



Characteristics and predictors of outcome of spontaneous spinal epidural abscesses treated conservatively: A retrospective cohort study in a referral center



Nikolaos Spervovasilis^a, Stelios Demetriou^b, Maria Bachlitzanaki^c, Ioannis Gialamas^a, Kalliopi Alpentaki^{d,e}, Georgios Hamilos^{a,e}, Apostolos Karantanias^{b,e}, Achilleas Gikas^{a,e,*}

^a Department of Internal Medicine, Infectious Diseases Unit, University Hospital of Heraklion, Heraklion, Greece

^b Department of Medical Imaging, University Hospital of Heraklion, Heraklion, Greece

^c Department of Internal Medicine, "Venizelion" General Hospital of Heraklion, Heraklion, Greece

^d Department of Orthopaedics and Traumatology, University Hospital of Heraklion, Heraklion, Greece

^e Faculty of Medicine, University of Crete, Heraklion, Greece

ARTICLE INFO

Article history:

Received 22 December 2016

Received in revised form 20 February 2017

Accepted 24 February 2017

Available online 27 February 2017

Keywords:

Epidural

Spinal epidural abscess

Spinal infection

Conservative management

Outcome

ABSTRACT

Objective: Recent studies have shown that in carefully selected patients, conservative treatment alone can be an option in the management of spinal epidural abscess (SEA). The aim of this study was to identify prognostic factors of outcome in patients with spontaneous SEA treated conservatively.

Patients and methods: A retrospective cohort study of all patients with spontaneous SEA treated with antibiotics alone from January 2012 to December 2015 was conducted in a 1200-bed tertiary referral center. Demographic, clinical, microbiological, and radiological characteristics were analyzed. Failure of medical treatment was defined as the need for delayed surgical intervention, no neurological improvement or deterioration, death due to the infection, or relapse after hospital discharge.

Results: We identified 21 patients diagnosed with spontaneous SEA treated conservatively. Median age was 72 years and 10 patients were male. Eleven patients presented with radicular weakness and/or radicular sensory deficit, or incomplete cord injury. Inflammatory markers were markedly elevated in all patients. Thirteen patients were successfully treated with conservative treatment, while among 8 patients with treatment failure, 1 died due to the infection. Presence of serious neurological deficits and infection due to methicillin-resistant *S. aureus* (MRSA) were associated with failure of conservative treatment. Notably, neither the extension nor the location of the abscess on magnetic resonance imaging (MRI) was associated with failed medical management.

Conclusions: A significant proportion of patients with spontaneous SEA can respond to antibiotic treatment alone. However, in patients with infection due to MRSA or with severe neurological impairment, conservative management has an increased risk of failure.

© 2017 Elsevier B.V. All rights reserved.

1. Introduction

Spinal epidural abscess (SEA) is a rare, but life-threatening infection, which involves a collection of pus in the area between the dura mater and the vertebral periosteum. Prompt recognition and management are essential to prevent disastrous complications and achieve cure. The first description of this entity was made in the eighteenth century by Morgagni, followed by subsequent similar case reports [1,2]. During the first three-quarters of the twentieth

century, the incidence of SEA was 0.2–1.2 cases per 10,000 hospital admissions in the U.S.A. [3]. Notably, an increase over the last decades has been observed, with contemporary estimates of 2–12.5 cases per 10,000 admissions [4], accounting for approximately 10% of all primary spine infections in tertiary hospitals [5]. This rising incidence has been attributed to the aging population, the increased use of spinal procedures and long-term vascular access, the increased incidence of diabetes mellitus and intravenous drug use, but it may also reflect an improvement in physicians' awareness and better recognition with the greater availability of magnetic resonance imaging (MRI) [5,6].

Treatment options for SEAs include surgical intervention for drainage and decompression plus intravenous (IV) antibiotic therapy, computed tomography (CT)-guided percutaneous aspiration

* Corresponding author at: Department of Internal Medicine, Infectious Disease Unit, University Hospital of Heraklion, PO Box 1352, 71110, Heraklion, Greece.
E-mail address: gikas.achilles@uoc.gr (A. Gikas).

Table 1
Clinical characteristics of patients with spinal epidural abscess.

Characteristic	Total (n = 21)	Favorable outcome (n = 13)	Poor outcome (n = 8)	P – value
Age in years, median (range)	72 (44–86)	72 (44–86)	71.5 (47–82)	0.770
Male gender, n (%)	10 (47.6)	6 (46.2)	4 (50)	0.999
Diabetes mellitus, n (%)	9 (42.9)	7 (53.8)	2 (25)	0.366
Immunosuppression, n (%) ^a	5 (23.8)	3 (23.1)	2 (25)	0.999
Alcohol, n (%)	5 (23.8)	2 (15.4)	3 (37.5)	0.325
IVDU, n (%)	0	0	0	
Other risk factors, n (%) ^b	4 (19)	3 (23.1)	1 (12.5)	0.999
Time to diagnosis after symptoms onset in days, median (range) ^c	16 (2–40)	17 (2–40)	11 (4–20)	0.302
Neurological status, n (%)				
Axial pain (phase I)	4 (19)	4 (30.8)	0 (0)	0.036
Radicular pain (phase II)	6 (28.6)	5 (38.5)	1 (12.5)	
Radicular weakness and/or radicular sensory deficit, or incomplete cord injury (phase III) ^d	11 (52.4)	4 (30.8)	7 (87.5)	
Complete paralysis (phase IV)	0	0	0	
Previous antibiotics, n (%) ^e	9 (42.9)	6 (46.2)	3 (37.5)	0.999

OR, odds ratio; CI, confidence interval; IVDU, intravenous drug user.

^a Two patients were on immunosuppressive therapy (1 patient on steroids and 1 patient on steroids and leflunomide), 2 patients had end-stage renal disease, and 1 patient had active malignancy.

^b Two patients had long-term vascular access and 2 patients had soft tissue infection.

^c Missing data from 1 patient from the group of failure to conservative treatment.

^d Eight patients presented with radicular weakness and/or radicular sensory dysfunction, and 3 patients presented with incomplete cord injury.

^e Four patients on β -lactam, 1 patient on macrolides and 4 patients on fluoroquinolones antibiotics for various reasons (cholecystitis, urinary tract infection, lower respiratory tract infection, skin and soft tissue infections).

^{*} Statistical significance at 5% level.

plus IV antibiotics, or IV antibiotic therapy alone. Ideal management remains controversial due to the lack of randomized trials of medical versus surgical therapy of SEA. This is largely associated to ethical issues related to conservative treatment when surgery is indicated. Urgent/emergent surgical decompression and IV antibiotic therapy is generally considered the optimal therapy approach for SEAs [6]. Nevertheless, since the first report of successful conservative management of a small series of patients [7], several studies have challenged the necessity for surgical intervention in specific subgroups of patients [8–11]. This is probably due to the widespread use of MRI, allowing early detection of small abscesses before the presentation of major neurological deficits.

In this study, we report our experience with the conservative management of spontaneous SEAs not associated with penetrating trauma, neurosurgical interventions, and other procedures into the epidural space. By comparing the epidemiological, clinical, microbiological, and radiological characteristics of patients who were successfully treated non-surgically with patients who failed initial medical treatment, we attempt to identify risk factors for unfavorable response to conservative treatment alone.

2. Materials and methods

This cohort study included all adult patients initially treated only with IV antibiotics for spontaneous SEA from January 2012 to December 2015 in a 1200-bed tertiary referral center of Heraklion,

Greece, consisting of two affiliated hospitals: University Hospital of Heraklion and “Venizelion” General Hospital. This institute provides tertiary medical care to a population of 700,000 inhabitants of Crete and South Aegean islands. The study was approved by the Hospital Ethics Committee and is reported according to the STROBE recommendations [12].

The following inclusion criteria were applied: age ≥ 18 years, diagnosis of SEA using MRI, and administration of medical treatment without intention for surgical intervention, according to the attending spine surgeons' and physicians' decision with input from patient's consent. All patients were required to have at least 9 months of follow-up. Cases of epidural phlegmon without abscess formation, isolated spondylodiscitis, postsurgical or postinterventional infection, tuberculous spondylitis, and penetrating trauma were excluded from the study. Medical records were retrospectively evaluated for demographics, medical history, clinical features, laboratory data, microbiological and radiological findings, time to diagnosis, length of hospitalization, treatment, and outcome.

Neurological status on admission was retrospectively classified according to the Heusner's original description of “march events” [13]. This description includes four phases: phase I, characterized by axial pain only; phase II, characterized by radicular pain; phase III, including radicular weakness and/or radicular sensory deficits, conus medullaris syndrome, cauda equina syndrome, and myelopathy; and phase IV, defined as complete paralysis. In our study,

Download English Version:

<https://daneshyari.com/en/article/5627112>

Download Persian Version:

<https://daneshyari.com/article/5627112>

[Daneshyari.com](https://daneshyari.com)