Recurrent scoliosis one year after surgical correction

P. J. van Luijk · F. de Nies

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Abstract A year after anterolateral spondylodesis for progressive scoliosis, the patient showed a flexion gait pattern with recurrent deformity, due to late infection. Surgical debridement resolved all symptoms. Whereas most postoperative infections occur after posterior spondylodesis and present with back pain and mild increase of infection parameters, late infection after anterolateral approach is rare. In this case the patient did not present with the classic symptoms.

Keywords Infection · Scoliosis · Anterolateral spondylodesis · Surgical debridement

Case

A 13-year-old girl attended our hospital with mild low back pain and a left-sided primarily lumbar scoliosis of 28° Cobb angle. Brace treatment was started, but unfortunately the curves progressed in time. At the age of 15 the Cobb angle was over 50°. An anterolateral correction and fusion from Th12 to L3 was performed by left lumbotomy, using Monarch (Depuy Spine) instrumentation and iliac crest bone graft (Fig. 1). After a quick and uncomplicated

recovery and a correction up to less than 20° she was discharged from the hospital in 5 days.

At routine intervals of 3 months she attended the outpatient department, the rehabilitation program was undisturbed and the curves remained unchanged.

However, 1 year after surgery, she returned somewhat earlier than expected, with a recurrent scoliosis, a significant left sided lateral deviation and flexion of the spine as well as a flexion contracture of the left hip. Pain was not the primary issue. Neither she nor we were able to redress the severe curve. BSE, CRP and WBC were within normal range. Besides this recurrent scoliosis below the instrumented level on plain X-rays and CT-scan, no complications were seen. The instrumented curve and screw position were unchanged and the fusion was solid.

On MRI a thickened psoas muscle was seen at the left side with significant oedema due to either infection or neoplasm. CT-guided cultures were taken, but no microorganisms were isolated. Histology reported non-specific inflammation, but not malignancy.

Over a period of time the general condition of the girl got worse with progression of the curve, lateral deviation and pain. Repeated blood tests now showed a raised BSE, CRP and WBC. Finally, almost 2 years after initial surgery, another MRI-scan revealed a large abscess around the screws and rods as well as in and underneath the left psoas muscle (Fig. 2). The hardware was removed, the abscess was drained and a thorough debridement was performed. This time the cultures showed *S. aureus* for which intravenous antibiotics were administered (Flucloxacillin 1,000 mg, 6 times daily).

She recovered very well, without wound healing problems and the infection parameters returned to normal values. The serious derangement of the posture resolved completely.

P. J. van Luijk · F. de Nies
Onze Lieve Vrouwe Gasthuis, Postbus 95500,
1090 HM Amsterdam, The Netherlands

P. J. van Luijk
Anthony Fokkerweg 57, 2316 ZG Leiden, The Netherlands

Present Address:

P. J. van Luijk (✉)
Vijfmeilaan 8c, 2321 RL Leiden, The Netherlands
e-mail: petervanluijk@gmail.com

Fig. 1 The corrected spinal column

Fig. 2 The infected region. Visible around instrumentation and left psoas muscle

Discussion

In scoliosis surgery infections are rare, but well described, usually occurring in the direct post-operative period, incidentally as a late infection one or more years after initial surgery. In literature [1, 2] these late infections are thought to be localised around a small part of the hardware, presenting with swelling, local back pain and slightly if at all raised infection parameters (ESR, WBC and CRP). All reported cases followed surgery by posterior approach. Our patient, however, presented a year after anterolateral surgery with a severe left-side trunk shift and flexion contracture of the hip due to an extended psoas abscess, which

was not appreciated in the initial radiological investigations. This is quite different from the localised infections near the hardware [1–3] after posterior approach. The epidural abscess as described by Choma [4] developed over a year after surgery, but this case was known with an early postoperative wound infection in contrast to our patient.

A late deep infection was taken into account, but although several cultures were taken, *S. aureus* was isolated only after surgical debridement, as recommended in literature [1, 2].

Conservative treatment alone (i.v. antibiotics) was not sufficient as to be expected in retrospect. Only after aggressive surgical intervention our patient fully recovered.

Anterior surgery is seldom associated with late low-grade infection, at least no articles on this subject were found in literature. This is probably due to the richly vascularised structures covering the anterior lower spine. There was no specific reason for this previously perfectly healthy girl to develop a late/low-grade infection, so this must be considered a secondary, blood born infection.

Conclusion

Most late/low-grade infections in scoliosis correction described in literature follow posterior surgery and present with local back pain and swelling. We present a case of late, most likely secondary infection after anterolateral approach, with a recurrence of the scoliosis as the main symptom, which has not been described before. As in posterior approach surgical debridement and i.v. antibiotics are treatment of choice.

Conflict of interest None.

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