wounds for which healing is very long to obtain and requires the use of a secondary surgical treatment [4].

### CONCLUSION

The extravasation is to be considered as a serious complication of intravenous treatments and its management as a surgical emergency is absolute. Whatever the injected product, it is necessary to respect the recommended route of administration, and after extravasation of a product it is mandatory to control the injection site.

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