Two cases of failed back surgery syndrome after correction and stabilization surgery for scoliosis with Harrington instrumentation

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Summary. We report two cases of adjacent segment degeneration in patients with idiopathic scoliosis who underwent surgical treatment with Harrington instrumentation in young age. Both patients developed a symptomatic degeneration of the disk immediately under the last stabilized level and were treated with decompression and stabilization. Clinical and radiological results are satisfactory at the follow-up. (www.actabiomedica.it)

Key words: idiopathic scoliosis, Harrington instrumentation, failed back surgery syndrome

Introduction

Since the early 60's to the mid 80's the Harrington Rod instrumentation was used for surgical treatment of Adolescent Idiopathic Scoliosis (1). Harrington rods were intended to provide a means to reduce the curvature and mostly to provide more stability to the spinal fusion.

A revision surgery in patients treated with Harrington Rod Instrumentation is very demanding because the anatomy of the spine is completely subverted due to the abundant bone fusion not only in treated levels but also in adjacent segments (2).

In the last twenty years lumbar spine revision surgery had a steady growth due to the increase of spinal operations and to higher functional demand in older patients (3). Adjacent segment degeneration is a common cause of failure in patients who underwent stabilization surgery (4-5).

We describe two cases of adjacent segment degeneration, treated with decompression and stabilization, after correction and stabilization surgery with Harrington Rod for idiopathic scoliosis.

Case report

We report the results of two patients treated with lumbar decompression and fusion for Failed Back Surgery Syndrome (FBSS) after correction and stabilization surgery for idiopathic scoliosis with Harrington rod.

Patients were evaluated clinically with Oswestry Disability Index (ODI) questionnaire and Visual Analogue Scale (VAS) and with conventional X-ray and spine CT for the instrumental part.

Conservative treatments like rest, physiotherapy, Nonsteroideal anti-inflammatory drugs (NSAIDs) failed.

Follow-up was 18 months for the first patient, 10 years and 8 months for the second one.

Case 1

In 2011 a 45 years old woman treated at the age of 17 years old for idiopathic scoliosis with T4-L4 fusion with Harrington instrumentation came to our observation with lumbar bilateral sciatica.

The patient had an ODI score of 78% and a VAS of 7.

Conventional X-rays highlight degenerative spondylolisthesis with secondary stenosis of L4 on L5 and mobilization of distal hook, in hemi-sacralization of L5-S1 (Fig. 1).

After conservative treatment failure, patient underwent to surgical L4-L5 decompression and stabilization with pedicle screws and rod (XIA, Stryker, Michigan, USA) with removal of the mobilized device (Fig. 2).

Figure 1. Case 1. X-ray. Mobilization of the distal hook with degenerative spondylolisthesis and secondary stenosis of L4-L5

Figure 2. Case 1. X-ray. Removal of mobilized instrumentation, stabilization and decompression with L4-L5 pedicle screws

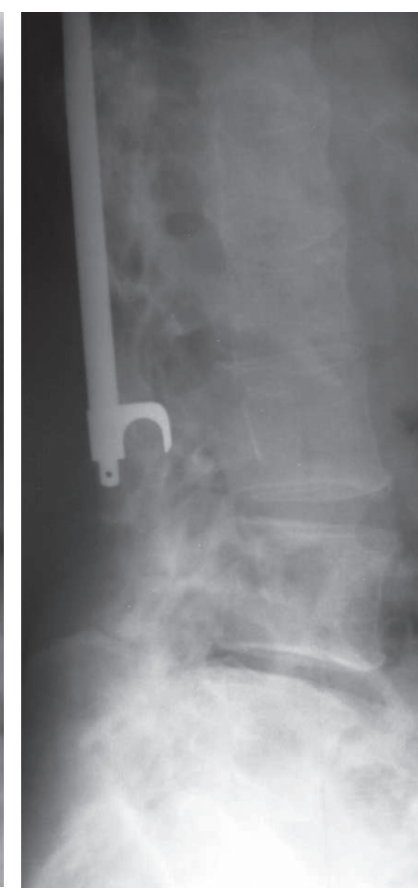

Figure 3. Case 2. X-ray. Degenerative spondylolisthesis of L4-L5

Case 2

In 2002 a 64 years old woman treated at the age of 24 years old for idiopathic scoliosis with T3-L3 fusion with Harrington instrumentation came to our observation with claudicatio and radiculopathy.

The patient had an ODI score of 84% and a VAS of 9.

Conventional X-rays and CT show a L3-L5 stenosis with degenerative spondylolisthesis of L4-L5 (Fig. 3, Fig. 4).

After conservative treatment failure patient underwent to a two-stages (posterior and anterior) circumferential L3-L5 decompression and stabilization. The first surgical step was a decompression and stabilization with XIA pedicle device and rod, while the second one was L3-L4 and L4-L5 anterior interbody fusion with titanium mesh (Fig. 5).

Antithrombotic and short-term antibiotic prophylaxis were administered to all patients. Both patients had a regular recover without complications.

Clinical pre-operatory pain had a favourable evolution with a reduction of ODI rate respectively to 30% and 42%, while VAS rate was respectively 3 and 6 at the last follow-up.

At the follow-up the arthrodesis appeared fused, without mobilization signs or instrumental breakage.

Discussion

If revision surgery for FBSS is technically challenging and may be associated with high risk of com-

Figure 4. Case 2. CT. Stenosis with degenerative spondylolisthesis of L4-L5

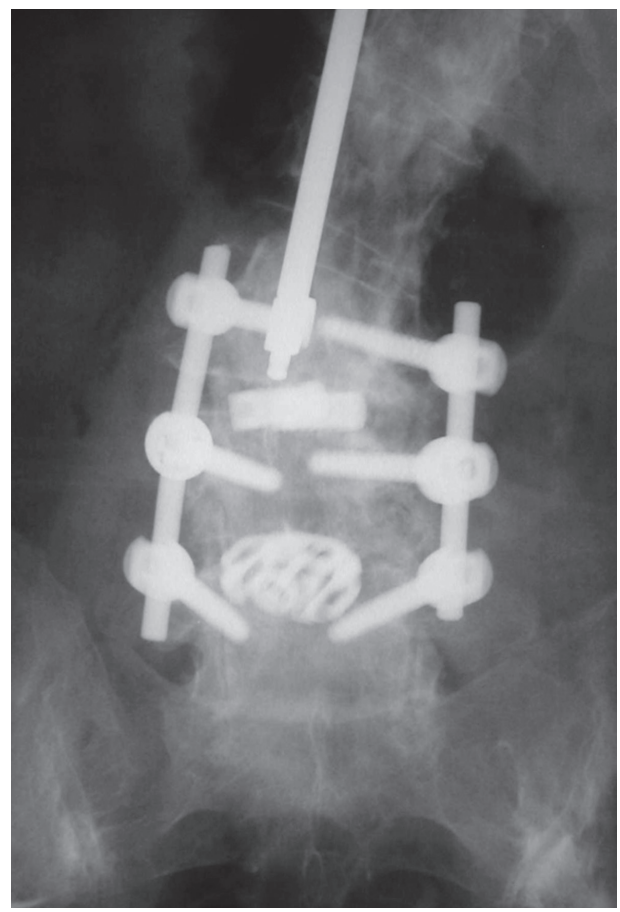

Figure 5. Case 2. X-ray. Circumferential L3-L5 stabilization and decompression with pedicle instrumentation and L3-L4 and L4-L5 anterior interbody fusion

plications like dura mater and nervous lesions, and lower clinical outcomes, revision surgery in patients treated more than 20 years before with spinal fusion and Harrington Rod stabilization for adolescent scoliosis is even more challenging.

In a retrospective study, Cho et al revealed 34,4% of serious complications in patients who had a surgical multilevel revision operation for spinal deformity, with a negative impact on clinical outcomes (6). Moreover, Glassman et al described a perioperative complication rate of 62% in revision spine surgery performed after previous operations for scoliosis (7-9).

In case of FBSS in patients treated with correction and stabilization with Harrington instrumentation, when the conservative treatment fails, surgery seems to be the only valid choice. Pitfalls in these cases are related to the subverted anatomy of the spine due to the huge amount of bone fusion, so every case differs from another and surgical solution is custom made.

Ehtical standards: the patient provided his consent to the publication of this report

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