International Journal of Neurology Research
www.neurologyjournals.com
Online ISSN: 2664-9098, Print ISSN: 2664-908X
Received: 30-10-2021, Accepted: 16-11-2021, Published: 01-12-2021
Volume 3, Issue 1, 2021, Page No. 20-21

Lumbosciatica revealing a rare case of congenital spinal fusion in an adult: review of the literature

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Abstract
Congenital lumbar spinal fusion is a rare etiology of lumbar spinal pain. This fusion can occur at any level of the spine; however, lumbar location is very rare. We report a rare case of complete congenital spinal fusion discovered incidentally in a 36-year-old patient who presented with right lumbosciatica, followed by a review of the literature.
A 36-year-old man, with no specific pathological history, presented with low back pain. Neurological examination was normal, otherwise he had a flat back. The CT scan of the lumbar spine showed a complete fusion of the L4/L5 lumbar vertebrae. Medical treatment combined with physiotherapy resulted in good clinical improvement.
We can say that congenital spinal fusion remains a rare etiology of chronic lumbar spinal pain. Hence the interest to perform a lumbar imaging before any lumbar symptomatology to search for a cause.

Keywords: vertebral fusion, congenital, adult, lumbar vertebrae

Introduction
Congenital lumbar spinal fusion is a rare etiology of chronic low back pain and or low back pain. The condition is often found in the cervical spine, followed by the thoracic spine and rarely in the lumbar spine [1]. Lumbar spinal fusion can be seen in some congenital disease processes such as Klippel-Feil syndrome and some forms of achondroplasia [2-4]. In this manuscript, we report a rare case of complete congenital spinal fusion discovered incidentally in a 36-year-old patient who presented with right lumbar adiculalgia, followed by a review of the literature.

Clinical case
A 36 year old man, with no particular pathological history, was seen at the Mamadou Diop health centre because of S1 right lumbosciatica that had been evolving for several months without any notion of genital-sphincter disorders. The interrogation revealed a notion of chronic low back pain evolving since childhood. The examination revealed: a patient who was in good general condition, he could walk on his heels and toes, the hand-ground distance was equal to 0cm, he had no objectified sensitivomotor deficit, the osteotendinous reflexes were present and normal, the Babinski sign was negative. Elsewhere he had a positive bell sign. He had a flat back without gibbosity or scoliosis. Vitals were normal with: temperature 37°C, blood pressure 110/90mmHg, heart rate 65 beats/min, respiratory rate 18 cycles/min. The CT scan of the lumbar spine showed: an absence of inter-somatic line between L4 and L5 which are fused together creating a vertebral block. The zygapophyseal joints, as well as the spinous processes, are also fused (Figure 1). (Among other things, there were two discs in L3-L4 and L5-S1. The biological work-up was normal. Our patient received medical treatment (analgesic, anti-inflammatory, muscle relaxant) combined with physiotherapy and a good diet; this resulted in a good clinical improvement.

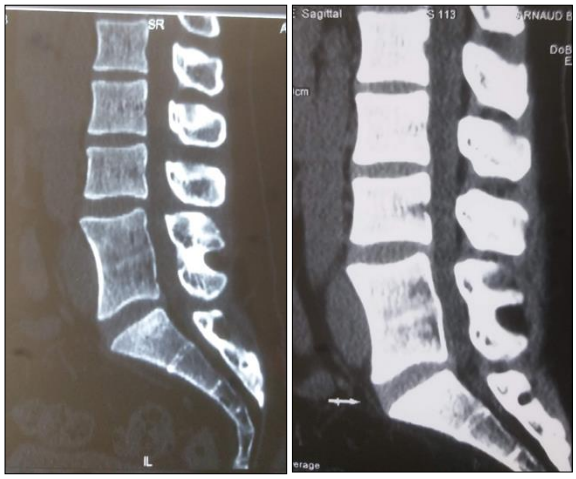

Fig 1: CT scan of lumbar spine in sagital reconstruction, showing à fusion of L4 and L5 vertebrae.

Discussion
The literature reporting congenital lumbar spinal fusion is extremely rare, to our knowledge very few cases have been described [1, 5-9]. Complete congenital fusion of the L4/L5 vertebrae is extremely rare; to our humble knowledge a similar case was described by Cheng *et al*. In his case he was able to conclude that the fusion was not complete as intraoperatively they noticed that the pedicles of L4 and L5 were not fused and the nerve roots of L4 passed through the foramen [9]. The condition may be discovered incidentally on radiographs, or on the occasion of a spinal or radicular syndrome, as in our case [10]. Indeed, our patient had a long history of chronic positional lumbo-radiculalgia. Magnetic resonance imaging (MRI) and computed tomography (CT)

are recommended for further radiographic evaluation. A characteristic 'wasp-waist sign' can often be seen on CT, where the anteroposterior diameter is smaller than the diameter of the upper and lower limits of the vertebrae adjacent to the affected level [11, 12]. Similar to the symptomatology of spinal stenosis, facet arthropathy and other forms of lumbago, the pain of lumbar vertebral fusion may be exacerbated by certain changes in position and may persist for long periods of time. The narrowing of the intervertebral foramen compresses the nerve roots, which may manifest as radicular pain as in our case [1]. It is important to differentiate congenital vertebral fusion, which gives a blocky vertebral appearance, from progressive non-infectious anterior vertebral fusion, both by its clinical history and by imaging [13]. Our patient with congenital fusion of his lumbar vertebrae. The treatment consisted of medical management combined with physiotherapy which resulted in good clinical improvement. He did not require more invasive surgical interventions as his pain was well controlled.

Conclusion

We can say that in front of a lumbar symptomatology it is important to look for a congenital vertebral fusion which remains a rare etiology. This illustrates the interest of obtaining more advanced imaging such as MRI to further clarify the problem. Both clinical presentation and imaging are important to guide therapeutic indications.

Conflicts of interest

The authors declare no conflicts of interest.

Authors' contributions

All authors contributed to this work.

Sources of funding

No funding was obtained for this study.

Ethical approval

The study is exempted from ethical approval.

Consent

Consent was obtained from the patient for publication of This case report and accompanying images.

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