

<sup>1</sup>Osaka City University Graduate School of Medicine

Kazuki Mizutani<sup>1</sup>, Masashi Nakagawa<sup>1</sup>, Kazunori Terashita<sup>1</sup>, Hirotoishi Ishikawa<sup>1</sup>, Yujiro Matsuoka<sup>1</sup>, Yota Nomoto<sup>1</sup>, Yuya Sakamoto<sup>1</sup>, Nobuyuki Shirai<sup>1</sup>, Masahiko Takagi<sup>1</sup>, Minoru Yoshiyama<sup>1</sup>

**Purpose:** The aim of this study is to investigate the safety and the debulking effect of high and low-speed rotational atherectomy at calcified lesion, using optical frequency domain imaging (OFDI). **Methods:** We performed 51 cases of RA between April 2014 and December 2015. Among them, 25 cases underwent RA with low speed, and 26 cases were with high speed. Furthermore, 14 cases in LS group and 11 cases in HS group were OFDI (Terumo, Tokyo, Japan) guided. We retrospectively investigated the frequency of perioperative complications in each group. Moreover, in both HS and LS with OFDI group, lumen area, calcium area, depth, and angle were traced on the most stenotic lesion with severe calcification in both before and after RA procedure. **Results:** LS RA was successfully performed in all patients. On the other hand, although only 1 patient in HS RA group complicated the coronary perforation, no significant difference with respect to incidence rate of complications (procedural myocardial infarction, coronary perforation, no/slow flow, side branch occlusion) between HS and LS group. However, incidence rate of procedural bradycardia was significant lower in LS group (4% vs 31%,  $P=0.012$ ). OFDI analysis revealed that calcium debulking area by RA in LS group were significantly larger than those of HS group ( $0.68\pm 0.40$  vs  $0.27\pm 0.30\text{mm}^2$ ,  $P=0.011$ ). **Conclusion :** This study demonstrates that although it might be below in passing ability at calcified lesion, a low-speed RA is a safe procedure and enables us to gain more efficient debulking effect.