Case Report

Pediatric intervertebral disc calcification: A no touch lesion

Monika Garg, Sanyal Kumar, Bhawna Satija, Rajat Gupta¹

Departments of Radiodiagnosis and ¹Orthopaedics, Employee’s State Insurance Hospital and Post Graduate Institute of Medical Science and Research, Basaidarapur, New Delhi, India

Corresponding author: Dr. Bhawna Satija, B-1/57, First Floor, Paschim Vihar, New Delhi - 110 063, India. E-mail: satijabhawna@yahoo.com

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Abstract

Intervertebral disc calcification (IVDC), though rare, remains an important differential of pediatric spinal pain. A 7-year-old boy presented with sudden-onset severe neck pain and restricted movements. There was no definite history of trauma or infection. Imaging of the cervical spine showed calcification of the intervertebral disc at C2–3 level, with significant posterior protrusion into the spinal canal causing compression of the cervical spinal cord. The child was kept on conservative management. The calcification and posterior protrusion showed near-complete resolution on 3-month follow-up. This case report emphasizes that childhood IVDC is a benign condition which commonly resolves spontaneously, without any surgical intervention and neurological sequelae.

Key words: Calcification, cervical, intervertebral disc, spinal pain

INTRODUCTION

Intervertebral disc calcification (IVDC) is an uncommon cause of pediatric spinal pain. Since its first description in 1924, less than 200 cases have been reported in the literature till date.

It is a rare condition which may be detected incidentally, where the child is asymptomatic or may present with signs and symptoms of neck pain and torticollis. Radiology plays an indispensable role in the diagnosis of such cases. A diagnosis of IVDC suggests that no surgical intervention is required, as the clinical course is self-limited and a conservative management suffices.

CASE REPORT

A 7-year-old boy presented to the emergency department with complaints of severe neck pain and restricted movements of sudden onset. There was no history of fever or significant trauma. The general physical and neurological examination was within normal limits except for mild tenderness in upper cervical area. There was no associated sensorimotor deficit or radiculopathy.

The routine laboratory examination including total leukocyte count (TLC), erythrocyte sedimentation rate (ESR), as well as serum calcium, Vitamin D₃, alkaline phosphatase, and parathyroid hormone (PTH) levels were within normal limits.

Radiograph of the cervical spine in anteroposterior and lateral projections showed calcification of the intervertebral disc at C2-3 level [Figure 1]. Computed tomography (CT) of the spine confirmed the presence of IVDC and also showed calcification in the adjoining anterior epidural space. There was no associated erosion of adjoining vertebral end plates and no pre- or paravertebral soft tissue component [Figure 2]. Magnetic Resonance Imaging (MRI) of the cervical spine demonstrated altered signal intensity involving intervertebral disc at C2–3 level with areas of T1 and T2 hypointensity, consistent with calcification. There was associated significant posterior protrusion of the calcified disc material into the anterior epidural space with compression of underlying cervical spinal cord; however, no signal changes were seen within the cord [Figure 3].

Based on the clinical presentation, normal laboratory examination, and radiological appearance, a diagnosis of childhood IVDC was
made. The child was put on conservative management including analgesics and cervical collar.

There was significant improvement in symptoms after 1 week and complete resolution on 8 weeks follow-up. Follow-up MRI done after 3 months [Figure 4] demonstrated near-complete resolution of the disc calcification and posterior protrusion.

DISCUSSION

Pediatric IVDC was first described by Baron in 1924. It is more commonly seen in males and cervical spine is the most common location, where it is especially symptomatic.

The etiology of IVDC is unclear. Fever and trauma are seen to be unrelated. The laboratory examinations are nonspecific; ESR or WBC count may be elevated. Other causes of adult disc calcification such as hyperparathyroidism, hemochromatosis, homocystinuria, ochronosis, hypervitaminosis D, and chondrocalcinosis have never been implicated.

The calcified disc material can herniate anteriorly into the prevertebral soft tissue or posteriorly into the spinal canal, as seen in our case. Anterior herniation may lead to dysphagia and

posterior herniation can lead to neurological deficits or radicular pain. The incidence of disc herniation is more than 30% in patients with symptomatic IVDC; however, neurological deficit is rarely reported.

Imaging plays an important role in evaluation of children with spinal pain. In cases of pediatric IVDC, establishing a correct diagnosis is crucial to avoid unnecessary surgical intervention. Plain radiographs in pediatric IVDC show calcified round or ovoid masses within the disc space. CT clearly demonstrates the extent of calcification. The height of disc space is usually maintained. MRI is especially useful to evaluate the extent of herniation and the effect on spinal cord.

The natural history of the disease is usually complete clinical and radiographic resolution. More than 50% patients are symptom free within 3 weeks and 95% within 6 months. Surgical treatment is required only in rare cases where conservative management

Figure 1: (a) Radiograph of cervical spine in anteroposterior and (b) Lateral projection. There is ovoid calcification in C2–3 intervertebral disc space (arrows)

Figure 2: Computed tomography scan of cervical spine. (a) Axial and (b, c) Sagittal reformatted images. There is calcification of the intervertebral disc C2–3 with associated calcification in adjoining anterior epidural space (arrows). The adjoining vertebral end plates are normal (curved arrows in b)

Figure 3: Magnetic Resonance Imaging (MRI) of cervical spine: (a) Sagittal T1W and (b) T2W images. The intervertebral disc C2–3 shows abnormal hypointense signal with posterior herniation and compression of adjoining cervical spinal cord. Normal signal intensity is demonstrated by spinal cord. The cervical vertebrae C2 and C3 show normal morphology and signal intensity

Figure 4: Follow-up Magnetic Resonance Imaging at 3 months. Sagittal T2W image demonstrates near-complete resolution of the pathology with normal spinal cord
fails in a child with severe radiculopathy or sensorimotor deficits. Radiological resorption of pediatric intervertebral calcification is usually seen within 3 months as seen in our case.{6}

To conclude, pediatric cervical disc calcification is a benign, self-limiting condition with unknown etiology or recognized predisposing factors. A complete recovery, both clinically and radiologically, occurs on conservative management, despite anterior or posterior protrusion. A high index of suspicion and awareness of the condition is a must to obviate unnecessary surgical intervention.

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