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Background: Arrhythmia (atrial fibrillation), blood pressure, and lesion location (bifurcation) has not been evaluated as causes of stent fracture. Methods: Subjects were 204 patients, 272 lesions, who were able to undergo follow-up angiography after Sirolimus-Eluting Stent implantation (SES). Stent fracture was defined as complete separation of stent strut by late angiography. Results: Lesions with stent fracture were classified the F group (n=32) and those with no fracture the non-F group (n=240). Results: The F group had significantly longer total stent length with F group 54.0 ± 23.3 mm and non-F group 29.5 ± 14.6 mm ($p < 0.01$). The F group had significantly higher blood pressure with F group $131 \pm 15/64 \pm 9$ mmHg and non-F group $122 \pm 15/68 \pm 8$ mmHg ($p < 0.05$). Bifurcation was significantly lower in the F group with F group 19% (6/32) and non-F group 44% (105/240) ($p < 0.05$). There were no atrial fibrillation patients in F-group. Lesion with overlapping stenting was significantly higher in the F group with F group 81% (26/32) and non-F group 37% (89/240) ($p < 0.05$). The F group had significantly higher hinge movement with F group 38% (12/32) and non-F group 16% (39/240) ($p < 0.05$). Conclusion: SES fracture was especially tend to occur in cases with hypertension, high hinge movement, overlapping stenting, non-bifurcation and long stenting. There was no stent fracture in atrial fibrillation cases.