

# Spina Bifida Occulta

Patrick Graham

## Introduction

Spina bifida is a rare neural tube defect in which malformation of the posterior arch of the vertebra leaves open the spinal column. This varies in severity. With an estimated prevalence of 12.4%, spina bifida occulta is the most common form of spina bifida. It is encountered more frequently in men than in women and may be accompanied by a small patch of hair, birth mark, or dimple on the low back. This malformation occurs with the greatest incidence in the lower lumbar segments but has been reported in cervical and thoracic levels of the spine as well. As the name “occulta” implies, the defect is usually hidden under the skin, typically with no other discernable signs or symptoms, and diagnosis is most often made incidentally (Centers for Disease Control and Prevention [CDC], 2011; Eubanks & Cheruvu, 2009; Matakaki et al., 2020; National Institute of Neurologic Disorders and Stroke, 2021; Yun et al., 2016).

## Case Presentation

A 37-year-old woman was evaluated in the emergency department, immediately following a motor vehicle accident, with complaints of back and abdominal pain. She was a restrained driver, rear ended at a stop sign. Airbags did not deploy. She was able to self-extricate and was ambulatory immediately after the accident. She was brought to the emergency department in stable condition and, as part of the protocolized trauma work-up, had radiographs followed by computed tomography of the lumbar spine (see Figures 1 and 2, respectively). These imaging studies, while negative for any acute lumbar pathology, were revealing for spina bifida occulta of L5. The patient had significantly improved back symptoms following administration of pain medication and was subsequently discharged home in stable condition with instructions to follow up with orthopaedics.

She presented to the outpatient orthopaedic clinic 3 weeks post-accident with improved, but not totally resolved, back pain. She was also experiencing burning and tingling in the left thigh, which she first noted about 4–5 days after the accident. Her back symptoms were constant at a low level, worsening with standing or walking of more than 10–15 minutes. This was notably aggravated with bending or twisting. She denied weakness, incoordination, or unsteadiness of her gait. She denied changes to bowel or bladder function without presence of saddle anesthesia.

Upon presentation she was an alert, oriented, affect appropriate, female in no apparent distress. She

ambulated with a steady gait. Her back was without abrasions, discoloration, or deformity. There was notable tenderness about the lower lumbar paraspinals, worse on the right, as well as overlying the right sacroiliac joint (SIJ). She displayed grossly symmetric lumbar range of motion with pain, primarily about the SIJ, noted on extension and rotation. Bilateral lower extremity strength was 5/5. Sensation was intact to light touch in all distributions of bilateral lower extremities. She had palpable distal pulses and brisk capillary refill. Special testing was notable for a positive slump, hip thrust, and SIJ compression test. She displayed a negative straight-leg raise, flexion, abduction, and external rotation (FABER), flexion, adduction, and internal rotation (FADIR), and scouring.

Given the increased risk of lumbar disc herniation associated with spina bifida occulta, as well as the ongoing symptoms of low back pain with intermittent left thigh burning and tingling, the patient was referred for magnetic resonance imaging of the lumbar spine (Avrahami et al., 1994; Rajpal et al., 2007).

This again showed changes consistent with spina bifida occulta but did not reveal any significant disc herniation or nerve compression to account for her leg symptoms (see Figure 3).

## Management

In this scenario, one of the most important aspects of patient management was educating the patient on the incidental diagnosis of spina bifida occulta, which is typically asymptomatic. Having recently been involved in a motor vehicle accident was the reason for presenting complaints. The focus of treatment was not related to an imaging finding, rather for the clinical findings consistent with lumbar strain, SIJ pain, and left leg paresthesia. She was given a prescription for gabapentin, refill of anti-inflammatory, and referred to physical therapy. She was also given work restrictions with avoidance

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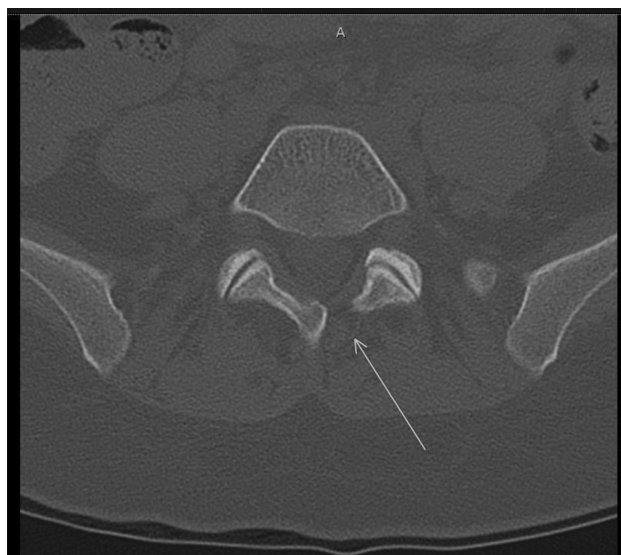
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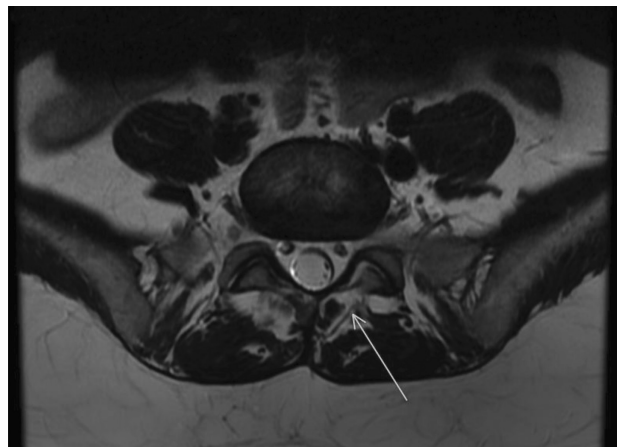
**FIGURE 1.** Anteroposterior radiograph of the lumbar spine—arrow denotes abnormality of the L5 vertebra, often referred to as “transitional anatomy.”

of repetitive bending and stooping, as well as any lifting or carrying of greater than 15 lb.

She returned to the clinic 7 weeks later reporting a very mild, rated 1/10, low back pain associated with standing of greater than 45 minutes. This resolved with rest. She was no longer having the left thigh burning sensation and had stopped taking both the gabapentin and anti-inflammatory. She was still working



**FIGURE 2.** Axial computed tomography—arrow denotes the malformation of the left lamina.



**FIGURE 3 .** Axial T2-weighted magnetic resonance imaging (MRI)—arrow denotes incomplete formation of the left lamina of L5. There is otherwise no significant disc herniation, central or foraminal stenosis. Sagittal T2 + fat-saturated MRI—no tethering, significant disc degeneration, herniations, or other concerning findings are noted.

with physical therapy with a focus on core exercises, postural cues, and lifting mechanics for work.

## Discussion

Although rare, the prevalence of spina bifida occulta makes it as likely an incidental finding on a spine

work-up with advanced imaging. Although the case presented here highlights a more common presentation, it is important for providers to be aware of the increased risk for associated disc herniation as well as other potentially significant clinical findings when concurrent spinal pathology or neural compromise is present. When in doubt, it is always most appropriate to refer to an orthopaedic spine specialist or neurosurgeon. Given the more common scenario, the advanced practice provider can provide reassurance to their patients that the finding of spina bifida occulta is customarily only incidental, with research showing there is no increased risk of injury from even higher intensity activities (Albano et al., 1996; Avrahami et al., 1994; Babbi et al., 2014; CDC, 2011; Matakaki et al., 2020; Rajpal et al., 2007; Yun et al., 2016).

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