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Backgrounds: Recent studies indicate overlap drug eluting stent (DES) implantation leads to restenosis of overlapped stents segment. In this study, cause of restenosis in overlap DESs implantation was evaluated from intravascular ultrasound (IVUS) measurements. Method: Seventeen homogenous overlap DES segments (Cypher: 20, TAXUS: 14), 6 overlap DES segment with instent restenosis (% diameter stenosis < 50% in angiogram) at overlap segment (ISR group) and 11 overlap DESs segment without restenosis (NISR group) at 8 month after PCI enrolled the study. Each group measured IVUS every 1mm (total 3mm) at proximal and distal overlap stent edge (segment with single strut layer) and 3 points, proximal edge, median part, distal edge of overlap stent segment (segment with 2 strut layer) compared the variables of stent area (SA), vessel area (VA), peri-stent plaque area (PA), %SA=SA/VA\*100, %PA=peri-stent PA/VA\*100 between 2 groups. Result: Baseline characteristics were similar. No significant difference in IVUS measurements of proximal and distal segment (segment with single strut layer). But in overlap stents segment (segment with 2 struts layer), %SA was significantly small (ISR v. s NISR,  $38 \pm 11\%$  v. s  $50 \pm 5\%$   $p < 0.01$ ) in proximal edge of ISR group, without any differences in VA or PA. Conclusion: In-stent restenosis of overlap stent may be related to stent under expansion of overlapped stent, especially proximal overlap segment needs to be enlarged.