

UNILATERAL HYPERPLASIA OF LAMINA AND SPINOUS PROCESS OF C6 VERTEBRAE*Kiran Kumar Hegde¹, Rashmi P S², Rajesh Poosarla³, Vijayanath V⁴*¹*Dept. of Radio Diagnosis, JJM Medical College, Davangere, Karnataka, India.*²*Department of Obstetrics and Gynecology, S.S.Institute of Medical Sciences & Research Centre, Davangere, Karnataka, India.*³*Dept. of Radio Diagnosis, JJM Medical College, Davangere, Karnataka, India*⁴*Department of Forensic Medicine & Toxicology, VMKV Medical College & Hospital, Salem, Tamil Nadu, India**Corresponding Author Email: drvijayanath@rediffmail.com**ABSTRACT**

We report a 10 year old boy who was referred to us with swelling in the posterior aspect of the neck. Anteroposterior and lateral radiographs of the cervical spine shows an elongated left spinous process in the neck at the level of C6 vertebrae. Computed tomography (CT) examination better depicted this congenital variant and clearly showed the associated schisis of the posterior arch at the same level on the left side. Magnetic resonance imaging showed that the spinal cord shows normal signal intensities and ruled out other spinal anomalies. This is a very rare congenital anomaly and probably the first case being reported in India. There is only one previous case report similar to our details published previously in a 5 year old girl published previously in the year 2009.

KEYWORDS*Spine; congenital abnormality – cervical spine; Computed Tomography; Vertebral schisis***INTRODUCTION**

Congenital cervical spine abnormalities is not a rare entity. Children with non-traumatic cervical spine abnormalities constitute a diverse and challenging group of patients.¹ Cervical spine abnormalities is associated with a variety of pathologies like Morquio's syndrome, Spondyloepiphyseal dysplasia, Diastrophic dwarfism, Osteogenesis imperfecta, Klippel feil syndrome.² Examples of relatively common disorders of the cervical spine include persisting apophysis of the transverse process, vertebral platyspondyly, fusion of vertebral bodies at various levels, vertebral hypoplasia etc.³ Congenital abnormalities of the transverse and spinous processes are often incidental radiological findings rarely associated with clinical findings namely pain or constitute aesthetic problems. In this case report, we present a very rare congenital spinal anomaly, unilateral hyperplasia of lamina and spinous process of C6 vertebrae associated with

vertebral schisis at the same level. This is an extremely rare congenital anomaly which has been described only twice in the literature. Chitkara et al described but did not clearly illustrate two rib like swellings at the back of the neck. The rarity of the case and its presentation for the first time in the Indian region prompted us to the present report.

CASE REPORT

A 12 year old patient was referred to us with complaints of posterior cervical mass and pain in the neck region since 6 months. The swelling is more prominent on flexion and there is no restriction of movements. There is no history of trauma. On clinical examination there is a hard palpable, immovable posterior cervical mass measuring 5 x 3 cm. Overlying skin and subcutaneous structures were normal. There were no local color changes or increases in temperature. There was no neurological deficit associated with the mass.

Radiographic assessment of the cervical spine with AP and lateral radiograph revealed an elongated spinous process of C6 vertebrae (measuring 34.4 mm). The shape and axis of the spinous process is normal. Spinal canal dimensions are within normal limits. AP radiograph shows an abnormal bony protrusion noted on the left side of the cervical spine.

CT scan of the patient performed with a dual slice spiral CT- TOSHIBA ASTEION shows hyperplasia of lamina and spinous process of C6 vertebrae with schisis (non fusion of the spinous process). The density of the bony overgrowth appears normal. The spinous process is arching posteriorly towards the left side and is noted to lie above the muscular plane posteriorly. There

is no associated soft tissue swelling or any other visible mass. Rest of the cervical spine appears normal.

MRI performed on PHILIPS ACHIEVA 1.5 T showed normal signal intensities of the spinal cord. The intervertebral discs are normal. There is mild signal hyperintensities in the muscles surrounding the elongated spinous process. Vertebral bodies and rest of the spine show normal signal intensities.

Surgical intervention was offered to the patient. However, due to the limited nature of the patient's complaints, he did not opt for intervention. For this reason, a histopathologic exam could not be performed.



A



B

FIGURE 1 A-B: Clinical photographs showing the presence of swelling (white arrows) in the posterior part of the neck on the left side seen adjacent to a mole on the back (yellow arrow). The swelling is more prominent on flexion and causing no limitation of neck movements. Physical examination pointed out the presence of a posterior cervical midline hard mass, more evident after neck flexion

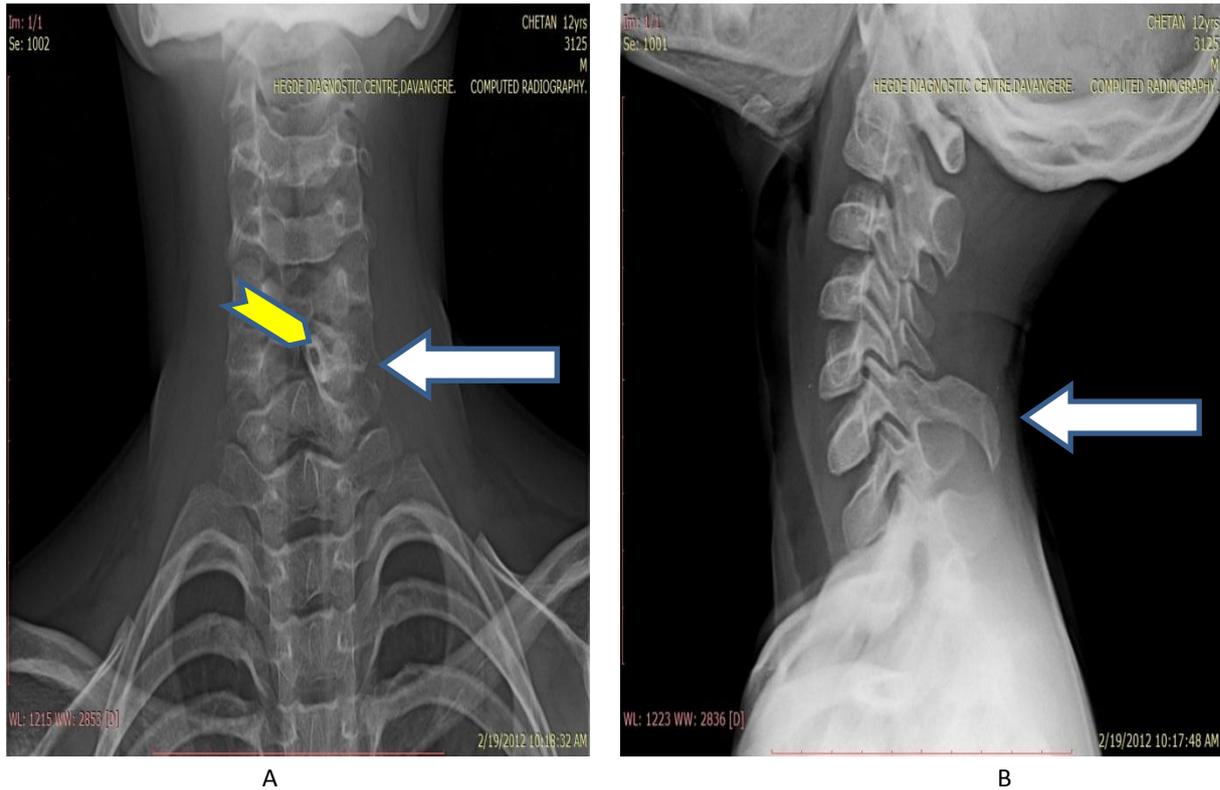


FIGURE 2 A) AP radiograph of the cervical spine shows the off midline position and sclerosis of the bifid C6 giant spinous process (yellow arrow) and hypertrophy of the left lamina (white arrow) at the same level. B) Lateral radiograph of the cervical spine clearly shows overgrowth (white arrow) and elongation of the spinous process of the sixth cervical vertebra.

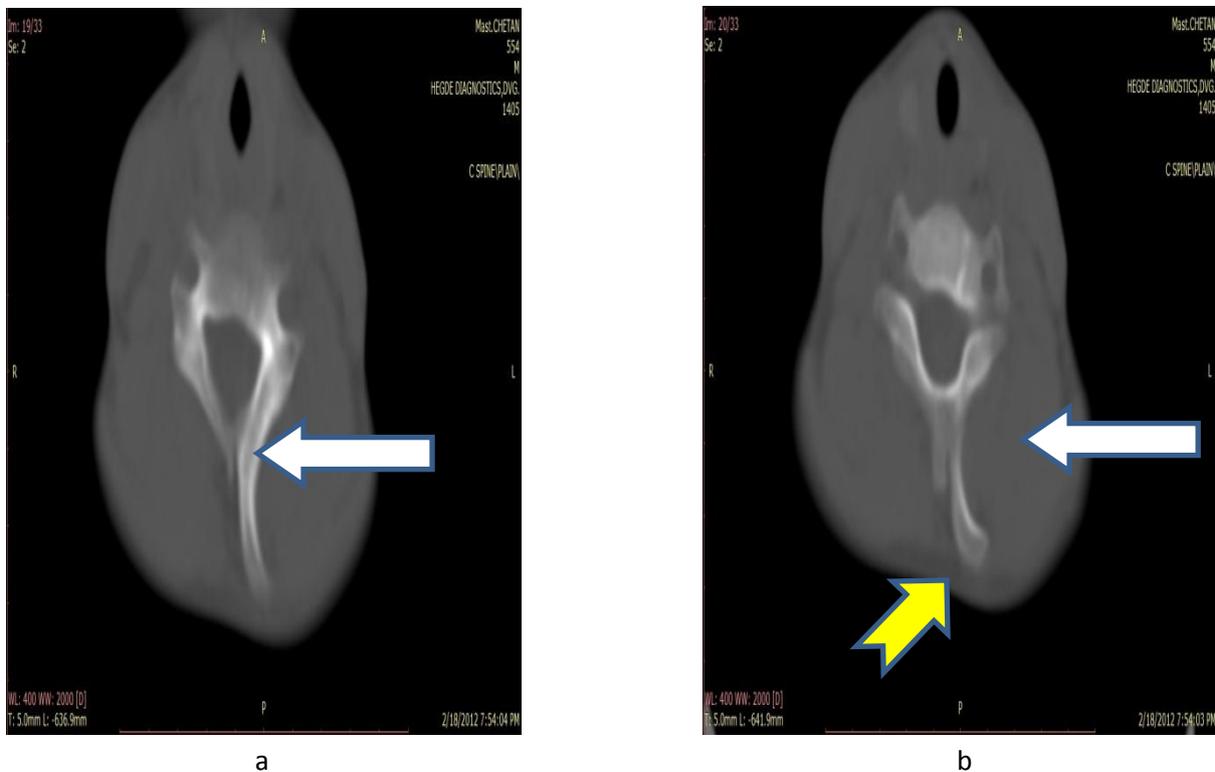


FIGURE 3 a–b Axial CT scans passing through C6 vertebra show the absence of pseudoarticulations at the base of the spinous process and within it. Schisis (yellow arrow) of the vertebral posterior arch and hypertrophy of the left lamina are also evident (white arrow)

In our patient, CT scan clearly demonstrated a marked unilateral hyperplasia of the left posterior arch of the sixth cervical vertebra with no evidence of pseudo-articulation giant spinous process had well-defined cortices and medullae on CT scan.

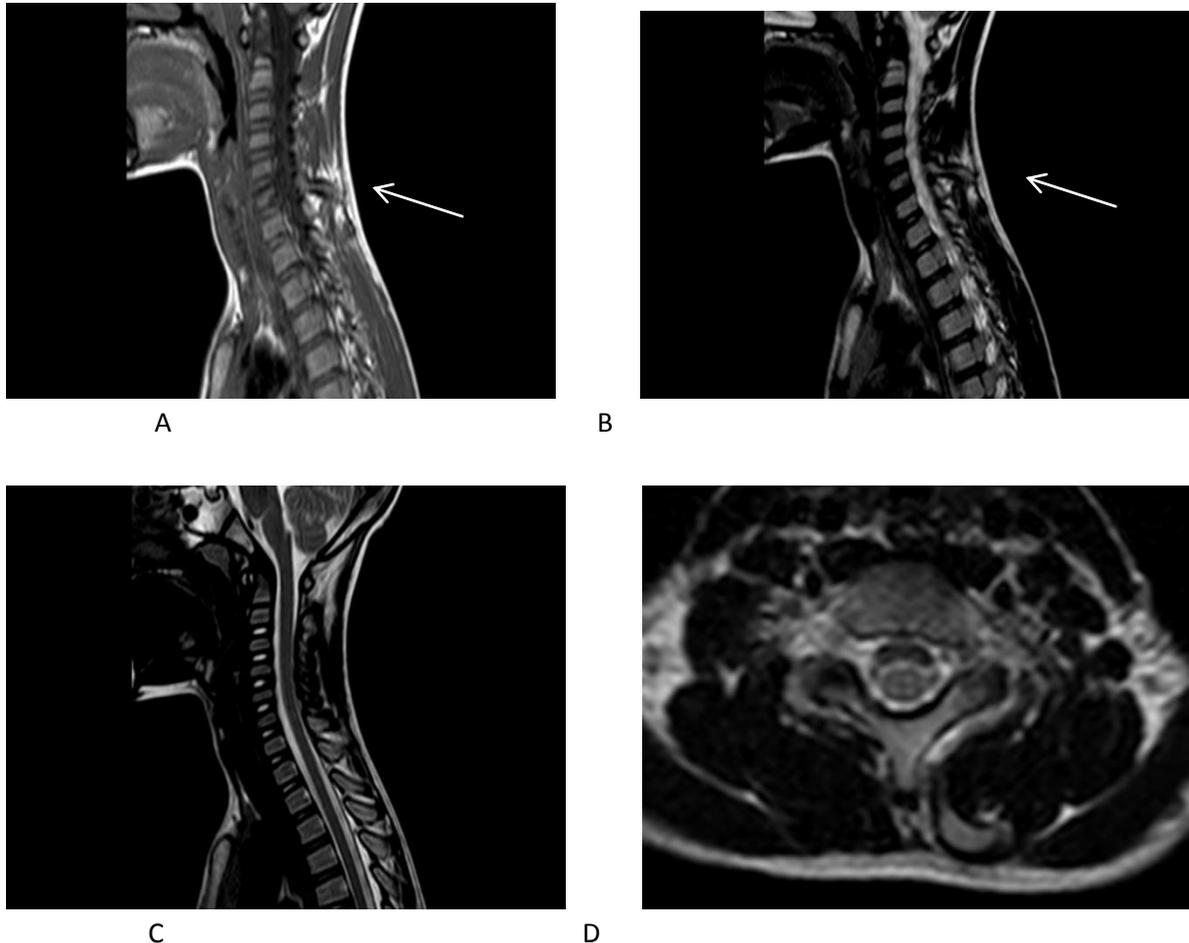


FIGURE 4 A & B – Sagittal T1 & T2 images show a hyperplastic spinous process of C6 vertebrae (white arrow) C & D – Sagittal and axial T2 images at the level of hyperplastic spinous processs shows the presence of normal appearing spinal cord , normal intervertebral disc spaces and anterior ,posterior epidural spaces .

DISCUSSION

During the vertebral column's development various deformities can emerge. Unilateral hyperplasia of lamina and spinous process of c6 vertebrae is a very rare anomaly with only 2 cases (published in 2009 & 2011) being reported in the literature previously ^{3,4} and the first case being reported in India.

The development of the vertebral arch begins in utero during the third to sixth gestational week and is completed by the second decade where fusion of the secondary ossification centers are completed. The cause for unilateral hyperplasia of lamina and spinous process is unknown but is usually asymptomatic and detected incidentally.

The other two cases in the literature also show hyperplasia on the left side which is similar to our findings. The schisis defect observed is probably due to the non union of the secondary ossification centers of the spine (which usually completes in the second decade). There is also a case report showing hyperplasia of the C7 spinous process in a 24 year old women published in the year 2007.⁵

REFERENCES

1. Herman MJ, Pizzutillo PD: Cervical spine disorders in children. *Orthop Clin North Am* 30:457-466, 1999.
2. Beals Rk et al : anomalies associated with vertebral malformations spine. 18: 1329 ,1993
3. Giuseppe Esposito, Pasquale de Bonis, Gianpiero Tamburrini, Luca Massimi, Vadim Byvaltsev, Concezio di Rocco and Antonio Leone Unilateral hyperplasia of the left posterior arch and associated vertebral schisis at C6 level : *Skeletal Radiology* Volume 38, Number 12, 1191-1195
4. Burak Kazanci, Ozkan Tehli, Utku Adilay and Bulent Guclu Unilateral hyperplasia of lamina and spinous process of C6 vertebra: case report *Surgical and Radiologic Anatomy*
5. Heyer CM, Nicolas V, Peters SA. Unilateral hyperplasia of a cervical spinous process as a rare congenital variant of the spine *Clin Imaging.* 2007 Nov-Dec; 31(6):434-6.



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