RESULTS: The failure rate of CTO PCI was 10.5% cases. The causes of failure were found to be most commonly coronary guide wire could not cross the lesion, balloon Uncrossable lesions followed by unable to deploy stent due to no satisfactory TIMI (less than TIMI III) flow.

In 35 patients (7.99) coronary guide wire could not able to cross the lesion. The balloon uncrossable lesions were found in 29 (7.19%) patients. The involved vessels were most commonly RCA in 14 patients (48.27%) followed by LCx in 8 patients (27.58%) and LAD in 7 patients (24.13%). In four patients (0.9%) unable to deploy the stent due to long dissection; small vessels, diffuse disease, unyielding lesions and achieved flow less than TIMI III.

The various techniques to increase guiding catheter support and to modify the lesion were considered in balloon uncrossable lesions. We successfully facilitated the balloon and achieved adequate lesion dilation in 22 patients (75.86%) out of 29 patients. All the cases of CTO PCI were done with guiding catheters of 7, 8 Fr size with good back up support as per decided as initial strategy. In spite of all these various techniques, in 7 patients (24.12%) lesions were resistant to cross with the balloon. The lesion site calcification was invariable present in all patients. The tortuosity at lesion site was noticed in 5 patients (1.45%). Even with all strategies resistant balloon Uncrossable lesions to leading to CTO PCI failure were observed in 1.59% of total cases.

CONCLUSION: The second most common cause of CTO PCI failure is balloon Uncrossable lesions in spite of successful wire positioning in the distal true lumen. In this study we observed Uncrossable lesions in 7.19% cases. The resistant balloon Uncrossable lesions still contributed in 1.59% cases of CTO PCI failure in spite of adaptation of multiple techniques. The calcification and tortuosity at the lesion site primarily accounts for it. The main principle behind to achieve success in CTO PCI of such lesions is to have a strategy for good guide backup support. Once good guide backup support is achieved and there still remains a difficulty in crossing the lesion, lesion modification should be considered. The various technical options are available to facilitate the balloon across the Uncrossable lesions. The simultaneous and sequential applications of various techniques are used to gain a final successful outcome. We feel Uncrossable lesions in spite of good guide support should be tackled initially corsair microcather followed side branch balloon anchor technique. The utilization of various other above mentioned techniques, Torus microcatheter and rotational atherectomy should be considered as a last resort as per depending upon operators comfort and experience. The resistant balloon Uncrossable lesions should be treated with optimal drug therapy or coronary artery bypass surgery by considering disease status of other vessels and myocardial are supplied by these lesions.