

**SEGMENTAL INSTABILITY FOLLOWING LUMBAR
PARTIAL OR COMPLETE LAMINECTOMY**

Essay

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بسم الله الرحمن الرحيم

"ويسئلونك عن الروح قل الروح من أمر ربي
وما أوتيتم من العلم إلا قليلاً"

صدق الله العظيم

(سورة الإسراء، الآية: 85)

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DEDICATION

To my **Parents** who support me,

To my wife **Neveen** for her patience and support,

To my lovely daughter **Aya**

CONTENTS

	Page
■ Introduction	1
■ Chapter I: Anatomy of the Lumbar Spine and Lumbosacral Region	5
■ Chapter II: Biomechanics of the Lumbar Spine	29
■ Chapter III: Clinical Picture of Lumbar Instability	52
■ Chapter IV: Radiological Evaluation of Lumbar Intervertebral Instability	67
■ Chapter V: Treatment of Instability Following Lumbar Partial Or Complete Laminectomy	79
■ Case Presentation	106
■ Summary	121
■ References	124
■ Arabic Summary	134

LIST OF TABLES

Table	Title	Page
1	Grading Motor Function	59
2	Grading of deep tendon reflexes	60
3	Angles of vertebral translation	73

LIST OF FIGURES

Fig.	Title	Page
1	Lumbar vertebra, (A) from above, (B) from the left	12
2	The sacrum and coccyx. (a) An anterior view and (b) a posterior view	12
3	Ligaments of the lumbar spine	18
4	Superficial and Intermediate Layers (right) and deep (left) layers of the posterior muscles	22
5	The three anatomic sections marked to designate different pain sources	27
6	The “column” concepts of spinal instability. The two-column concept compromises two sets of anatomically defined structures, including the vertebral body, the intervertebral disc, and the anterior and posterior longitudinal ligaments (A).the three-column concept emphasizes the importance of the neural axis of the spine, which comprises the dorsal half of the vertebral body and intervertebral disc, and the posterior longitudinal ligament (B)	43
7	Lateral radiograph of lumbar spine shows traction spur (arrow)	69
8	Functional lateral radiographs of lumbar spine show L ₄₋₅ intervertebral instability with 17° sagittal rotation between (a) flexion and (b) extension. Sagittal rotation corresponds to the variation of the angle (lines) between vertebral endplates adjacent to the disc	71
9	Functional CT with vertebral instability. (a) Extension and (b) flexion sagittally reformatted images show intradiskal vacuum phenomenon during extension (arrow in a) and degenerative spondylolisthesis during flexion (arrow in b) with anterior sagittal translation exceeding 4 mm	72
10	Posterior sliding instability at L ₂₋₃	72
11	Sagittal translation is measured by drawing lines U and L along the posterior cortices of upper and lower vertebral bodies.	74
12	Transverse CT scans at L ₄₋₅ level in 54-year-old woman with characteristic triad of rotatory spondylolisthesis. (a) Asymmetric subluxation of L ₄₋₅ facet joints maximal on the right side (arrow). (b) Narrowing of the right lateral recess (arrow). (c) Ipsilateral foraminal L ₄₋₅ disk herniation (arrow) impinging on the right L ₄ nerve root	76
13	Intervertebral disk annular tear in. Sagittal T2-weighted image of lumbar spine shows annular tear (arrow) of L5/s1 disc	77

Fig.	Title	Page
14	L ₅ –S ₁ posterior lumbar interbody fusion: Lateral X ray	85
15	Anterior lumbar interbody fusion: Lateral view	86
16	Posterolateral intertransverse process fusion: Lateral view	87
17	Pedicle screw fixation: Superior view	88
18	Pedicle screw fixation: Posterior view	88
19	Three techniques of pedicle screw insertion	89
20	MRI lumbosacral spine (sagittal T2 Image on the left and axial T2 view on the right) showing L5/S1 spondylolithesis with canal stenosis.	108
21	Plain x-ray lateral view showing L5/S1 and fracture pars interarticularis.	108
22	Dynamic view (flexion on the left, extension on the right) showing segmental instability at L1/2.	110
23	MRI lumbosacral spine sagittal T2 Image showing L1/2 disc prolapsed and cord compression with canal stenosis, and osteophytes.	110
24	Postoperative lumbosacral spine x-rays show (AP on the left, lateral on the right) show transpedicular fixation by rods and screws at L1/2.	110
25	.MRI lumbosacral spine (sagittal T2 Image on the left and axial T2 view on the right) showing postoperative L4/5 laminectomy and spondylolithesis with bilateral lateral recesses stenosis and central disc fragment.	112
26	Postoperative x-rays(lateral on the right and AP view on the left)show transpedicular fixation by rods and screws at L4/5.	112
27	MRI lumbosacral spine (sagittal T2 Image on the left and axial T2 view on the right) showing postoperative L4/5 laminectomy with left lateral recesses stenosis.	114
28	Dynamic view (flexion on the left, extension on the right) showing L4/5 instability with sagittal rotation between flexion and extention	114
29	Postoperative x-rays lateral view show transpedicular fixation by rods and screws at L4/5.	114
30	MRI lumbosacral spine show high T2 signal: postoperative L4 laminectomy ,moderate disc degeneration an left lateral recesses stenosis	116
31	Plain X-rayes shows mild disc space narrowing, osteophytosis and osteosclerosis at L4/5	116
32	Postoperative x-rays(lateral on the right and AP view on the left)show transpedicular fixation by rods and screws at L4/5.	116

Fig.	Title	Page
33	Postoperative x-rays, lateral view show transpedicular fixation by rods and screws at L4/5	118
34	Postoperative x-rays, lateral view show transpedicular fixation rods and screws at L3/4/5	120

ABSTRACT

Segmental instability of the lumbar spine can be defined as an abnormal motion between one or more vertebrae. This motion may cause mechanical irritation of the intraspinal nervous tissue, thus, inducing pain and/or neurological deficits. The clinical presentation of lumbar instability is characterized by chronic local low back pain. Mechanical lumbar instability could be diagnosed radiologically by neutral radiograph either by moderate disc degeneration with mild narrowed disc space associated with osteosclerosis or osteophytosis, presence of traction spur va cum phenomenon. It also could be diagnosed by functional radiographs, CT or functional CT and M.R.I .Treatment either nonoperative as weight reduction, exercise, physiotherapy and medication or operative treatment which is indicated in failed nonoperative treatment or incapacitating manifestation by fusion.

KEY WORDS: Instability, Lumbar spine, Low back pain, Fusion .

INTRODUCTION

INTRODUCTION

The human spine is an articulated segmental structure that serves the dual purpose of protection and motion, formed of thirty three vertebrae segmentally connected with one another, forming a protective housing for the spinal cord and nerves **(Bell, 1996)**. There are seven cervical, twelve dorsal, five lumbar, five sacral vertebrae and variable number, usually four of coccygeal vertebrae. The five sacral vertebrae fused into one single bone called sacrum. Which articulates on each side with the pelvic bone and is a component of a pelvic wall **(Dark et al., 2005)**.

Segmental instability of the lumbar spine can be defined as an abnormal motion between one or more vertebrae. This motion may cause mechanical irritation of the intraspinal or intervertebral nervous tissue, thus, inducing pain and/or neurological deficits **(Fryinoyer and Selby, 1985)**.

The assessment of spinal instability is facilitated by conceptually dividing the spine into two or three columns. The advantage of three column concept is its provision for specific assessment of the middle column, the special significance of which is related to its substantial axial load-bearing capacity, its importance in spinal movement and flexibility, and its proximity to the spinal canal,

where disruption may result in neural element compromise **(Alberstone et al., 1999)**.

The clinical presentation of lumbar instability is characterized by chronic local low back pain. The patient may also suffer from sudden attacks of stabbing, sharp low back pain which sometimes radiate into the leg. During these episodes, the patient often experiences temporary sciatica. In addition, there may be tenderness on palpation of the low back associated with painful muscular spasm. Typically, the clinical course of instability-associated symptoms fluctuates between periods of alleviation and deterioration **(Kotilainen et al., 1994)**.

At the present time, little is known about the development and progression of lumbar instability in patients who have been operated upon disc herniation. Yet, it is commonly believed that instability may occasionally play an essential role in the development of the failed back surgery syndrome after discectomy **(Bernard, 1993)**.

Severe spinal stenosis or ruptured/herniated discs are often treated by lumbar decompression. Although non-operative treatment and minimal invasive approach are often regarded as the gold standard of treatment **(Atlas et al., 2000)**. The degree of stenosis determines the indication for mono- or bilateral hemifacetectomy,

mono- or bilateral laminectomy or even laminectomy on two levels **(Niggemeyer et al., 1997)**.

Disc prosthesis could offer relief from degenerative spine pain related to micro-instability in the disc space **(Michael et al., 2006)**.

**ANATOMY OF THE LUMBAR SPINE
AND LUMBOSACRAL REGION**