Lumbar Spondylolisthesis in a Heavyweight Collegiate Wrestler

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Abstract

Background: Athlete is a 20-year-old male heavyweight wrestler with no history of back issues. Athlete’s height is five feet eleven inches. Athlete weighed two hundred and sixty pounds. Athlete first noticed back pain during a Romanian deadlift exercise with 225 lbs. Athlete stated that he thought he “pulled his back” and continued to weightlift and participate in wrestling activities for the next six days. Seven days after the initial injury, the athlete decided to come to the athletic training room for treatment. When asked to rate the FI on a scale of ten, the athlete claimed the FI to be a four while standing and a seven when performing lumbar extension. Observation revealed an excessive lumbar curvature.

Case Report

The athlete in this case is 5'11 and weighs two hundred and sixty pounds. Upon first meeting with the athlete, the athlete explained the thought he “pulled his back” and continued to weightlift for the next week but decided to come to the training staff resulted in high suspicion of a spondylolisthesis. Unfortunately, since the athlete never received imaging, the pathology is hard to confirm or deny. This paper covered low grade isthmic spondylolisthesis’ (grades I and II), because conservative treatment is highly successful and is much more applicable to rehabilitation in an athletic training facility. A lumbar spondylolisthesis is a rare pathology amongst otherwise healthy collegiate athletes. Research is yet to establish a finite cause of spondylolisthesis. A proper evaluation from the athletic training staff is key to eventually diagnose a spondylolisthesis, as there are many tests and palpatory findings that are highly indicative of the pathology. This paper will focus on the clinical presentation and demographical characteristics of lumbar spondylolisthesis.

Purpose

The purpose of this case report was to analyze the case of a 20-year-old heavyweight wrestler with indications of a spondylolisthesis, and was treated as such. This presentation focuses on the clinical presentation and demographical information of the patient. All findings have been reported. An overview of this injury is presented in order to provide a better understanding regarding the clinical presentation and clinical diagnosis.

Prevalence

This case is unique, since a spondylolisthesis is a rare pathology amongst otherwise healthy collegiate athletes. A study performed by Kalichman and colleagues attempted to analyze the prevalence of spondylolisthesis among individuals aged forty to eighty who complained of lower back pain. Of the 168 participants, CT scans indicated that 21 of the individuals had a measurable spondylolisthesis, making the prevalence of spondylolisthesis roughly 11% in this group (Kalichman, Kim, Li, et al., 2009). Another study indicates that among 4243 “elite” athletes with back pain, range of motion testing revealed only 280 of these athletes demonstrated a spondylolisthesis. This equates to roughly 15% of the athletes studied demonstrating the pathology (Rossi & Dragoni, 2001).

Clinical diagnostic characteristics

There are several evaluative findings that can increase the clinical predictive likelihood of a spondylolisthesis. A study published in 2009 analyzed certain characteristics of the evaluative process and attempted to determine which parts of the evaluation were highly indicative of a lumbar spondylolisthesis. The study found that among 100 subjects with a documented spondylolisthesis, 88 of the subjects demonstrated signs of anterior vertebral slippage upon palpation. This is compared to 30 subjects who do not have the pathology, in which anterior slippage is not demonstrated in any of the subjects without the pathology. Furthermore, 99% of the subjects with the pathology demonstrated core weakness, abdominal wall drooping, as 66% of the subjects without the pathology demonstrated core weakness and abdominal drooping. Furthermore, the double leg raise produced pain in 87% of the subjects who had the pathology, and 23% of the subjects who did not have the pathology (Kalpakcioglu, Attilieb, & Senel, 2009).

To relate this information back to the case at hand, the case correlates with some of the demographic findings, mechanism, and evaluation findings described above. For one, demographical findings indicate that 18-year-old male is at a high risk due to extension, or extension with some sort of trunk rotation. Furthermore, the double leg raise produced pain in 87% of the subjects with the pathology (He, Wang, Gong, et al., 2014). The wrestler is also an 18-year-old male, which correlates to the age of peak onset. The activities the wrestler performs also correlates to the reported mechanism of injury for a spondylolisthesis. In the sport of wrestling, competitors are often manipulated into positions of extension with some sort of rotational component, either passively or actively, again and again. Furthermore, the Romanian deadlifts the athlete was performing at the time of injury involved the lumbar spine actively moving into extension. Lastly, the athlete demonstrated pain in extension and segmental anterior instability, both of which are highly indicative of a spondylolisthesis.

Summary

To summarize, the evaluation performed on the athlete was highly indicative of a lumbar spondylolisthesis. Unfortunately, the athlete never received imaging, so the diagnosis cannot be confirmed or denied. This paper covered low grade isthmic spondylolisthesis’ (grades I and II), because conservative treatment is highly successful and is much more applicable to rehabilitation in an athletic training facility. A lumbar spondylolisthesis is a rare pathology amongst otherwise healthy collegiate athletes. Research is yet to establish a finite cause of spondylolisthesis.

References

Bouras, T., & Korovessis, P. (2015). Management of spondylolysis and low-grade spondylolisthesis in fine athletes. A protocol for lower grade spondylolisthesis' is also much more applicable to the typical athletic training setting (Stanitski, 2006).