

# Cohort study of risk factors related to reoperation after microsurgical bilateral decompression via a unilateral approach (MBDU) for treatment of degenerative lumbar disease

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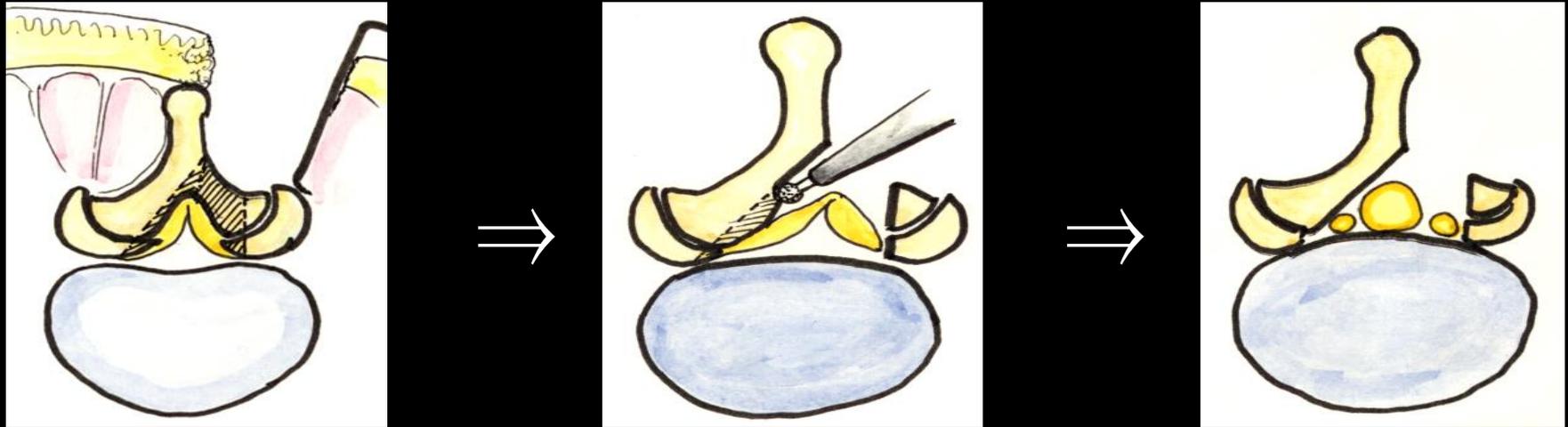
# INTRODUCTION

Surgical management of degenerative lumbar disease has become progressively less invasive.

Preservation of the posterior spinal elements is the most important factor for successful decompression surgery of lumbar canal stenosis.

Some authors have reported good clinical outcomes following microsurgical bilateral decompression via a unilateral approach (MBDU).

This approach involves a less invasive technique that preserves the posterior elements, including the paravertebral muscle, facet joints, and central elements.



MBDU has the potential to offer a significantly less morbid alternative to decompression and fusion in patients with degenerative spondylolisthesis and/or scoliosis.

However, few researchers have examined the complications that patients experience after undergoing MBDU or the risk factors that might preclude certain patients from MBDU.



## **PURPOSE**

To examine inclusion criteria of MBDU for patients with a lumbar degenerative disease with instability and scoliosis.

# MATERIALS

2007~2010 in Osaka City General Hospital

consecutive 255 patients (48 patients dropped out )

⇒ **207 patients**

88 women, 119 men, 70 yo (40-86)

**(follow up rate: 81.2%)**

Diagnosis	Case
Lumbar canal stenosis (LCS)	119
Degenerative lumbar spondylolisthesis (DO)	53
Degenerative lumbar scoliosis (DLS)	27
DO and DLS (DOLS)	8

## METHODS

To evaluate patients by using clinical outcome, preoperatively and 2 year after the operation. **(follow-up period: 2 years)**

## EVALUATION

- Prevalence of reoperation after MBDU
- Clinical outcome (JOA score, SF-36, VAS)
- Preoperative radiographic factors related to reoperation

# RESULTS

## Reoperation after MBDU at the same level of the decompression

**6.3% (13/207 cases) 4.5% (14/309 discs)**

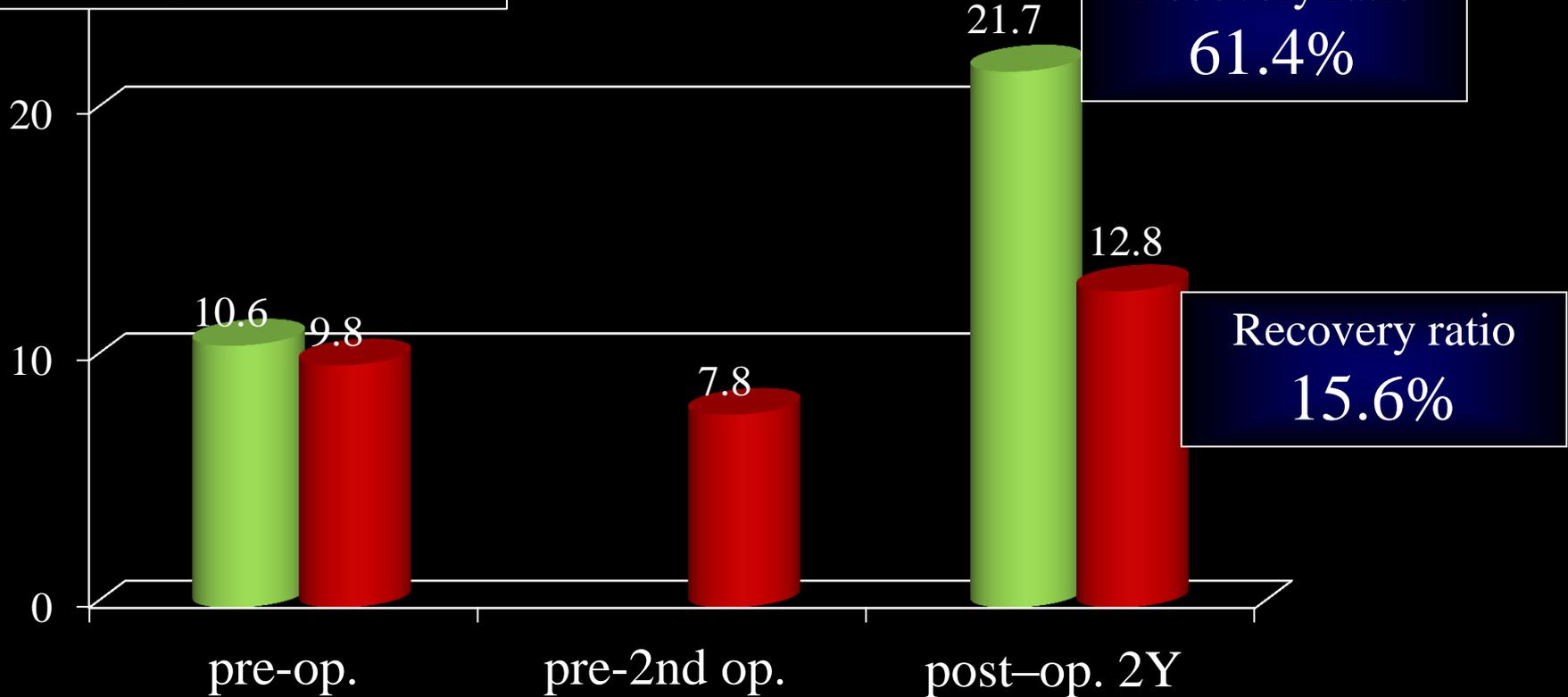
Cause of reoperation	case
Radicular pain due to intraforaminal stenosis	6
Development of disc herniation	4
Exacerbation of disc degeneration	2
Low back pain due to intraspinal facet cyst	1

Level	disc	Rate of reoperation (%)
L2/3	1	5.3
L3/4	4	4.0
L4/5	9	5.0

# JOA score

■ : non re-ope. cases

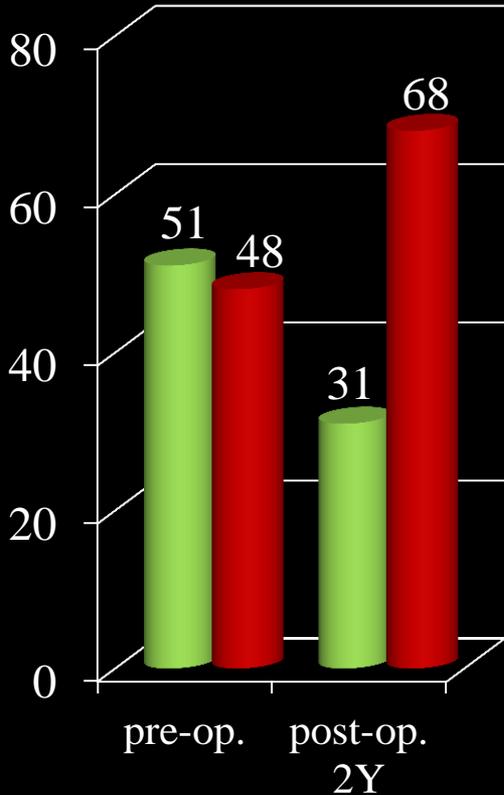
■ : re-ope. cases



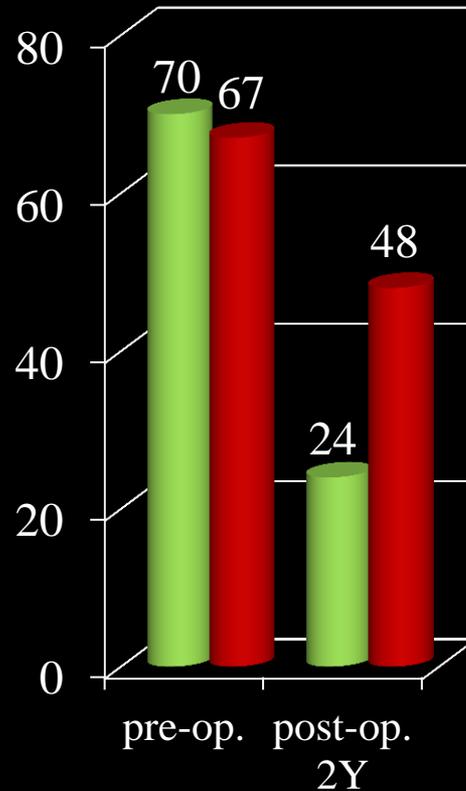
the JOA score of the reoperated cases was 9.8 points preoperatively. This score aggravated to 7.8 points before the second operation and ended at 12.8 points at the final follow-up. Therefore, the recovery ratio of the reoperated cases was 15.6%, which was lower than the recovery ratio of the cases without reoperations.

# Visual Analog Scale

## L.B.P.

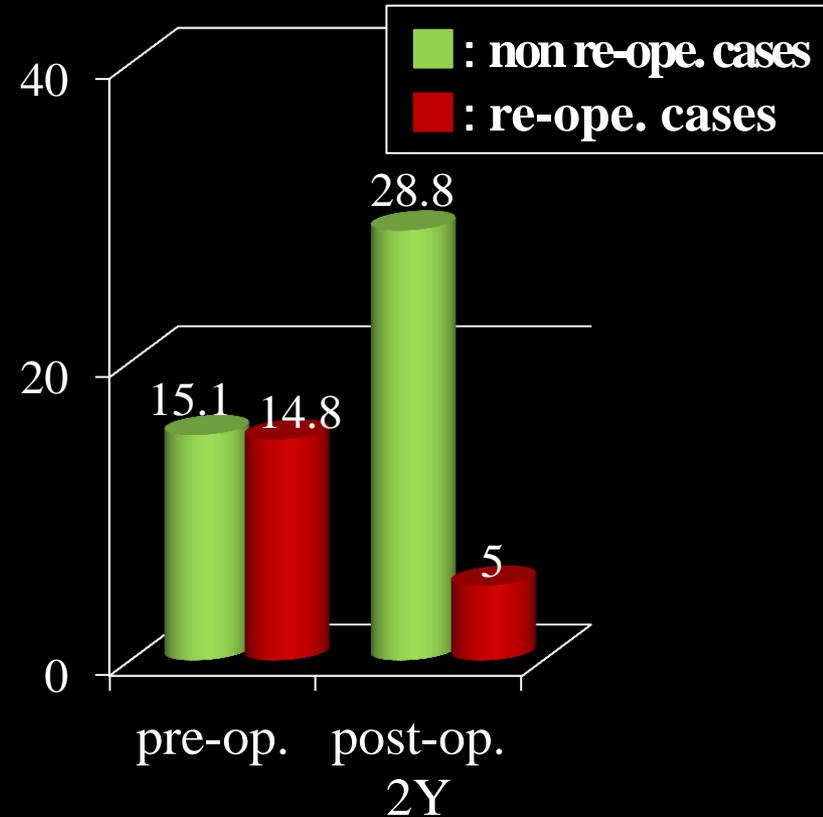


## Leg numbness



# SF-36

## PF (Norm-based Scoring)



The Visual Analog Scale of low back pain and leg pain from reoperated cases at 2 years after the initial operation was higher than that of non-reoperated cases.

The physical functioning of SF-36 among the reoperated cases at 2 years after the initial operation was poor. The clinical outcome of reoperated cases was lower than that of cases without reoperations.

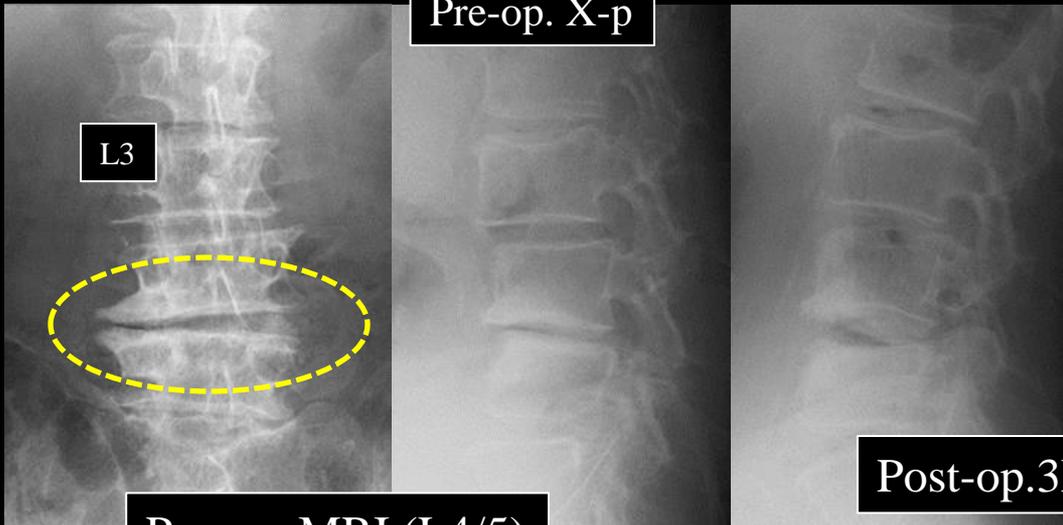
# Preoperative radiographic factors related to reoperation after MBDU in L4/5

	Odds Ratio	P value
A-p instability	3.52	N.S.
L1-5 Scoliosis (prone)	1.14	N.S.
L1-5 Scoliosis (standing)	0.7	N.S.
<b>Scoliotic disc wedging (prone)</b>	<b>9.88</b>	<b>0.028</b>
Scoliotic disc wedging (standing)	5.02	N.S.
<b>Lateral listhesis (prone)</b>	<b>12.9</b>	<b>0.023</b>
Lateral listhesis (standing)	6.84	N.S.

The L4/5 cases that required reoperation were significantly associated with scoliotic disc wedging and lateral listhesis in the prone position.  
The odds ratio of scoliotic disc wedging and lateral listhesis was 9.88 and 12.6, respectively.

# Case: 68 yo M

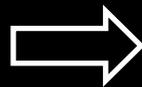
Pre-op. X-p



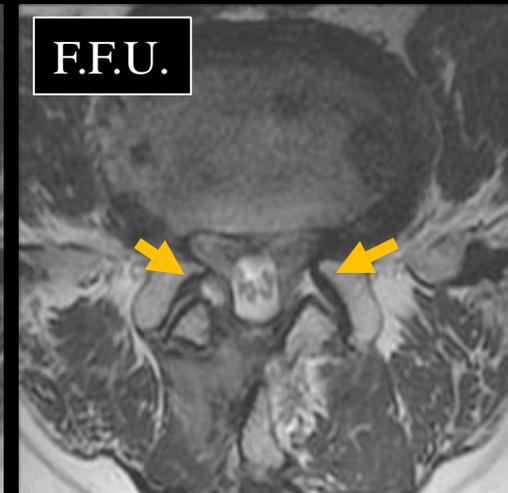
JOA score: Pre-op. 12pnts  
Post-op. 2Y : 16 points  
(Recovery rate: 27.8%)

Post-op.3M

Pre-op. MRI (L4/5)



F.F.U.



After this patient underwent MBDU, his intermittent claudication disappeared, but disabling lower back pain appeared 2 months postoperatively, and this new pain resisted conservative treatment even 2 year after the operation.

Moreover, intraspinal facet cysts were observed at 3 months and at the final follow-up. The patient's recovery rate at 2 year after MBDU was 27.8%.

# DISCUSSION

Does MBDU has the potential of offering a less morbid alternative to decompression and fusion in patients from lumbar degenerative spondylolisthesis or degenerative scoliosis ?

Spine. 2010 Sep 1;35(19):E981-7.

*Kelleher MO, et al.*

Study to evaluate 75 patients performed by MBDU  
(5 years follow-up).

## Results

- Overall revision rate was 10% (n=8)
- **Revision rate for patient with scoliosis was significant high.**
- **Six of the 8 revised patients had a preoperative lateral listhesis.**

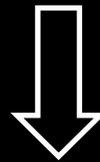
## Conclusion

Patients with scoliosis and lateral listhesis have a significantly higher revision rate, so these conditions must be considered in operative decision-making for degenerative scoliosis.

Seikei saigaigeka 2006, 49 p585-587 (in Japanese).

*Konno S, Kikuchi S.*

- Using instrumentation on fusion operations does raise the fusion rate, but it does not improve clinical results.
- The use of the instrument increases the incidence of complications.
- Although fusion operation for spondylolisthesis produced good results in comparison with decompression, the scientific evidence in support of these results is sparse.



There is no consensus over the inclusion criteria of MBDU for lumbar spondylolisthesis or lumbar degenerative scoliosis.

# CONCLUSIONS

This study

- The clinical result of the cases with reoperation was poor.
- The duration from the initial operation to reoperations was very short for this condition.
- Scoliotic disc wedging ( $>3^\circ$ ) or lateral listhesis in L4/5 appear to be risk factors of reoperation after MBDU.



Surgeons should reconsider the indication of MBDU for cases with these risk factors.

Our presentation has no potential conflict of interest disclosure.