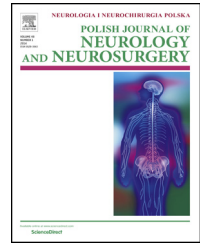


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Case report

Oblique corpectomy for treatment of cervical spine epidural abscesses: Report on four cases[☆]

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ABSTRACT

Background: Spinal epidural abscesses (SEAs) in cervical locations are particularly life-threatening. Currently, SEAs are widely treated with bony decompression, followed by internal stabilization in purulent osteomyelitis. However, recently, a growing number of studies have reported minimally invasive approaches without internal fixation.

Purpose: We describe four patients with cervical SEAs that were evacuated by oblique corpectomy (OC) without fusion.

Methods: This study included two women and two men (aged 44–90) that received operations for removing ventral cervical SEAs. All patients presented with progressively increasing myelopathy, and 3 had severe comorbid conditions. In all cases, a multilevel OC without fusion was performed. The amount of bone resection was tailored to fit the needs of granulation removal, with an effort to retain as much of the vertebral bodies as possible. Then, pus was evacuated and debridement of granulation was performed, followed by rinsing and drainage.

Results: The neurological status of 3 patients improved significantly after surgery. At the last follow-up examination, one showed full recovery, and in two a minor residual deficit persisted. During mean follow-up of 5.5 years, no internal stabilization was necessary. The oldest patient was tetraplegic, and had several concomitant diseases. That patient died from sudden cardiac arrest on the third postoperative day. Oblique corpectomy did not affect the anterior or posterior column. Additionally, it provided a broad view of the ventral aspect of the spinal canal.

Conclusions: Oblique corpectomy allows appropriate spinal cord decompression and granulation removal in the case of cervical spine epidural abscess, without sacrificing spinal stability.

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1. Introduction

Although spinal epidural abscesses (SEAs) are rare, and the mortality rate has significantly declined in the last decades of the 20th century [1], they pose considerable risk of severe neurological deficit and death [2]. SEAs in a cervical location are particularly life-threatening, because they run the risk of sudden deterioration. Early diagnosis and aggressive surgical treatment are essential in symptomatic cases. Currently, SEAs are widely treated with bony decompression, followed by

internal stabilization (usually anterior fusion) in purulent osteomyelitis [3–8]. However, the need for instrumental stabilization remains questionable when the predominant problem is the abscess, and osteomyelitis is not a major issue. In some cases, extensive procedures may be unreasonable, considering the high frequency of severe comorbidities. Over the past few years, a growing number of studies have described less invasive approaches without internal fixation [9–12]. Here, we describe four patients with ventral cervical SEAs that were evacuated via an oblique corpectomy without fusion.

Table 1 – Summary of patients, symptoms, examinations and treatments.

	Patient N° 1	Patient N° 3	Patient N° 3	Patient N° 4
Age	44	64	54	90
Sex	F	F	M	M
Comorbid conditions	Sclerosis multiplex	Diabetes, hypertension, atrial fibrillation, cholelithiasis	No	Diabetes, HT, AF, CAD, chronic heart failure, rheumatoid arthritis, chronic renal failure
Neurological deficit on admission	No neurological deficit	tetraparesis, Frankel Grade C, urinary retention	Rapid deterioration up to tetraplegia, Frankel Grade B	Rapid deterioration up to tetraplegia, Frankel Grade B
Other symptoms	Neck pain	Neck pain	Neck pain	/-/
Duration of symptoms	1 month	1 month	7 days	10 days
C-reactive Protein	Not done	75	150	58
White blood cells level	14,200	8000	14,400	11,800
Fever	/+/	/-/	/+/	/-/
Extension of the abscess	C5–C7 (3 levels)	C6–C7 (2 levels)	C4–C5 (2 levels)	C4–C5 (2 levels)
Location of the abscess	Anterior to the spinal cord	Anterior to the spinal cord	Anterior to the spinal cord	Anterior to the spinal cord
Coexisting: – osteomyelitis – discitis – paravertebral tissues inflammation	Osteomyelitis C6, discitis C5/C6	Osteomyelitis C6-Th1, discitis C6/C7, purulent inflammation of paravertebral tissues at C3-Th3	Osteomyelitis C4–C5, discitis C4/C5	Osteomyelitis C4–C5, discitis C4/C5
Surgery details	Oblique corpectomy C5–C7, pus evacuation	Oblique corpectomy C6–C7, debridement of granulation tissue	Oblique corpectomy C4–C5, pus evacuation + debridement of granulation tissue	oblique corpectomy C4–C5, pus evacuation
Additional procedures	Drainage of epidural space	Drainage of paravertebral tissues from the posterior approach	Drainage of epidural space	Drainage of epidural space
Blood cultures	Negative	Negative	Negative	Negative
Pus cultures	<i>Staphylococcus aureus</i>	Negative	<i>Staphylococcus aureus</i>	Negative
Drainage	Rinsing drainage with saline solution	Rinsing drainage with saline solution	Rinsing drainage with saline solution	Rinsing drainage with saline solution
Duration of drainage maintenance	1 day	4 days	4 days	3 days
Antibiotic therapy	/+/	/+/	/+/	/+/
Short-term outcome	Full recovery	Improvement, Frankel Grade D	Improvement, Frankel Grade C	No improvement The patient died on the 3rd postoperative day.
Long-term outcome ^a	Full recovery Frankel Grade E	Stable, Frankel Grade D	Improvement, Frankel Grade D	Not applicable
Follow-up duration	110 months	62 months	26 months	Not applicable
Secondary spinal instability or kyphosis	No	Nonsignificant kyphosis, no need for internal fixation	No	Not applicable

^a Frankel grading system: A – complete paralysis, B – sensory function only below the injury level, C – incomplete motor function below injury level, D – fair to good motor function below injury level, E – normal function.

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