

# Three Cases of Vertebral Block Found in Adults

Oliva Henintsoa Rakotonirainy<sup>1</sup>, Rajo Païdia Radinasoa<sup>2\*</sup>, Lauréat Brunda Manahadray<sup>2</sup>, Havantsoa Nomena Fandresena Andrianarisambatra<sup>2</sup>, Hanta Marie Danielle Vololontiana<sup>2</sup> and Fahafahantsoa Rapelanoro Rabenja<sup>1</sup>

<sup>1</sup>Department of Rheumatology, University Hospital of Antananarivo, Antananarivo, Madagascar

<sup>2</sup>Department of Internal Medicine, University Hospital of Antananarivo, Antananarivo, Madagascar

## Abstract

Vertebral blocks are congenital malformations caused by defected segmentation of the vertebrae during embryonic life. They can cause static disorders. Neurological complications are the most serious. We report three cases of spinal blocks in young adults aged 37, 44 and 45. The patients each presented with chronic and recurrent mechanical spinal pain. X-rays and CT scans were used to identify these blocks. The first case presented a dorsal scoliosis with low back pain and an L3-L4 lumbar vertebral block. The second case consulted for back pain without static spinal deformity, with the discovery of a T11-T12 dorsal block. The last case reported mechanical cervicodorsalgia with radiculalgia, for which imaging revealed a C6-C7 cervical block. Management was based on analgesics and anti-inflammatories, combined with physiotherapy. Surgery is indicated when there are signs of neurological complications and spinal instability. The discovery of a vertebral block must be followed up to ensure proper management.

**Keywords:** Congenital vertebral synostosis • Vertebral segmentation • Lumbar synostosis

## Introduction

Congenital malformations of the vertebrae are rare, occurring at a rate of 0.5 to 1 per 1,000 population [1]. Among these malformations, vertebral blocks have a prevalence of 0.25% in the South Indian population [2]. The etiology is a segmentation defect between two or more vertebrae during embryogenesis. The severity are disturbances of vertebral statics and neurological complications. These anomalies are usually discovered during childhood, or early at birth. Their discovery in adulthood is possible, but caution is needed in making a differential diagnosis. We aim to describe the diagnostic elements of vertebral blocks through three cases.

## Case Presentation

### Case 1

37-year-old woman consulted for chronic low back pain evolving for 2 years. The low-back pain was intermittent, without radiating to the limbs and without vesico-sphincter or anorectal disorders. She had no particular medical or surgical history.

On physical examination, low back pain was intermittent, assessed at 5/10. Her BMI was 26.4. She had no postural disorders. Lumbar spinal flexibility was preserved. There were no neurological signs in the lower limbs. Examination of the cervical and dorsal spine was normal.

The spinal CT scan showed syndesmosis of L3 and L4, with bone construction at the posterior wall in contact with the dural sheath (Figure 1). The evolution was marked by an improvement in pain and a better quality of life

**\*Address for Correspondence:** Rajo Païdia Radinasoa, Department of Internal Medicine, University Hospital of Antananarivo, Antananarivo, Madagascar; E-mail: paidiaradinasoa@gmail.com

**Copyright:** © 2023 Rakotonirainy OH, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

**Received:** 23 June, 2023; Manuscript No. jccr-23-103595; **Editor Assigned:** 26 June, 2023; PreQC No. P-103595; **Reviewed:** 07 July, 2023; QC No. Q-103595; **Revised:** 13 July, 2023, Manuscript No. R-103595; **Published:** 24 July, 2023, DOI: 10.37421/2165-7920.2023.13.1570

under non-steroidal anti-inflammatory drugs and physiotherapy, with no need for surgery.

### Case 2

A 44-year-old man consulted for low-back pain lateralized to the left, which had been present for 3 years. The low-back pain was mechanical, with no triggering factor and sometimes radiated to the left inter-scapular region. There were no vesico-sphincter or anorectal disorders. On examination, the low-back pain was moderate. His general condition was good, with a BMI of 21.3. There were no spinal static disorders, spinal flexibility was normal and there were no neurological signs in the lower limbs.

Biology showed no inflammatory syndrome. A CT scan of the spine revealed a harmonious syndesmosis of T11 and T12. It should be noted that each of these vertebrae has its own posterior apophysis. The pedicles were clearly visible in each case (Figure 2). Management included analgesic and non-steroidal anti-inflammatory treatment, followed by massokinesitherapy and posture education.

### Case 3

A 45-year-old woman presented a recent worsening of high back pain. She had been suffering from mechanical back pain for 4 years. The pain then became intense, associated with right intercostal sub mammary irradiation. She had a history of total thyroidectomy with secondary parathyroidectomy.

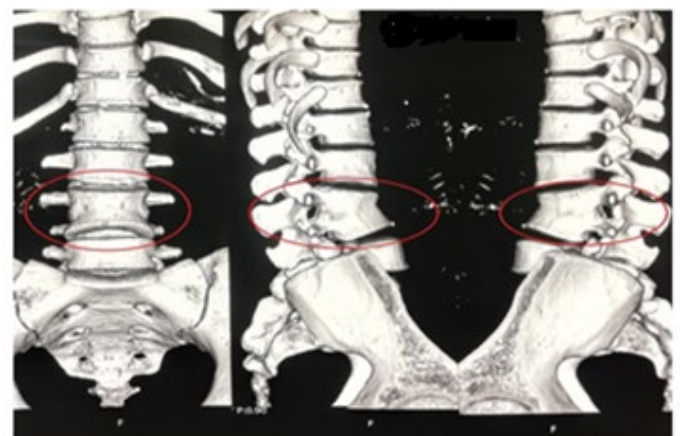


Figure 1. L3-L4 spinal block.

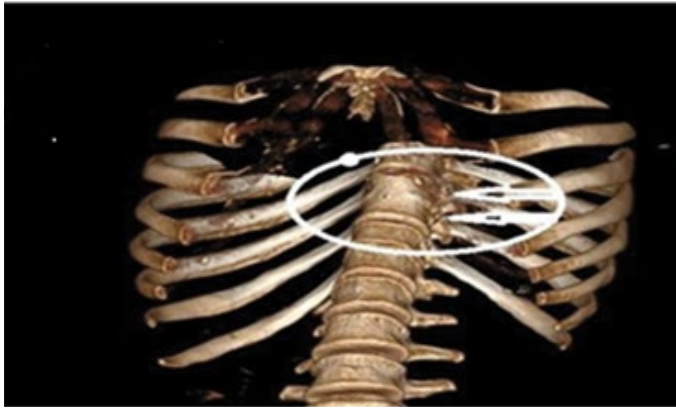


Figure 2. T11-T12 spinal block.

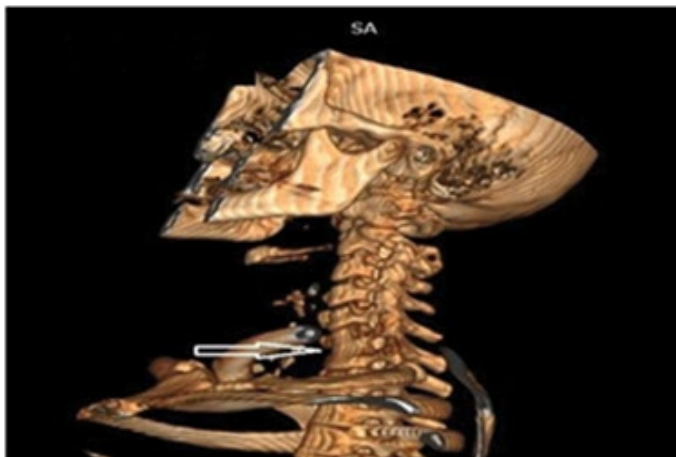


Figure 3. C6-C7 spinal block.

On examination, the patient was in good general condition, overweight with a BMI of 28.4. She has no static vertebral disorders, in particular a short neck. Joint flexibility was preserved. The biology revealed persistent hypocalcemia, a parathormone collapse and normal renal function with no inflammatory syndrome.

A CT scan of the spine revealed harmonious synostosis of C6 and C7, with respect for the posterior arches (Figure 3). The patient received topical analgesic and non-steroidal anti-inflammatory therapy. Progress was favourable, with alleviation of costal pain.

## Discussion

Congenital vertebral malformations have an estimated prevalence of 0.5 to 1 per 1000 population [3]. Vertebral blocks have an incidence of 0.25% in a South Indian population [2]. The thoracic (64%) and cervical vertebrae are most affected. Lumbar vertebrae account for a small proportion (11%), followed by sacral vertebrae (5%).

Vertebral blocks manifest themselves in children as kyphosis and scoliosis-type spinal deformities. This leads to spinal pain and restricted movement, as well as degeneration of the vertebral discs above and below the block [1]. In children, vertebral blocks may involve several vertebrae and may be associated with other congenital malformations [1,4,5]. The discovery of a block in an adult can be explained by the fact that the block is isolated, with no other congenital malformations. Because of the small number of vertebrae affected, the subject presents few static disorders or spinal pain in childhood. The manifestation in adults is recurrent and chronic mechanical pain, as in our cases. There may also be a discrete static disorder such as kyphosis and scoliosis [6]. The onset of symptoms in young adults, like our cases, is linked to degeneration of the vertebral discs. Our cases are young adults with mechanical spinal pain and no static disorders. The vertebral block in our cases affects two vertebrae,

hence the late discovery. Differential diagnoses, in particular infectious or post-infectious anterior vertebral fusion, are the most frequently mentioned [7,8].

In 1958, the Paris Anthropological Society described the block as a complete fusion of the vertebral bodies, with preservation of the morphology and relationships of the two spondyles. The contours of the vertebral canal and foramen are normal. Deformity of the vertebral bodies is reported due to crushing of adjacent areas [9]. Radiography, CT and MRI are the imaging modalities used for exploration. Harmonious vertebral fusion images of the vertebral bodies are found.

With regard to the management of this pathology, surgical intervention is indicated if the involvement is associated with neurological complications [6-10]. If surgery is not indicated, good pain management and physiotherapy are available. Regular follow-up is useful for proper management, especially if red-flag signs are present, so that surgery can be considered [11-13].

## Conclusion

Vertebral block is a congenital malformation resulting from faulty segmentation of the vertebrae during embryogenesis. It may be discovered in childhood or in young adults. Vertebral static disorders and mechanical spinal pain are the main clinical manifestations. Harmonious vertebral fusion images of the vertebral bodies are found on imaging exploration. Treatment is based on pain management and physiotherapy. In the presence of neurological complications, surgery is indicated.

## Conflict of Interest Statement

We do not have any conflict of interest.

## Data Availability Statement

Data available within the article or its supplementary materials. The authors confirm that the data supporting the findings of this study are available within the article and/ or its supplementary materials.

## Consent Statement

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

## References

1. Paoletti, Debra, Meiri Robertson and Sock Bee Sia. "A sonographic approach to prenatal classification of congenital spine anomalies." *Australas J Ultrasound Med* 17 (2014): 20-37.
2. Nazeer, Mohd, Simmi Soni, Tallapaneni Sreekanth and Soubhagya Ranjan Nayak, et al. "Incidence of block vertebrae in South Indians: An osteometric study." *J Evol Med Dent Sci* 3 (2014): 11783-11790.
3. Debnath, Ujjwal K., Vivek Goel, Nanjanduppa Harshavardhana and John K. Webb. "Congenital scoliosis\3-Quo vadis?." *Indian J Orthop* 44 (2010): 137-147.
4. Jung, Cornelius, Patrick Asbach and Stefan M. Niehues. "Are congenital cervical block vertebrae a risk factor for adjacent segment disease? A retrospective cross-sectional ct and mr imaging study." *Diagnostics* 12 (2021): 90.
5. Alva, Avinash, Dimpu Bhagawati and Hilali Noordeen. "Case report: Block vertebra." *BMJ Case Rep* 20(2018): 3-9
6. Kaur, Darshpreet, Nidhi Billore, Gunjan Kumar and Puneet Aggarwal. "Chronic low back pain: Block vertebra." *BMJ Case Rep* 20 (2013): 2013009176.
7. Al Kaissi, Ali, Farid Ben Chehida, Maher Ben Ghachem and Franz Grill, et al. "Progressive non-infectious anterior vertebral fusion, split cord malformation and situs inversus visceralis." *BMC Musculoskelet Disord* 7 (2006): 1-5.

8. Cebulski, A., E. Nectoux, J. Bigot and M. Cagneaux, et al. "Progressive anterior vertebral fusion: A report of three cases." *Diagn Interv Imaging* 93 (2012): 53-56.
9. [https://www.persee.fr/doc/bmsap\\_0037-8984\\_1958\\_num\\_9\\_7\\_2729](https://www.persee.fr/doc/bmsap_0037-8984_1958_num_9_7_2729)
10. Goel, ShaktiA, Ansari MD Neshar and H. S. Chhabra. "A rare case of surgically managed multiple congenital thoraco-lumbar and lumbar block vertebrae with kypho-scoliosis and adjacent segment disease with myelopathy in a young female." *J Clin Orthop Trauma* 11 (2020): 291-294.
11. Silva, A. M. and M. T. Ferreira. "C2–C3 block vertebrae in a late Neolithic/Chalcolithic child exhumed from a Portuguese collective grave." *Homo* 59 (2008): 41-46.
12. Popelianskii, Iu. "Congenital block of the superior cervical vertebrae with subluxation of the lower segments as a cause for vestibular seizures." *Ortop Travmatol Protez* 24 (1963): 32-36.
13. Volk, Albert M., Mansour Mathkour, Joe Iwanaga and Aaron S. Dumont, et al. "A comprehensive review of congenital lumbar synostosis and associated findings." *Cureus* 13 (2021).

**How to cite this article:** Rakotonirainy, Oliva Henintsoa, Rajo Païdia Radinasoa, Lauréat Brunda Manahadray and Havantsoa Nomena Fandresena Andrianarisambatra, et al. "Three Cases of Vertebral Block Found in Adults." *J Clin Case Rep* 13 (2023): 1570.