

Disc-like herniation in association with gas collection in the spinal canal: CT evaluation

Ioannis Tsitouridis^{a,*}, Fares E. Sayegh^b, Panagiota Papapostolou^a, Stella Chondromatidou^a, Fotini Goutsaridou^a, Maria Emmanouilidou^a, Maria S. Sidiropoulou^a, George A. Kapetanios^b

^a Radiology Department, Papageorgiou General Hospital, Peripheral Rd., Nea Efkarpia, 546 29 Thessaloniki, Greece

^b 3rd Orthopaedic Department, Aristotle University of Thessaloniki, Greece

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Abstract

Gas production as a part of disk degeneration can occur but rarely causes nerve compression syndromes. Few cases have been reported in which lumbar intraspinal epidural gas cause nerve root compression symptoms. We present 12 cases of gas collection in the spinal canal that were presented to the orthopaedic out-patient department with symptoms of low back pain and sciatica. CT showed the presence of free epidural gas collections adjacent to or over the affected nerve roots. Relief of symptoms was noted with the change of positions, lying down or sleeping. In this study, we conclude that the presence of lumbar intraspinal epidural gas that causes radicular compressing phenomena, can be easily detected with the use of CT.

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Keywords: Epidural gas; Herniated disc; Vacuum phenomenon; Intradiscal gas; Intraspinal gas; Lumbar disc degeneration; Lumbar nerve root compression; Radiculopathy

1. Introduction

The presence of gas in the intervertebral disk space, known as the vacuum phenomenon, is a relatively common radiological finding, especially on computed tomographic investigation [1–5]. Gas production as a part of disk degeneration can occur [6–8], and on occasion, it could cause clinical nerve compression syndromes [5,10]. In a few cases, the gas can be collected into the lumbar spinal canal and can also compress the nerve root. A limited number of cases have been reported in which gas-containing lumbar disc herniation caused compression of nerve roots [9–12]. We present 12 cases of gas collection in the spinal canal that were presented to the orthopaedic out-patient department with symptoms of low back pain and sciatica during a 6-year period.

2. Material and methods

Twelve patients were included in this study. All patients presented clinical signs of inflammatory type of low back pain and radiculopathy due to compression of the corresponding nerve roots during a 6-year study period. There were seven males and five females. Their age ranged between 42 and 72 years (mean: 60.3 years) and the duration of presenting symptoms ranged between 8 and 18 days (mean: 12.2 days) (Table 1). All patients refer to sudden onset of symptoms, and the exacerbation of those symptoms after long standing upright posture or sitting for a long time. As always referred by patients, symptoms were relieved with the continuous change of positions. Plain radiographs and CT scans of the lower lumbar spine were also performed.

All patients were treated conservatively with bed rest combined with analgesics, anti-inflammatory and muscle relaxant drugs. Patients did not have any history of tumors, infection, trauma or any previous therapeutic and diagnostic spinal

* Corresponding author. Tel.: +30 2310 693334/693319; fax: +30 2310 693320.

E-mail address: hanjk@radcom.snu.ac.kr (I. Tsitouridis).

Table 1
Demographic distribution and duration of symptoms

Patient	Age (years)	Gender	Duration of symptoms (days)
1	63	M	14
2	60	M	8
3	72	F	6
4	62	M	11
5	58	M	16
6	49	F	17
7	70	F	9
8	67	M	14
9	57	M	18
10	55	F	12
11	42	M	11
12	69	F	10



Fig. 1. (a and b) Axial CT scans of a 67-year-old male which reveal gas collection in the left lateral recess which compresses the right L4 spinal nerve root.

procedures. Patients were asked to answer the Oswestry Disability Index Questionnaire (O.D.I.) [13] on the first day of clinical examination 2 weeks, and 1 month after performing the CT scan. The Oswestry Disability Index Questionnaire is



Fig. 2. (a–c) Consecutive axial CT scans of a 42-year-old male at the level of L5–S1 disc which reveal vacuum phenomenon of the disc and large gas collection that smoothly delineates the margins of the spinal sac and compresses the S1 spinal nerve root.

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