



## Case Report

## Bilateral intraspinal juxtafacet cysts leading to impending cauda equina syndrome: A case Report.

Baker James<sup>1</sup>, Gug Krishan<sup>1</sup>, Elliot Charlotte<sup>1</sup>, Adsul Nitin<sup>1\*</sup>, Rudol Grzegorz<sup>1</sup>, Sinha Priyank<sup>1</sup>.

1: Spinal Surgery Unit, Leeds General Infirmary, Leeds, United Kingdom

\* Corresponding author

Correspondence to:  
no1.nitinadsul@gmail.com

Publication Data:  
Submitted: November 22, 2022  
Accepted: December 18, 2022  
Online: January 31, 2023

This article was subject to full peer-review.



This is an open access article distributed under the terms of the Creative Commons Attribution Non-Commercial License 4.0 (CCBY-NC) allowing sharing and adapting. Share: copy and redistribute the material in any medium or format. Adapt: remix, transform, and build upon the licensed material. The work provided must be properly cited and cannot be used for commercial purpose.

### Abstract

Intraspinal juxtafacet cysts are caused by spinal degeneration. The formation of bilateral cysts leading to bilateral L5 radiculitis and neurological claudication is extremely rare. We herein report the case of an 83-year-old male presenting with bilateral sciatica and neurological claudication. Magnetic resonance imaging has demonstrated bilateral intraspinal juxtafacet cysts at L4/5 causing both spinal canal stenosis and compression on the cauda equina nerve roots. Successful central decompression of the spine was performed. The aim of this reports was to highlight the imaging features and feasibility of surgical treatment in such rare entity.

### Keywords

Intraspinal Cysts; Bilateral Sciatica ; cauda equina syndrome; surgery.

### Introduction

Degeneration of the lumbar spine is a natural evolution of the ageing process. Progressive alterations in the ligamentum flavum and facet joints may lead to the formation of intraspinal cysts. Synovial and ganglionic cysts are defined according to the synovial lining and the presence of structural communication with the facet joint [1]. Synovial and ganglionic cysts of the facet are rare and may be responsible of radiculopathy, neurologic claudication and even cauda equina syndrome [2].

Literature review identified only seventeen published cases of bilateral synovial cyst. This report presents the case of bilateral cyst leading to impending cauda equina syndrome.

### Observation

An 83-year-old male with history of Parkinson's disease attended the Multi-Specialty Assessment Area in a large tertiary center following ten days history of reduced walking distance and worsening leg pain described by the patient as "bolt of lightning" involving the buttocks. The examination showed no objective neurological abnormalities. The patient was subsequently discharged with Parkinson's disease specialist nurse for home follow-up.

He represented 48 hours later with significant worsening symptoms. Noticeable changes seen included increasing bilateral thigh pain radiating down to the foot and progressive worsening in his gait. Further examination revealed no deterioration in bladder or bowels function and no alteration in peripheral sensation. The patient was admitted to the neurosurgery inpatient department for further investigations and management.

MRI scan demonstrated L4/5 bilateral synovial cysts causing severe canal stenosis and compression upon the cauda equina nerve roots (Figure 1 and 2). The patient underwent a primary posterior L4/5 laminectomy with intersegmental decompression of the spine, excision of both facet cysts and L4 laminotomy with medial facetectomy. Bilateral facet cysts were adherent to dura. Using Rhoton dissectors, thecal sac and bilateral L5 roots were made completely free. postoperative course was uneventful with objective improvement of pain and mobility. Follow up MRI demonstrated an improved caliber of spinal canal at L4/L5, with no evidence of surgical complications (Figure 3).

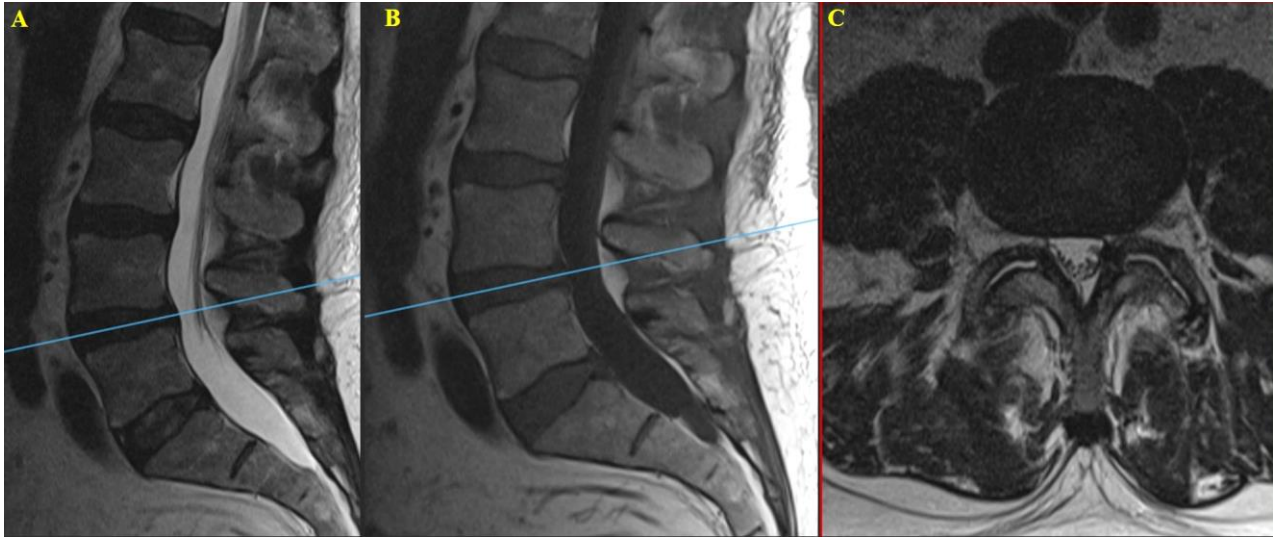


Figure 1: Sagittal T2-weighted (A), Sagittal T1-weighted (B) and axial T2-weighted magnetic resonance imaging of the lumbar spine before the development of bilateral facet cyst.

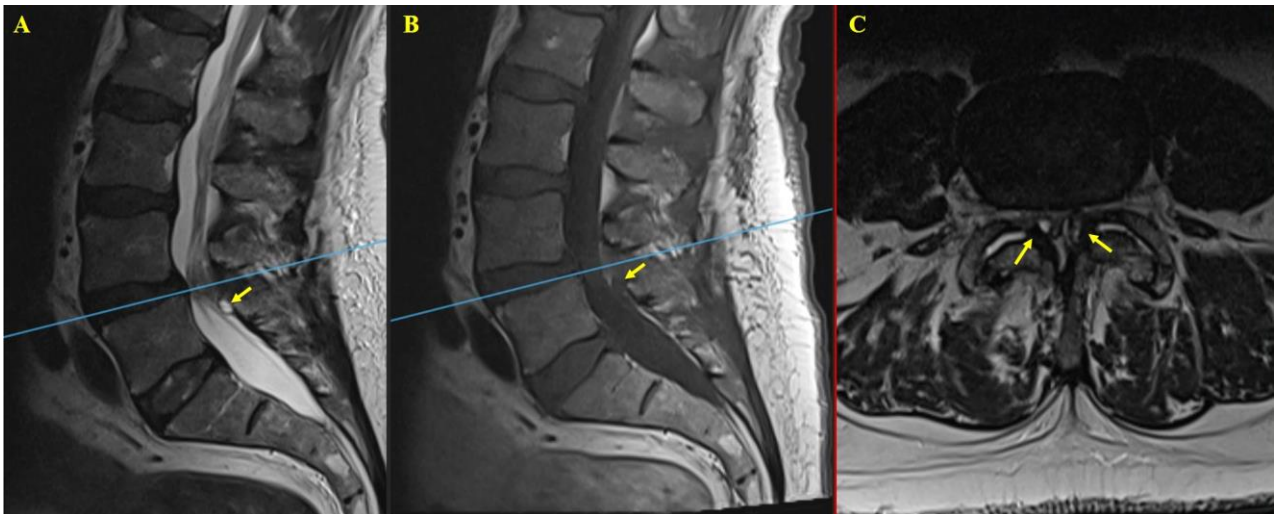


Figure 2: Sagittal T2-weighted (A), Sagittal T1-weighted (B) and axial T2-weighted magnetic resonance imaging of the lumbar spine demonstrating central canal stenosis due to facet cysts.

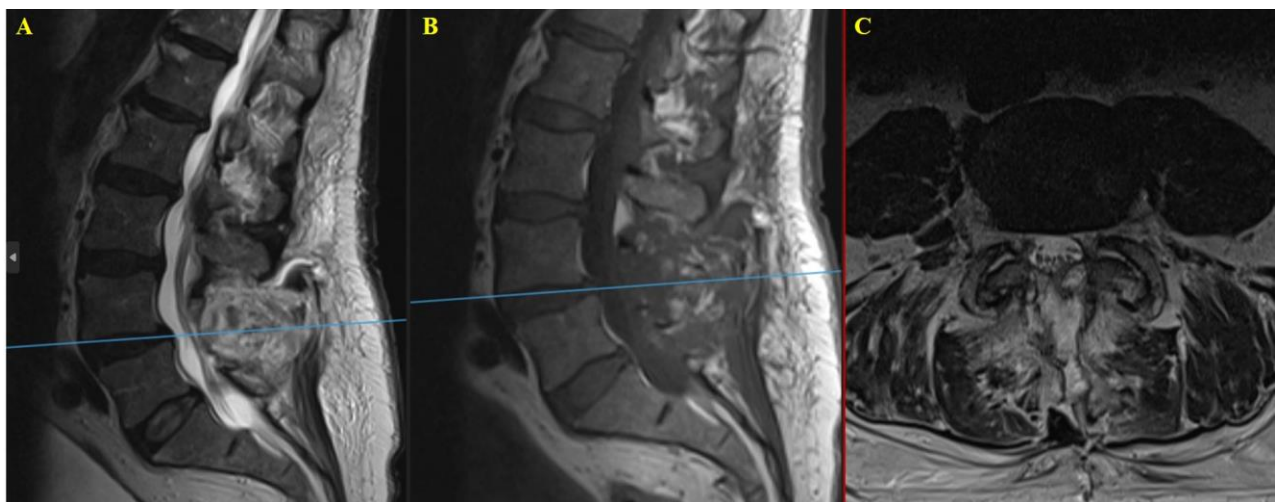


Figure3: Post-operative MRI showing adequate decompression of the dorsal thecal sac and cauda equina.

## Discussion

Degeneration of the spine is part of the ageing process. Spinal facet cysts formation is rare and related to the degeneration of the facet joint [3]. Etiopathogenesis of facet cysts remains unclear. It might be due to synovial fluid extrusion from the joint capsule with myxoid degeneration in the connective tissue [4,5]. Cystic lesions arising in the lumbar spine are well characterized in MRI. Synovial facet cyst creates a high-intensity signal on T2-weighted MRI and hypointense inner cores on T1 sequences with peripheral rim enhancement with gadolinium contrast [6]. Cysts frequently arise at the L4/5 and lead quickly to symptomatic radiculopathy due to the contact with nerve roots at this level. Symptoms are rarely bilateral. Bilateral synovial cysts are responsible of thecal sac displacement and cauda equina nerve roots compression [7,8]. To the best of our knowledge, this is the first report of bilateral facet cysts causing bilateral L5 radiculitis, neurological claudication and impending cauda equine syndrome. The surgical management is always effective and safe for early diagnosed well documented cases .

**Conflict of Interest:** None

## References

- [1] Allison CM, Bonanos G, Varma A. Bilateral ganglion cysts at L4/5 causing central canal stenosis and producing sciatica and neurogenic claudication: a case report. *Ann R Coll Surg Engl.* 2022;104: e41-e43.
- [2] Giordan E, Gallinaro P, Stafa A, Canova G, Zanata R, Marton E, et al. A Systematic Review and Meta-Analysis of Outcomes and Adverse Events for Juxtafacet Cysts Treatment. *Int J Spine Surg.* 2022 ;16:124-38.
- [3] Hagen T, Daschner H, Lensch T. Juxtafacetterszysten: Magnetresonanztomographische Diagnostik [Juxta-facet cysts: magnetic resonance tomography diagnosis]. *Radiologe.* 2001;41:1056-62. German.
- [4] Kao CC, Winkler SS, Turner JH. Synovial cyst of spinal facet. Case report. *J Neurosurg.* 1974;41:372-6.
- [5] Métellus P, Flores-Parra I, Fuentes S, Dufour H, Adetchessi T, Do L, et al. A retrospective study of 32 lumbar synovial cysts. Clinical aspect and surgical management. *Neurochirurgie* 2003;49:73-82.
- [6] Pindrik J, Macki M, Bydon M, Maleki Z, Bydon A. Midline synovial and ganglion cysts causing neurogenic claudication. *World J Clin Cases.* 2013;1:285-9.
- [7] Ramhmdani S, Ishida W, Perdomo-Pantoja A, Witham TF, Lo SL, Bydon A. Synovial Cyst as a Marker for Lumbar Instability: A Systematic Review and Meta-Analysis. *World Neurosurg.* 2019 ;122:e1059-e68.
- [8] Sandhu FA, Santiago P, Fessler RG, Palmer S. Minimally invasive surgical treatment of lumbar synovial cysts. *Neurosurgery.* 2004;54:107-11; discussion 111-2.