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Review Article

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Spontaneous Spinal Epidural Hematoma: A Literature Review with African Context

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Abstract

Background: Spontaneous spinal epidural hematoma (SSEH) is a rare cause of acute spinal cord compression that occurs without preceding trauma or medical intervention. Delayed recognition may result in permanent neurological deficits, particularly in settings with limited access to advanced imaging. ***Objective:*** To review the epidemiology, etiology, clinical presentation, diagnostic evaluation, management, and prognosis of SSEH, with consideration of challenges encountered in African healthcare settings. ***Methods:*** A narrative review of published literature on spontaneous spinal epidural hematoma was conducted, focusing on clinical characteristics, diagnostic modalities, treatment approaches, and reported outcomes. ***Results:*** SSEH accounts for less than 1% of spinal canal space-occupying lesions and has an estimated incidence of approximately 0.1 per 100,000 persons annually. The condition typically presents with sudden severe spinal pain followed by progressive neurological deficits. Magnetic resonance imaging remains the diagnostic modality of choice. Early surgical decompression, usually via laminectomy or hemilaminectomy, is the standard treatment and offers the best chance of neurological recovery. Preoperative neurological status is the most important determinant of outcome. ***Conclusion:*** Although uncommon, SSEH represents a neurosurgical emergency requiring prompt diagnosis and intervention. Improved awareness and timely access to diagnostic imaging and surgical care are essential for optimizing outcomes, particularly in resource-limited environments.

Keywords: ***Spontaneous spinal epidural hematoma, Spinal cord compression, Sub-Saharan Africa.***

Introduction

Spontaneous spinal epidural hematoma (SSEH) refers to the accumulation of blood within the spinal epidural space occurring in the absence of trauma or prior spinal procedures. The diagnosis is established when no precipitating event can be identified at presentation.

Although rare, SSEH constitutes a neurosurgical emergency due to its potential to produce rapid spinal cord compression and permanent neurological disability.

In high-income settings, early imaging facilitates prompt diagnosis. However, in many parts of Sub-Saharan Africa, including Nigeria, limited access to magnetic resonance imaging (MRI) and delayed presentation often complicate early recognition. As a result, the condition may initially be misdiagnosed as spinal tuberculosis, degenerative spine disease, or transverse myelitis-conditions more commonly encountered in the region.

Epidemiology

Spinal epidural hematomas account for less than 1% of space-occupying spinal canal lesions [1,2]. Among these, approximately 40–50% are classified as spontaneous due to the absence of identifiable causative factors [3-5]. The estimated global incidence is approximately 0.1 per 100,000 persons annually [2,6-8].

There is limited population-based data from Africa regarding the true incidence of SSEH. Most available reports from the continent are isolated case reports or small institutional series. This likely reflects both underdiagnosis and underreporting.

In Nigeria, where neurosurgical services are concentrated in tertiary centers, many patients with acute spinal cord compression may not reach specialized care promptly.

Globally, SSEH most commonly affects individuals in the fourth and fifth decades of life, with a slight male predominance (approximately 1.4:1) [2,6-8]. This demographic pattern appears consistent in the limited African reports available.

Aetiology

Established causes of epidural hematoma include trauma and spinal surgery.[1] In spontaneous cases, however, causative mechanisms remain less clearly defined. Associations reported in the literature include anticoagulant therapy, coagulation disorders, vascular malformations, vertebral hemangiomas, and systemic hypertension [7-9].

In the Nigerian context, additional considerations arise. The increasing use of antiplatelet agents and anticoagulants for cardiovascular diseases may contribute to risk. Furthermore, poorly controlled hypertension-prevalent in many African populations-may theoretically predispose to vascular fragility, although the strength of this association remains debated [7]. Anticoagulant therapy has

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been implicated in 17–30% of cases in international studies [8,10]. However, in many African centers, limited laboratory monitoring of anticoagulation may delay identification of coagulopathy as a contributing factor.

Despite these associations, between 40% and 60% of cases occur without identifiable risk factors.[8] This idiopathic nature poses diagnostic challenges, particularly in regions where spinal infections such as tuberculosis are far more prevalent and often considered first-line differentials.

Case reports have demonstrated that even minimal exertion may precede hemorrhage [6,11]. In physically active young individuals, sudden neurological deficits following exertion may be mistakenly attributed to musculoskeletal strain in resource-limited settings.

Pathology

The exact vascular source of bleeding in SSEH remains controversial. Proposed origins include rupture of epidural veins, arterial bleeding, or hemorrhage arising from vascular malformations [9].

The epidural venous plexus is a valveless, low-pressure system susceptible to fluctuations in intrathoracic and intra-abdominal pressure. Activities such as heavy lifting or straining-common in agrarian and manual labor populations-may theoretically precipitate rupture [9]. Dorsal epidural involvement is more common than ventral localization [7,9]. The structural reinforcement provided by the posterior longitudinal ligament may partially explain this distribution [1].

Transitional spinal regions, particularly the cervicothoracic and thoracolumbar junctions, are frequently affected [2,7,9]. In African clinical practice, thoracolumbar pathology is often first attributed to trauma or infectious spondylitis, which may delay consideration of SSEH in the differential diagnosis.

Presentation

The classic presentation consists of sudden, severe neck or back pain followed by evolving neurological deficits [1,2,6,7]. The pain may radiate to the extremities and is often described as sharp and intense. Neurological impairment may range from radicular symptoms to complete paraplegia or quadriplegia. Lower motor neuron features, including hypotonia and diminished reflexes, are commonly observed [1].

In many Nigerian settings, patients may initially seek care at peripheral health facilities where advanced imaging is unavailable. This may lead to delays of several hours to days before referral to tertiary centers. Such delays can significantly influence neurological outcomes.

Although recurrence is rare, documented cases highlight the possibility of repeated hemorrhagic episodes [12,13]. Awareness of this phenomenon is important for long-term follow-up in affected patients.

Diagnostic Imaging

MRI remains the gold standard for diagnosis [9,10,14]. However, in many parts of Sub-Saharan Africa, access to MRI is limited, and financial constraints may further delay imaging. Consequently, computed tomography (CT) myelography or plain CT scans may sometimes be used as initial investigations, though these are less sensitive.

Signal characteristics on MRI vary with hematoma age. In the first 24 hours, the lesion is typically isointense on T1-weighted images and hyperintense on T2-weighted sequences [8,9]. With time, hyperintensity on both sequences becomes more prominent [9]. Chronic hematomas demonstrate reduced signal intensity [1]. Fat-suppression techniques and contrast-enhanced imaging may aid differentiation from epidural fat or neoplastic lesions [8,10].

Given the overlapping radiological appearance of spinal infections and neoplasms common in African populations, radiological expertise is essential to avoid misdiagnosis.

Treatment

Urgent surgical decompression remains the standard of care [2,12]. Early intervention-ideally within 12-48 hours-has been associated with improved neurological recovery in several studies [9,10].

In Nigeria and similar settings, surgical timing may be influenced by referral delays, financial constraints, and operating room availability. Despite these challenges, expeditious decompression remains critical once diagnosis is established.

The operative approach typically involves laminectomy or hemilaminectomy with evacuation of the hematoma [6,9,10]. Correction of coagulopathy prior to surgery is essential where applicable [8].

Conservative management may be considered in neurologically stable patients; however, close monitoring is required [10,12]. In resource-limited environments, careful patient selection is crucial, as deterioration may not be rapidly reversible without surgical access.

Prognosis

Neurological outcome correlates strongly with preoperative neurological status and the extent of spinal cord compression [2,12]. Extensive hematomas involving multiple vertebral segments are associated with poorer outcomes [7,12].

Thoracic lesions, due to the relatively narrow spinal canal, tend to carry a worse prognosis [7]. In delayed presentations-common in parts of Africa-functional recovery may be limited.

Nevertheless, meaningful neurological improvement has been documented even in patients presenting with severe deficits (ASIA A), underscoring the importance of not withholding surgical intervention solely based on initial severity [6,8,12].

Pediatric patients may exhibit better neurological recovery compared with adults [6].

Conclusion

Spontaneous spinal epidural hematoma is a rare but potentially devastating cause of acute spinal cord compression. Although multiple risk factors have been described, many cases occur without identifiable predisposing conditions.

In African and Nigerian settings, delayed presentation, limited imaging availability, and competing differential diagnoses such as spinal tuberculosis may complicate early recognition. Heightened clinical suspicion is therefore essential when evaluating patients with sudden spinal pain and evolving neurological deficits.

Prompt MRI evaluation and timely surgical decompression remains the cornerstone of management. Strengthening neurosurgical capacity and improving access to advanced imaging across Sub-Saharan Africa will likely improve outcomes in this uncommon but serious condition.

Declarations

Author Contributions

OA Dada conceived the study, conducted the literature review, analyzed and interpreted the available data, drafted the manuscript, critically revised the manuscript for intellectual content, and approved the final version of the manuscript for publication.

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Ethical Approval Statement

Ethical approval was not required for this study because it is a literature review based solely on previously published data and does not involve human participants or identifiable patient information.

Conflict of Interest Statement

The author declares that there are no conflicts of interest regarding the publication of this article.

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Data Availability Statement

All data supporting the findings of this study are derived from previously published articles and are available in the public domain through the references cited in the manuscript.

References

[1] Al-Mutair A, Bednar DA. Spinal epidural hematoma. J Am Acad Orthop Surg 2010;18:494-502.

[2] Bhat KJ, Kapoor S, Watali YZ, et al. Spontaneous epidural hematoma of spine associated with clopidogrel: A case study and review of the literature. Asian J Neurosurg 2015;10:54.

[3] Paiva WS, Amorim RL, Rusafa E, Taricco MA, Bor-Seng-Shu E, Figueiredo EG. Idiopathic spinal epidural hematoma in patients with sudden paraplegia: a case report. Rev Neurol. 2008;46:540-2.

[4] Park J, Lee JB, Park JY, Lim DJ, Kim SD, Chung YK. Spinal cord infarction after decompressive laminectomy for spontaneous spinal epidural hematoma-case report. Neurol Med Chir (Tokyo). 2007;47:325-7.

[5] Gopalkrishnan CV, Dhakoji A, Nair S. Spontaneous cervical epidural hematoma of idiopathic etiology: case report and review of literature. J Spinal Cord Med. 2012;35:113-7.

[6] Babayev R, Ekşi MŞ. Spontaneous thoracic epidural hematoma: a case report and literature review. Childs Nerv Syst 2016;32:181-7.

[7] Bakker NA, Veeger NJ, Vergeer RA, et al. Prognosis after spinal cord and cauda compression in spontaneous spinal epidural hematomas. Neurology 2015;84:1894-903.

[8] Dziedzic T, Kunert P, Krych P, et al. Management and neurological outcome of spontaneous spinal epidural hematoma. J Clin Neurosci 2015;22:726-9.

[9] Zhong W, Chen H, You C, et al. Spontaneous spinal epidural hematoma. J Clin Neurosci 2011;18:1490-4.

[10] Tawk C, El Hajj Moussa M, Zgheib R, et al. Spontaneous epidural hematoma of the spine associated with oral anticoagulants: 3 Case Studies. Int J Surg Case Rep 2015;13:8-11.

[11] Fleager K, Lee A, Cheng I, et al. Massive spontaneous epidural hematoma in a high-level swimmer: a case report. J Bone Joint Surg Am 2010;92:2843-6.

[12] Iwatsuki K, Deguchi M, Hirata H, et al. Spontaneously Resolved Recurrent Cervical Epidural Hematoma in a 37-Week Primigravida. Global Spine J 2015;5:e44-7.

[13] Yamao Y, Takagi Y, Kawauchi T, et al. Surgical management of recurrent spontaneous spinal epidural hematoma with 3 episodes. Spine (Phila Pa 1976) 2015;40:E996-8.

[14] Rajz G, Cohen JE, Harnof S, et al. Spontaneous spinal epidural hematoma: the importance of preoperative neurological status and rapid intervention. J Clin Neurosci 2015;22:123-8.