15 **Roberts S**, Menage J, Eisenstein SM. The cartilage end-plate and intervertebral disc in scoliosis: calcification and other sequelae. *J Orthop Res* 1993;**11**:747–57.
16 **Prahinski JR**, Polly DW Jr, McHale KA, *et al*. Occult intraspinal anomalies in congenital scoliosis. *J Pediatr Orthop* 2000;**20**:59–63.
17 **Bush CH**, Kalen V. Three-dimensional computed tomography in the assessment of congenital scoliosis. *Skeletal Radiol* 1999;**28**:632–7.
18 **Lawhon SM**, MacEwen GD, Bunnel WP. Orthopedic aspects of the VATER association. *J Bone Joint Surg Am* 1986;**68**:424–9.
19 **Theiss SM**, Smith MD, Winter RB. The long-term follow up of patients with Klippel-Feil syndrome and congenital scoliosis. *Spine* 1997;**22**:1219–22.
20 **Thomsen MN**, Schneider U, Weber M, *et al*. Scoliosis and congenital anomalies associated with Klippel-Feil syndrome types I-III. *Spine* 1997;**22**:396–401.
21 **Chaumien JP**, Rigault P, Maroteaux P, *et al*. The so called Klippel-Feil syndrome and its orthopedic incidences. *Rev Chir Orthop Reparatrice Appar Mot* 1990;**76**:30–8.
22 **Van Kerckhoven MF**, Fabry G. The Klippel-Feil syndrome: a constellation of deformities. *Acta Orthop Belg* 1989;**55**:107–18.
23 **Winter RB**, Moe JH, Lonstein JE. The incidence of Klippel-Feil syndrome in patients with congenital scoliosis and kyphosis. *Spine* 1884;**9**:363–6.
24 **Hensinger RN**, Lang JE, MacEwen GD. Klippel-Feil syndrome: a constellation of associated anomalies. *J Bone Joint Surg Am* 1974;**56**:1246–53.
25 **Bernard TN Jr**, Burke SW, Johnston CE 3rd, *et al*. Congenital spinal deformities. A review of 47 cases. *Orthopedics* 1985;**8**:777–83.
26 **Sussman M**. Duchenne muscular dystrophy. *J Am Acad Orthop Surg* 2002;**10**:138–51.
27 **Furderer S**, Hopf C, Zollner J, *et al*. Scoliosis and hip flexion contractures in Duchenne muscular dystrophy. *Z Orthop Ihre Grenzgeb* 2000;**138**:131–5.
28 **Johnson ER**, Abresch RT, Carter GT, *et al*. Profiles of neuromuscular diseases. Myotonic dystrophy. *Am J Phys Med Rehabil* 1995;**74**:S104–16.
29 **Merlini L**, Mattutini P, Bongfiglioli S, *et al*. Non-progressive central core disease with severe congenital scoliosis: a case report. *Dev Med Child Neurol* 1987;**29**:106–9.
30 **Nogami H**, Ogasawara N, Kasai T, *et al*. Lipid storage myopathy associated with scoliosis and multiple joint contractures. *Acta Neuropathol (Berl)* 1983;**61**:305–10.
31 **Lapunzina P**, Musante G, Pedraza A, *et al*. Semilobar holoprosencephaly, coronal craniosynostosis, and multiple congenital anomalies: a severe expression of the Genoa syndrome or a newly recognized syndrome? *Am J Med Genet* 2001;**102**:258–60.
32 **Fisher K**, Esham RH, Thorneycroft I. Scoliosis associated with typical Mayer-Rokintansky-Kuster-Hauser syndrome. *South Med J* 2000;**93**:243–6.
33 **Haga N**, Nakamura K, Taniguchi K, *et al*. Enchondromatosis with features of dysspondyloenchondromatosis and Maffucci syndrome. *Clin Dysmorphol* 1998;**7**:65–8.
34 **Winter RB**, Moe JH, Eilers VE. Congenital scoliosis. A study of 234 patients treated and untreated. *J Bone Joint Surg Am* 1968;**50**:1–15.
35 **Owange-Iraka JW**, Harrison A, Warner JO. Lung function in congenital and idiopathic scoliosis. *Eur J Pediatr* 1984;**142**:198–200.
36 **Muirhead A**, Conner AN. The assessment of lung function in children with scoliosis. *J Bone Joint Surg Br* 1985;**67**:699–702.
37 **Jaskwhich D**, Ali RM, Patel TC, *et al*. Congenital scoliosis. *Curr Opin Pediatr* 2000;**12**:61–6.
38 **McMaster MJ**. Congenital scoliosis caused by a unilateral failure of vertebral segmentation with contralateral hemivertebrae. *Spine* 1998;**23**:998–1005.
39 **Sanan A**, Rengachary SS. The history of spinal biomechanics. *Neurosurgery* 1996;**39**:657–69.

IMAGES IN MEDICINE

Superior lumbar hernia of Grynfellt

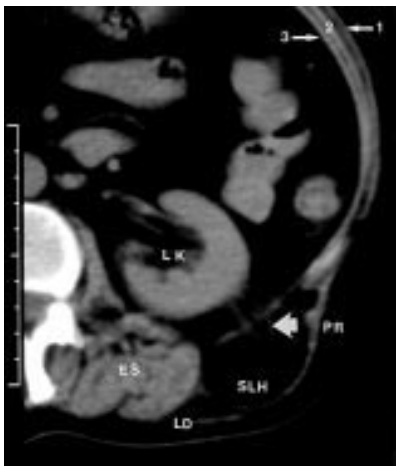

Figure 1 Abdominal computed tomogram showing superior lumbar hernia (SLH). LK, left kidney; PR, perirenal fat passing through transversalis aponeurosis to form SLH (arrowed); ES, erector spinae; LD, latissimus dorsi. (1) External oblique, (2) internal oblique, (3) transversus abdominis.

A 44 year old woman was investigated for a soft, non-tender, reducible swelling, measuring 5 cm in diameter in her left lumbar region. There was no cough impulse. An abdominal computed tomogram revealed a superior lumbar hernia, first described by Grynfellt. The hernial content was retroperitoneal fat from around left kidney, which had prolapsed through the transversalis aponeurosis. The external oblique (1), internal oblique (2), and the transversus abdominis (3) lie anteriorly (see fig 1). The erector spinae (ES) forms the posterior boundary. The superior border is formed by the 12th rib and the iliac crest forms the inferior border. The defect was repaired using interrupted non-absorbable sutures after retracting the latissimus dorsi. The patient has been followed up for a period of 16 weeks and there has been no recurrence.

Superior lumbar hernia is rare and may easily be misdiagnosed as a lipoma if a strong index of suspicion is not kept.

A Pitale
V Laughlin
Lagan Valley Hospital, Hillsborough Road, Lisburn, Co Antrim BT28 1JP, UK; ashishpitale@lycos.com