CASE REPORT

Block vertebra

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SUMMARY

We report a case of congenital kyphosis in a 5-year-old child. Although she was presented before the age of 1 year to her local orthopaedic unit, a definitive diagnosis of unsegmented vertebra was made when she was referred to our unit. The child was treated with posterior fusion, which improved part of the deformity and completely prevented progression. We discuss the case and the condition, which if ignored can lead to progressive painful deformity and paralysis.

BACKGROUND

Congenital kyphosis resulting from unsegmented vertebra (block vertebra) is not common. Spinal deformities in children should be investigated as it may be associated with clinical anomalies. The deformity itself runs an unpredictable course. Progression of deformity may be prevented with surgical fusion with good results.

CASE PRESENTATION

A 5-year-old girl was referred to us with a progressive kyphotic deformity in the mid-back. The deformity was noted at the age of 10 months. No definitive diagnosis was made in the primary hospital. The child was otherwise healthy and active, reaching milestones on time. There was no history of pain. Bladder and bowel habits were normal. On examination a gibbus was noted in the thoracolumbar spine. The spine was not tender to palpation. Lower limb neurological examination was normal. Family history was unremarkable.

INVESTIGATIONS

X-rays of the spine were performed (figure 1) and confirmed two block vertebrae involving T11–T12 and L1–L2. A kyphotic deformity measuring 77° was noted at the junction of these two blocks. An MRI at the primary hospital ruled out intraspinal lesions (unfortunately we have no access to the MRI).

DIFFERENTIAL DIAGNOSES

- ▶ Hemivertebra
- ▶ Spinal tumour
- ▶ Infection.

TREATMENT

The senior author performed a posterior uninstrumented fusion in 2010. Indications of the surgery are painful progressive kyphosis and prevent worsening cosmetic deformity. The procedure was performed under general anaesthesia. A posterior

midline incision was performed to access the T11 to L2 vertebra. The spinous processes were removed and milled bone graft was applied. Postoperatively the child was mobilised and X-rays were performed. The child recovered well. No complications were noted.

OUTCOME AND FOLLOW-UP

Postoperative X-rays confirmed a 20° improvement in the deformity. At 7-year follow-up the child remains asymptomatic and the deformity is less prominent. Radiologically the fusion is solid and has shown no progression of kyphosis (figure 2). Surgical management in this child has prevented worsening deformity and neurological complications.

Figure 1 X-ray spine lateral view (at presentation).

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Figure 2 X-ray spine lateral view (at 6-year follow-up).

DISCUSSION

The estimated prevalence of vertebral malformations is 0.5–1 in 1000. Multiple hemivertebra and anterior segmentation defects are two most common anomalies.¹

The embryonic development of vertebra is related to mesodermal organs and the spinal cord.² Pathogenesis of failure of segmentation of the vertebra is controversial.³

In McMaster and Singh's⁴ original series of 112 cases of congenital kyphosis, 24 were due to anterior failure of vertebral body segmentation. In a series of 10 cases of failure of vertebral body segmentation, Noordeen *et al*² reported a 40% incidence of intraspinal lesions. In children aged 5 and over, the authors recommend an MRI if deformity is progressive or if neurological signs are present.

Learning points

- ▶ Deformity of spine in childhood merits a comprehensive clinical and radiological evaluation.
- ▶ Kyphotic deformity can follow an unpredictable course.
- ▶ It is better to treat the condition before the deformity becomes rigid and severe.
- ▶ Close surveillance is recommended until skeletal maturity.

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