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Differences in clinical characteristics of patients undergoing spinal surgery for posterior longitudinal ligament ossification associated cervical/thoracic myelopathy and those with degenerative diseases

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INTRODUCTION

Ossification of Posterior Longitudinal Ligament (OPLL): unknown etiology

- Derangement of carbohydrate
- Lipid metabolism
- Race difference
- Genetic association

Shingyouchi Y, Spine. 1996
Fujimori T, Spine. 2015
Kobashi K, Spine. 2004

Our clinical impression of patients having OPLL: “obese body shape”

Presentative case: Thoracic OPLL

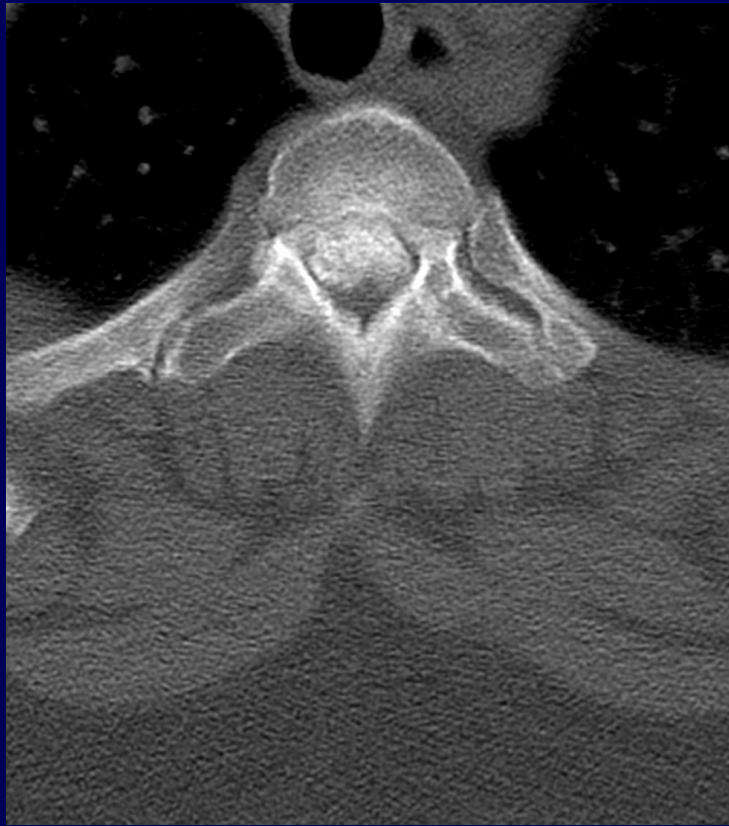
- 33 y/o, Female
- Height: 153.5cm
- Weight: 109.7kg
- Body Mass Index (BMI): 46.6



Prone position



Postoperative X-ray



Axial CT image

We evaluated clinical characteristics of OPLL comparing with degenerative spinal disorders.

MATERIALS AND METHODS

Retrospective study from July 2010 to December 2016

Single institute: Saitama Medical Center

Consecutive cases having spinal surgery for OPLL and degenerative spinal disorders

- Clinical data collected: Age, Sex, Height, Weight, BMI, Diabetes Mellitus (DM), Dyslipidemia

Four groups classified according to spinal level

- cervical degenerative spinal disorders; CD
- thoracic degenerative spinal disorders; TD
- cervical OPLL; COPLL
- thoracic OPLL; TOPLL

Statistical analysis (JMP 14, SAS Institute, Cary, NC, USA)

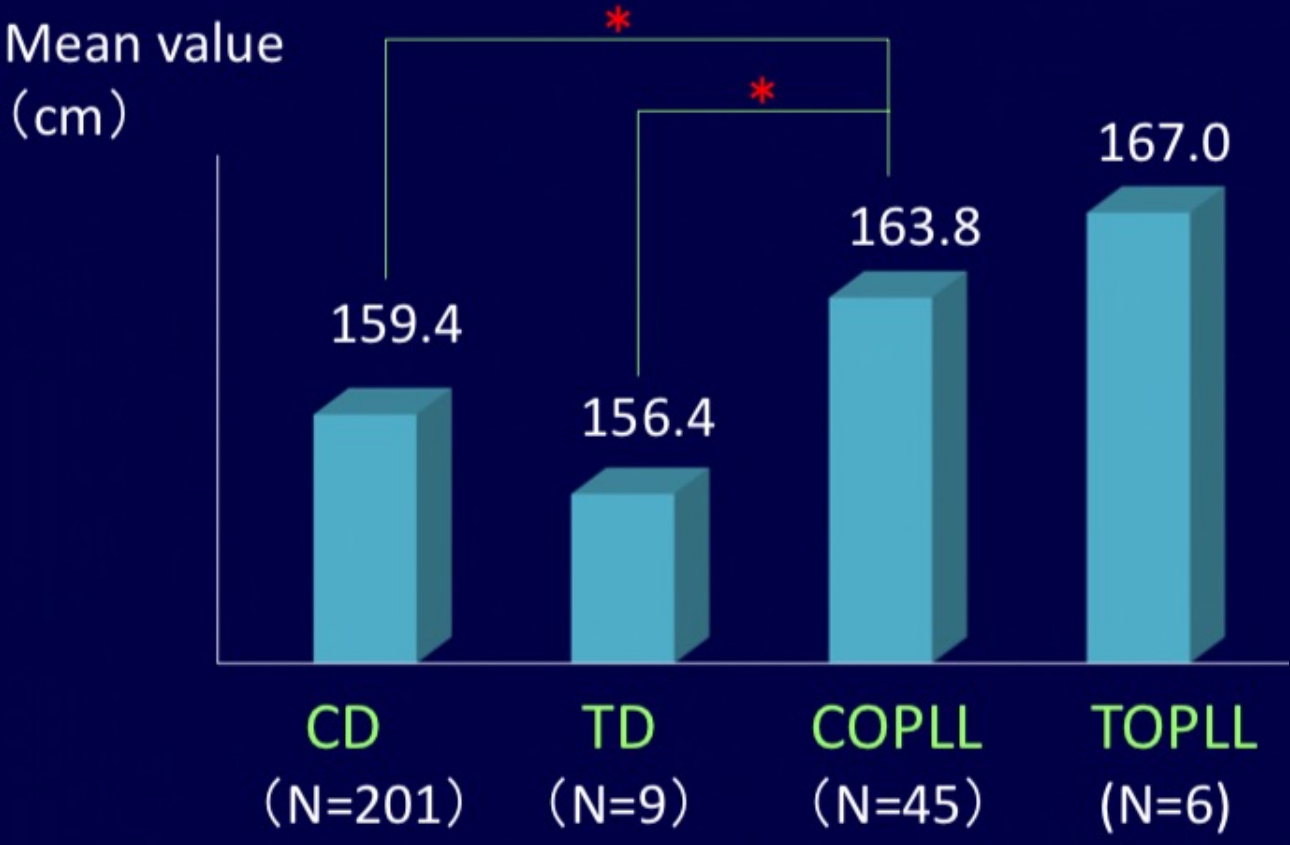
P-value < 0.05 indicated statistical significance

Chi-square and Fisher exact test for categorical variables

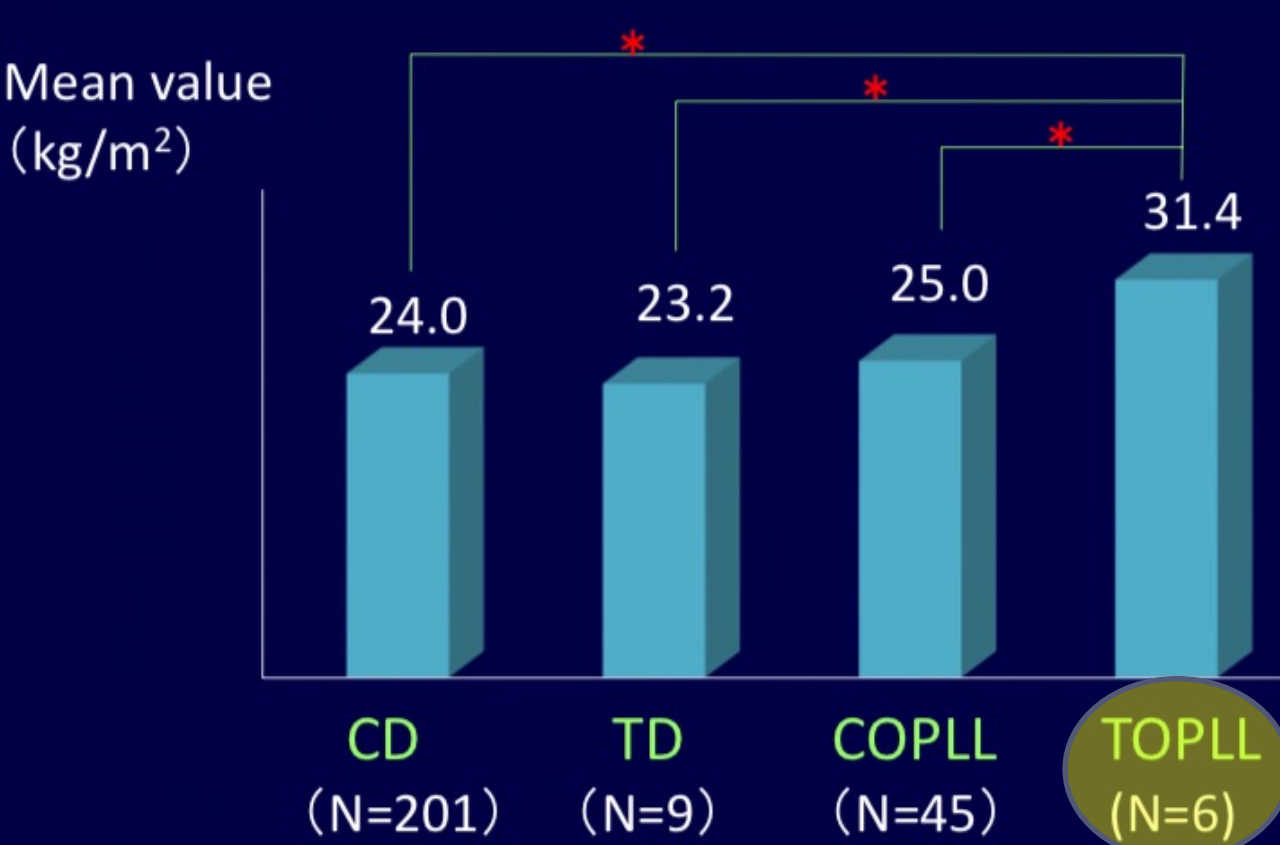
Student T-test and Wilcoxon rank sum test for continuous variables

RESULTS

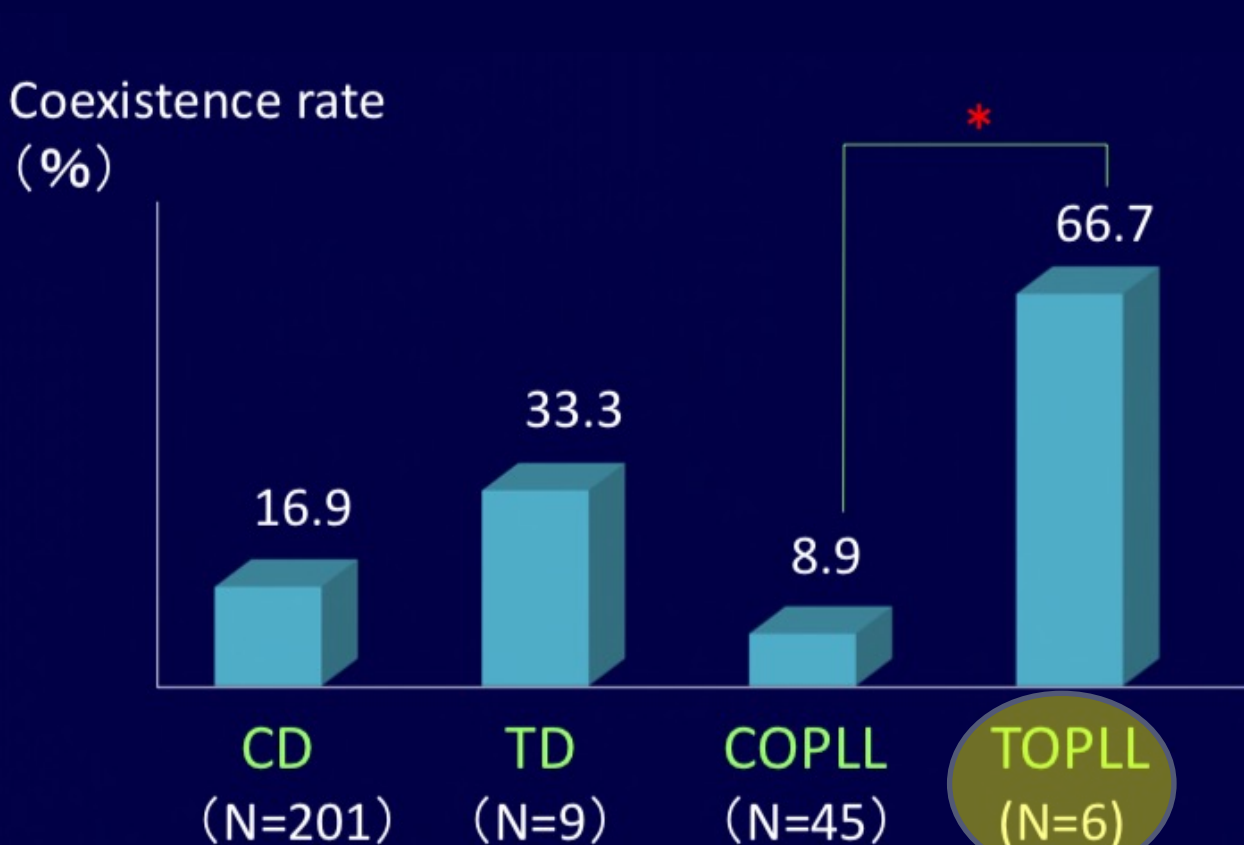
n=261	CD (201)	TD (9)	COPLL (45)	TOPLL (6)
Age, year	62.5	68.0	64.0	59.0
Male, %	69.2	44.4	75.6	66.7



Body height



BMI



DM

DISCUSSION

Physical and glucose metabolic characteristics in cases with OPLL

- Patients with OPLL were taller than degenerative spial disorders.
- Patients with TOPLL were obesity and had DM comparing with COPLL.
- Those results suggests a stronger association with genetic and environmental factors.

Akune T, J Bone Joint Surg Am. 2001
EndoT, J Bone Miner Metab. 2020

Challenging surgery for TOPLL

- High morbidity after surgery for TOPLL was previously reported.
- Deep surgical field because of obesity produces technical difficulties.
- DM affects several surgical complications.
- Instrumentated fusion is frequently required for TOPLL.

Ito Z, Spine. 2016
Imagama S, Spine. 2018
Kawaguchi Y, Spine. 2000
Yamazaki M, Eur Spine J. 2010

CONCLUSION

- TOPLL tended to have severer obesity, the higher coexistence rate of DM compared to COPLL, which may suggest a stronger association with genetic and environmental factors.
- The distinctive characteristics of TOPLL might have indirect influence on postoperative outcome.

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