

Return to Football after a Cervical Disk Arthroplasty: A Case Report

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Learning Point of the Article:

Cervical disc replacement can be used for treatment in high level athletes.

Abstract

Introduction: Symptomatic cervical spine disk herniations in high-level athletes are traditionally treated with anterior cervical disk fusion (ACDF) after failed conservative management. Unfortunately, an ACDF comes with decreased mobility and only a return to sport 73.5% of the time. In high-level athletes, mobility and range of motion can be critical to their long-term success. This case report will discuss the successful treatment of a C6–C7 disk herniation with a cervical disk replacement (CDR).

Case Report: This is a 23-year-old football player whom had a left paracentral C6–C7 disk herniation causing foraminal stenosis. He had significant triceps muscle wasting and weakness and he was not able to participate in football secondary to his symptoms. After failing 6 weeks of conservative, he underwent a CDR. At 8 weeks postoperatively, he was cleared for football and return to sport without complications.

Conclusion: The CDR provides high-level athletes the ability to return to contact sports safely. In this unique case, we present a division one football player with a symptomatic cervical herniated disk that was treated with a CDR and return to sport without any limitations or complications. The CDR was able to treat symptoms, improve strength and motion, and ultimately allow the player to return to football. More studies need to be performed, but ultimately CDR in athletes can get them back on the field, improve their cervical range of motion, and decrease their risk of adjacent segment disease in the long run when compared to the cervical fusion.

Keywords: Cervical disk replacement, anterior cervical disk fusion, contact sports.

Introduction

Cervical disk replacement (CDR) and anterior cervical disk fusion (ACDF) are both methods of treatment of cervical disk disease in symptomatic high-level athletes [1, 2, 3, 4, 5]. CDR has proven to be a good alternative to ACDF, providing similar benefits, and mitigating some long-term risks, including greatly improved risk of future adjacent segment disease [6, 7, 8]. There has been good evidence for the safety of returning to play in contact sport athletes receiving ACDF, but the data have been sparse regarding this aspect of CDR [4, 9]. There have been case reports of patients performing well in contact sports after CDR

[3]. This case will provide further evidence on the success with a CDR in a high-level football athlete.

Case Report

A 23-year-old healthy male division one football player felt a pop in his neck while weightlifting. Initial symptoms were left arm pain, radiculopathy, and global weakness. X-rays were negative for fracture or dislocation (Fig. 1, 2).

His left arm pain and radiculopathy resolved with 2 weeks of rest, but, thereafter, he continued to have subjective weakness in his

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Author's Photo Gallery



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Figure 1: Pre-operative: AP cervical spine X-ray.



Figure 2: Pre-operative: Lateral cervical spine X-ray.

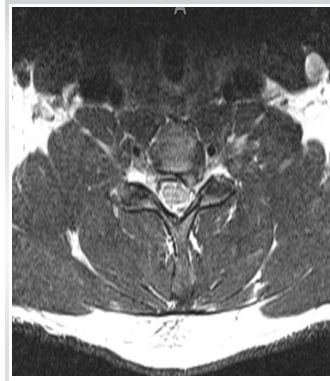


Figure 3: Pre-operative: Cervical spine MRI (Axial view).



Figure 4: Pre-operative: Cervical spine MRI (Sagittal view).



Figure 5: Post-operative: Cervical spine lateral.



Figure 6: Post-operative: Cervical spine AP.



Figure 7: Post-operative: Cervical spine flexion.



Figure 8: Post-operative: Cervical spine extension.

triceps. His main complaint was the loss push off strength with his dumb bell bench press. He could bench 110lbs on the right arm compared to only 65lbs with his left arm.

At the 2-week mark post-injury, on physical examination, he had normal strength, sensation, and reflexes throughout the left upper extremity. The only positive finding was he had triceps muscle wasting.

After 6 weeks post-injury and completion of physical therapy, stretching, and NSAID's, a MRI was obtained. This showed a left paracentral C6–C7 disk herniation extending into the foramen, causing foraminal stenosis and his symptoms (Fig. 3, 4).

Due to significant muscle wasting and continued weakness after a course of conservative management, a C6–C7 anterior discectomy and arthroplasty were performed by a fellowship trained spine surgeon (Fig. 5, 6, 7, 8).

In the post-operative setting, he underwent 4 weeks of rest. At the 4-week mark, he gradually increased his lifting and started performing running and agility drills with the team. At 8 weeks, he was cleared to return to sport.

He is currently 9 months out from surgery and competing in contact sports without any complications.

Discussion

In high-level athletics, strength is critical to compete. In the setting of a cervical disk herniation leading to arm weakness, a CDR should be considered as a reliable form of treatment. The literature is well dense with evidence on ACDF's and their return to sport, but is very limited with regards to CDR [9, 10]. ACDF can also lead to increased risk of adjacent segment disease long term [11].

In our case, we highlight a division one football player whom undergoes a CDR with full return to play without any setbacks or complications.

Conclusion

The current literature has evidence showing CDR leads to improved range of motion and decreased risk of adjacent disk disease when compared to ACDF. If patients can return to sport and have improved long-term outcomes, CDR would be the treatment recommendation. At this time, there is limited evidence and there needs to be research into CDR versus ACDF in the return to sport in high-level contact athletics and long-term outcomes.

Clinical Message

CDR is a reasonable option for the treatment of a symptomatic cervical disk herniation and may provide increased mobility for the athlete.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given the consent for his/her images and other clinical information to be reported in the journal. The patient understands that his/her names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Conflict of interest: Nil **Source of support:** None

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