

Traumatic compression of 7th root nerve in cervical spine: A case report

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Abstract

A 26 year old, male professional, right-handed sustained an injury after a fall during a football game. He had pain on neck, right shoulder, right scapula medial side and right arm dorsal-lateral side. The space C6-C7, right 7th nerve root is affected according to patient complains and physical examination. Plain cervical radiographs and MRI of cervical spine confirmed the diagnosis. After underwent conservative treatment for six weeks the patient is back to his normal duties.

INTRODUCTION

Many problems with the discs in cervical spine can cause symptoms in patients. One of the most common problems in cervical spine in young population is a disc hernia.

The intervertebral disc system is composed of four elements: the nucleus pulposus at the very center, the annulus fibrosus as a thick envelope that contains the gelatinous nucleus pulposus at the center, the cartilaginous plate superiorly and inferiorly at the vertebral bone side, and the ligaments that surround the annulus fibrosus circumferentially (1). There are seven vertebral bodies in the cervical spine; the first two are different but the rest are quite similar to one another (2).

A health professional usually uses different terms for disc problems: herniated, ruptured, protruded, prolapsed or slipped disc(2). These terms imply that the nucleus pulposus has been displaced backwards and is pressing on a nerve root or roots (2).

Because most bending motion in the cervical spine occurs at the C4-5, C5-6 and C6-7, disc hernia occurs most commonly at those levels(2). The most common level for disc problems is C6-C7 (2,3,4).

Disc herniation is found in any anatomic level of the spine but cervical discs are affected 8% of the time (3).

This a case report of traumatic cervical spine hernia sustained after a fall during a football game.

CASE REPORT

A 26 year old, male professional, right-handed sustained an injury after a fall during a football game.

He reported as he was running, he fell forwards on the ground; after a fall he developed muscle spasms of his neck and pain radiating to the right upper limb.

Physical examination:

Pain:

Neck.

Right shoulder.

Right scapula medial side.

Right arm dorsolateral side.

Range of Motion:

Neck flexion or extension: No possible.

Neck lateral bending to right or left: No possible.

Neck rotation to right or left: No possible.

Neck hyperextension: No possible.

Loss of sensation:

Middle, ring and little right fingers.

Dorsal right hand.

Motor weakness:

Right triceps muscle.

Right wrist flexion.

Reflexes decreased:

Right triceps reflex.

Spurling maneuver:

Gentle neck hyperextension with the head tilted toward the affected side will narrow the size of the neuroforamin and may exacerbate the symptoms or produce radiculopathy; ipsilateral rotation of the neck will also increase radiculopathy.

Positive: On right side.

Right shoulder abduction relief test:

Significant relief of arm pain with shoulder abduction

Positive: On right side.

The space C6-C7, right 7th nerve root is affected according to patient complains and physical examination.

IMAGING STUDIES

Plain cervical radiographs:

Antero-posterior view:

Right lateral flexion of the neck

Lateral view:

Cervical spine rectified

C6-C7 space slightly narrow

Figure 2

Figure 2: Right oblique view



Right and left oblique views:

C6-C7 neural foramina slightly narrow bilaterally.

Figure 3

Figure 3: MRI view



MRI cervical spine:

{image:3}

Decreased signal intensity of C6-C7

Central disc herniation with compression of the myelin sheet at C6-C7

Neural foraminal compromised bilaterally, more pronounced on the right side at C6-C7

Narrowing of the subarachnoid anteriorly demonstrated at C6-C7.

Comment:

Findings are highly suggestive of a post traumatic disc herniation posteriorly at C6-C7 with neural foraminal compromise bilaterally, more pronounced on the right side.

TREATMENT

The C6-C7 disc herniation was treated non-operatively as follow: Light weight-continuous home traction with 10

pounds for four weeks. Philadelphia collar worn at night for four weeks. Two weeks with cervical spine soft collar after the first four weeks.

Analgesia: Paracetamol (500mg) every 6 hours orally if pain. Diclofenac (25mg) every 8 hours orally.

Physiotherapy: Exercises to strengthen the neck muscles.

After underwent conservative treatment for six weeks the patient is back to his normal duties.

DISCUSSION

Cervical spine herniation typically affects younger patients (2,3) because the nuclear material in this group can still generate significant turgor, enabling it to produce a focal herniation (6).

An intradiscal compressive force produces in a disc material a tendency to follow the radial fissure because this area has least resistance. When the fissure becomes complete, the disc has predisposition to herniated and a disc extrusion will happen. The extruded disc penetrates through the posterior longitudinal ligament representing an extrusion that is non-contained. Primary annular disruption (rim lesion) initially may occur in the periphery. As the process continues to progress and the margins of the annulus and nucleus coalesce with infiltration of type III collagen, the gelatinous nucleus becomes replaced and the disc becomes increasingly fibrotic (6,7,8,9,10).

Furman et al (3) described cervical herniation as a rarely results from a single traumatic incident but our patient didn't has any history of previous injury or cervical problems.

The C6-C7 disc herniated more frequently than discs at other levels(3,4).

Acute cervical spine injury has been associated with sports such as football, gymnastics, rugby and ice hockey (6). Other sports resulting in cervical spine injuries are motor sports and equestrian events (11).

Cervical spine disc herniation at C6-C7 level (Cervical 7th root nerve) has the following signs and symptoms (4,12):

1. Symptoms
 1. Neck tight or stiff
 2. Provocative
 - a. Worse with activity

- b. Worse on awakening in morning
 - c. Worse with neck extension
 - d. Worse with coughing, sneezing, or straining
 - 3. Referred pain
 - a. Radiation into shoulder
 - b. Radiation along roof distribution into arm
 - 1. Does not often radiate below elbow
 - 2. Contrast with paresthesias (distal radiation)
 - c. Radiation into medial scapula
 - 1. Interscapular pain is not of shoulder origin
 - 4. Associated symptoms
 - a. Headaches
 - 5. Decreased Range of Motion
 - a. Neck flexion and extension
 - b. Neck lateral bending to right and left
 - c. Neck rotation to right and left
 - d. Neck hyperextension elicits pain
 - 6. Pain on palpation
 - a. Localized C-Spine tenderness
 - b. Trigger point tenderness over interscapular area
 - 7. Vertex compression test (Spurling Test)
 - a. Turn neck to ipsilateral side and axial load
 - b. Pressure against top of head reproduces arm pain
 - 8. Sensory exam
 - a. Often not helpful
 - 2. Signs: Motor Exam localization
- C6-7 Disc (C7 nerve root)
- 1. Pain :
 - a. Neck
 - b. Shoulder

- c. Medial scapula
 - d. Dorsal-lateral arm
 - 2. Sensory change
 - a. Middle, ring and little fingers.
 - b. Dorsal hand
 - 3. Motor weakness and atrophy
 - Triceps muscle
 - Reflexes decreased
 - Triceps reflex
- MRI became the study of choice in cervical disc herniation because has superior resolution of soft tissues with good definition of disc material, cord and root compression (5,6,13,14).
- Many patients improved with nonsurgical conservative treatment. The goals of nonsurgical conservative treatment are to reduce the irritation of the nerve from the herniated disc, relieve pain and improve the physical condition of the patient (1,2,6,13).
- Cervical disc herniation will need surgical treatment in a very small group of cases (2,6).
- Indications for surgical treatment are (6):
- Evidence of a cervical myelopathy.
- Progressive neurologic deficits.
- Disc herniation refractory to conservative treatment after a period of 3 months.
- Radiographically confirmed evidence of cervical disc disease should be available before performing this surgery (6).
- The most common surgical procedures for cervical disc injuries include (6):
- Anterior decompression and fusion.
- Laminectomy.
- Laminotomy-facetectomy.
- Laminoplasty.

CONCLUSION

Cervical herniated discs with radiculopathy can be managed conservatively with good results.

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