



Case review

Death due to an unrecognized groin abscess in a drug addict: A retrospective study



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ABSTRACT

Intravenous drug injection persists despite health risks and medical complications. Venous thrombosis, septic thrombophlebitis, artery necrosis, arterio-venous fistula, mycotic aneurysm, dissecting hematoma, pseudoaneurysm formation, and soft tissues infections (i.e. abscesses, cellulitis, infected ulcers), are some of the major clinical consequences lives threatening. The aim of this work is to present this unusual autoptotic case of a drug addict man died for an unrecognized groin abscess referred to the Institute of Legal Medicine, University of Chieti, causing femoral vein's erosion, and to analyse the most common patterns of vascular lesions among drug addicts.

It could be stimulated a new scientific debate because groin injections and their vascular complications increase over years; while soft tissue infections may hide vascular lesions' diagnosis. So physicians should have a high index of suspicion for serious vascular problems, among intravenous drug users (IDUs): prevention for avoiding groin injection and a proper treatment are necessary.

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1. Introduction

The number of intravenous drug users (IDUs) worldwide is estimated to be approximately 13.2 million.¹ Intravenous injection is the most dangerous and one of the favourite drug assumption modality, becoming an important social and health care problem. Morbidity and mortality are related to the effect of substances themselves, and to the risks intrinsic in the practice. In 2008, the European Monitoring Centre on Drugs and Drug Addiction (EMCDDA) had showed that every year, in Europe, there are about 7000–8000 drugs-related deaths. Compared with their contemporaries, individuals abusing illicit drugs suffer a higher risk of premature death for different causes (diseases, accidents, violence, etc.).² Each drug injection carries a risk of vascular lesion. The literature describes many vascular diseases, among IDUs: venous thrombosis,³ septic thrombophlebitis, artery necrosis,⁴ arteriovenous fistula,⁵ mycotic aneurysm, dissecting hematoma and pseudoaneurysm formation.⁶ Physicians should have a high index of suspicion for vascular problems among IDUs, because they often neglect their illnesses and become difficult to treat. An earlier

diagnosis and treatment of these conditions could be possible only with education and awareness of both, patients and physicians.⁷ The aim of this study is to analyse common patterns of vascular injuries among IDUs; and to show you an unusual autoptotic case of death due to an unrecognized groin abscess, which caused a venous lesion and a subsequent hypovolemic shock.

2. Case history

A 43 years old man, drug addict, in treatment with methadone, went to the E.R. of Pescara's hospital, for a right thigh pain. The patient had been dismissed with a simple prescription of a non-steroid ant inflammatory drug (NSAID). The day after, he felt worse, so his relatives have called the Emergency Medical Service. It was diagnosed a right thigh root's abscess. A surgeon consultant confirmed the diagnosis: right thigh root's abscess, partially spontaneously drained. He did not act surgically, according to what documentation describes. In fact, he considered the abscess, already sufficiently drained. At the discharge, he had prescribed antibiotic, anti-inflammatory drugs and a medical check for the day after tomorrow. That day, the patient had skipped the medical check and he dead for severe haemorrhage. The Prosecutor's Office of Pescara deemed necessary an autoptotic study to the Institute of Legal Medicine, University of Chieti - Pescara, Italy.

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2.1. Autopsy, histological and toxicological findings

In the right groin of the cadaver, it was found a skin interruption, over the abscess' area. The surrounding site showed: much blood and the outcome of the abscess (Fig. 1). The abscess had involved: the subcutaneous tissue, the surrounding muscles and the vascular bundle. The femoral vein wall showed an area of erosion. (Fig. 2).

The autopsy was completed in every anatomical district, but there were no other death's explanations. The microscopic examination of the groin area showed: inflammatory infiltrate of the dermis and epidermal necrosis; skeletal muscle invaded and attacked by an area of suppurative necrosis. The lungs showed signs of pulmonary oedema, with histiocytes filled of brown pigment.

Blood's toxicological analysis showed only a quantity of methadone compatible with therapeutical regimen (0.827 µg/ml). All these findings lead to the diagnosis of death for an irreversible haemorrhagic shock, secondary to the spreading of the groin abscess and subsequent femoral vein's erosion.

3. Discussion

The autopsy highlighted right femoral vein erosion, in the groin abscess' area leading to lethal haemorrhagic shock. To our knowledge, the scientific literature, lacks of a systematic review of deaths due to femoral vessels haemorrhages, among IDUs. Deaths related to these haemorrhages, are mostly associated to lower limbs violent traumas^{8,9} or to medical procedures.^{10,11} There are some case reports of IDUs' death for vascular complications in the international literature, but none of them are referred to be due to venous haemorrhage.¹² The absence of this death cause, gives the opportunity to discuss this case. Parenteral drug injection can cause a wide range of vascular complications, from simple vascular irritation to severe infections, thrombosis and pseudo-aneurysm formation. Injecting drug use via femoral vein puncture has been identified as more widespread than previously recognized and it is associated with considerable morbidity.¹³ Studies¹⁴ have noted shifts towards groin (femoral vein) injection, among UK injectors. A survey¹⁵ of



Fig. 1. Right groin, skin interruption over the abscess' area (arrow).



Fig. 2. Femoral vein wall's erosion (black arrow) with a clot inside (white arrow).

IDUs in multiple locations in England found 45% of 952 IDUs to regularly groin inject, rising up to 58% in some cities. Maliphant et al. had interviewed a total of 92 IDUs and 47 (51%) of these, were currently injecting in their groin.¹⁶ Femoral injections are preferred to peripheral ones for different reasons: difficulty finding other veins, feasibility of the access, lack of visible track marks when clothed.¹⁷ So that lower extremity injecting, accounts for about 50% of the injecting years.¹⁸ Repeated injecting might cause vascular lesions, which affect both veins and arteries, the latter being often the most dramatic. Some Authors have observed two different mechanisms to cause vascular lesions: mechanical trauma and drugs' toxic effect.¹⁹ Vascular lesions usually show this step-progression: stage I - cicatricial-and-ulcerous lesions formation; stage II - formation of cutaneous-and-vascular fistulas; stage III - development of health-hazardous vascular lesions (i. e., arterial and venous thrombosis, bleedings). The same authors have experimentally confirmed that the main responsible of vascular lesions was the chemical injury: the damaged area infection turned out to be secondary to it.²⁰

4. Venous complications

Common venous complications among IDUs are: deep vein thrombosis (DVT) and chronic venous insufficiency or disease (CVD).⁷ DVT makes the lower limb swollen, erythematous and tender. Investigations should include baseline blood tests and blood cultures if feverish. Usually venography is not possible due to lack of superficial veins, and a Doppler ultrasound should therefore be used to confirm the diagnosis. Contrast enhanced CT is a useful diagnostic test for suspected septic DVT. Treatment should include antibiotics if necessary, anticoagulants with a therapeutic dose of

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