

# Clinical outcomes after posterior cervical decompression and fusion surgery for destructive spondyloarthropathy in long-term hemodialysis patients

Kazuki Kusuyama, Keishi Maruo, Arizumi Fumihiro,  
Shinichi Yoshiya, Toshiya Tachibana

Dept. of Orthopaedic surgery, Hyogo College of Medicine



# Introduction 1

- Cervical destructive spondyloarthropathy (DSA) including destructive kyphosis, vertebral slippage, and extradural amyloid deposit often leads to cervical myelopathy in long-term hemodialysis patients.
- Decompression and instrumented fusion surgery are required to stabilize these conditions. Mineral bone disease in DSA patients may increase the risk of implant-related complications.



# Introduction 2

- Surgical outcomes after instrumented fusion surgery for cervical DSA is still unclear.
- The objective of this study was to compare the clinical outcomes and complications of cervical DSA in long-term hemodialysis patients versus control group (non-hemodialysis patients) after instrumented fusion surgery.



# Materials and Methods

## DSA group

- A consecutive series of 20 long-term hemodialysis patients.
- Instrumented fusion surgery between 2010 and 2016

## Control group

- The age, gender, and the number of fused levelmatched control group consisted of 20 patients
  - Cervical spondylotic myelopathy in 10 patients
  - Ossification of the posterior longitudinal ligament in 10 patients

## Surgical procedure

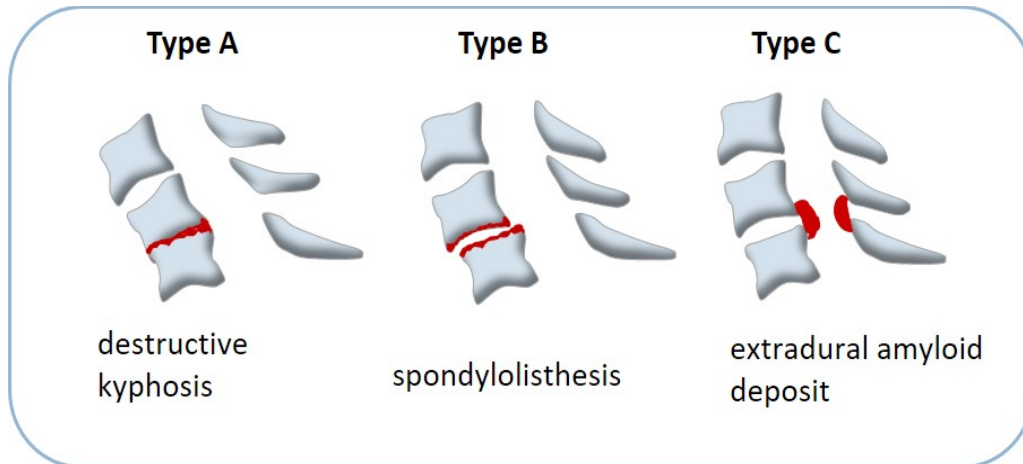
- Pedicle screws (PS) in the C2, C7
- Lateral mass screws (LMS) in the C3–6 vertebrae



# Patient characteristics

	DSA group (n=20)	Control group(n=20)	P
Age (yr)	65±7.6 (50-77)	68.9±7.4 (53-81)	0.113
Sex, male/female (n)	11/9	12/8	1
Duration of follow-up (month)	31±18	24±10	0.119
Duration of hemodialysis (yr)	23.1±7.8		

## The types of DSA



Type A : 3 cases  
 Type B : 7 cases  
 Type A and B : 8 cases  
 Type C : 2 cases

# Result (Clinical outcome)

	DSA group (n=20)	Control group(n=20)	P
Preoperative acute exacerbation of CSM	11/20 (55%)	3/20 (15%)	0.019*
Operation time (min)	217.8±53.3	201.9±31.8	0.258
Blood loss (ml)	227±275	151±161	0.292
Number of fused levels	4±1	4±1.3	1
Infection	0	0	
C5 palsy	1	1	1
Perioperative death	2	0	
JOA score recovery rate	41.2(%)	36.5(%)	0.44



# Results (Radiographic outcome)

Comparison of Cobb angle of the fused segments

	DSA group	Control group	P
Preoperative Cobb angle	-0.5±11.7	0.1±15.3	0.894
Postoperative Cobb angle	3.2±7.4	3.4±10.9	0.952
Cobb angle at FFU	-2.1±10.1	1.4±12.3	0.345
Loss of Correction	5.3±4.9	2.0±3.1	0.016*



# Results (Radiographic outcome)

Comparison of radiographic outcome

	DSA group (n=18)	Control group (n=20)	P
Loss of correction ( $>5^\circ$ )	44% (8 cases)	10% (2 cases)	0.027*
Pseudarthrosis	17% (3 cases)	5% (1 cases)	0.328
Lateral mass fracture	33% (6 cases)	10% (2 cases)	0.235
Adjacent segment disease	11% (2 cases)	10% (2 cases)	0.17





# Discussion

	N	Duration of follow-up(Yr)	Surgical procedure	Fusion rate	ASD
Abumi, 2000	15	4	PS +ASF	93%	13%
Sudo, 2006	10	10	PS +ASF	90%	40%
Yuzawa, 2006	9	2	PS+LMS	67%	0%

# Conclusion

- Surgical treatment for cervical DSA is challenging because of poor bone quality in long term hemodialysis patients.
- Clinical outcomes showed significant recovery in both groups.
- Posterior cervical decompression and fusion surgery was effective for treating DSA.

Disclosure of conflict of interest : None

