Acute mediastinitis: a severe complication of transdermal therapy in a patient with ischaemic heart disease. A case report

Mediastinite acuta: una complicanza grave della terapia transdermica in un paziente con miocardiopatia ischemica. Un caso clinico

Federica Faggian, Emanuela Lattuada, Massimiliano Lanzafame, Marco Trevenzoli, Anna Maria Cattelan, Ercole Concia

Department of Infectious Diseases, Civile Maggiore-Hospital, B.go Trento, Verona, Italy
1Department of Infectious Diseases, Padua Hospital, Padova, Italy

INTRODUCTION

Mediastinitis is a potentially devastating infection involving the structures of the mediastinum. Especially in the past most cases resulted from oesophageal perforation and/or contiguous spread from oropharyngeal foci [1, 2]. Nowadays mediastinitis occurs most frequently as a postoperative complication following cardiovascular and thoracic surgery or linked to the presence of concomitant risk factors (i.e. HIV infection, intravenous drug use) [3, 4]. We describe an unusual case of deep mediastinitis following soft tissue infection on the application site of transdermal nitro derivative patches in a patient with ischemic heart disease.

CASE REPORT

A 62-year-old white man suffering from ischaemic heart disease was admitted to our Infectious Disease Department with a 15-day history of fever, pain, progressive swelling and cutaneous erythema of the right parasternal border. Because of his medical condition, the patient had been on oral therapy with cardiovascular drugs and transdermal nitro-glycerine patches for the previous two months. Six days before admission the patient had started therapy with roxitromycin (300 mg once a day) as suggested by his own physician, suspecting chestwall cellulitis, without any benefit. On admission physical examination revealed a severely compromised patient, febrile with tachycardia and tachypnoea. Superficial thoracic examination revealed a subcutaneous mass localized on the right parasternal border at the level of the third intercostal space; a large amount of pus was evacuated by digital pressure from several sites of the localized and fissured erythema. An anterior-posterior chest X-ray film revealed a right parasternal lung parenchymal interstitial infiltration and soft tissue echography showed a non-homogeneous ultrasonographic structure near the sternum extending approximately for 7 cm and accompanied by diffused homolateral pectoralis muscle swelling.

Blood tests showed leukocytosis (WBC 13,800 cell/mL) with neutrophilia (12,834 cell/mL, 93%) and elevation of inflammatory indexes (ESR 113 mm/h - n.v.: 1-20 mm/h; CRP 22 mg/L - n.v. < 5.0 mg/L ). Microbiological examinations of blood samples and purulent discharge were not diagnostic, perhaps as a
An orthopantomography was performed to exclude the presence of any oropharyngeal asymptomatic foci. A chest computerized tomography scan confirmed the results of ultrasonography and the presence of purulent material even in the anterior mediastinum, in the right pleural space and close to the pericardium (Figure 1).

Empirical antibiotic therapy (teicoplanin 800 mg once a day and imipenem 1 g three times per day), was started with a gradual improvement of clinical and radiological status. After one month of intravenous therapy, treatment was switched to an oral regimen of ciprofloxacin (750 mg twice a day) and rifampin (900 mg once a day) for three months with complete resolution of clinical, instrumental and laboratory parameters.

**DISCUSSION**

Mediastinitis is a typical complication of cardio-thoracic surgery (from 1.3%-1.4% to 5-23% during outbreaks in intensive care units), following tissue surgical traumatism together with patient co-morbidities and/or other concomitant risk factors, and could be a consequence of oropharyngeal infections which ultimately invade the mediastinum via the cervical fasciae (3, 5-9).

Mediastinitis can extend to a number of contiguous structures and spaces, including pericardium (resulting in pericarditis), peritoneum (resulting in peritonitis), sternum (resulting in osteomyelitis) all of which can be lethal (10).

The case we have described herein is unique in its unusual aetiopathogenesis and the very rapid evolution which can be ascribed to the use of transdermal nitro-derivative patches with erosion of the skin barrier and spread into the deep tissue, in the absence of any other possible cause.

To the best of our knowledge no cases of mediastinitis due to patch applications have been described so far. From his medical history it emerged that the patient had never changed the nitro-glycerine patch application site since the beginning of the treatment, probably due to a lack of clarity in administrative explanations.

Transdermic therapy if not appropriately managed can lead to superficial cutaneous inflammations.

This case outlines the potential danger of transdermal patches when applied always in the same site; the importance of changing the application site in order to avoid dangerous bruising of the skin and close monitoring of eventual cutaneous inflammations should be emphasized by physicians for safe management of chronic transdermal therapy to avoid potentially devastating infections such as mediastinitis.

**Key words:** mediastinitis, transdermal therapy.
REFERENCES


La mediastinite acuta è una patologia rara, ma potenzialmente letale. Generalmente, la mediastinite si presenta in seguito ad interventi di cardiochirurgia e chirurgia toracica. Descriviamo un caso di mediastinite acuta secondaria alla diffusione di un’infezione cutanea della parete toracica nel sito di applicazione di cerotti per terapia transdermica con nitroglicerina, in un paziente affetto da cardiomiopatia ischemica.

RIASSUNTO