

Coronary Artery Perforations During PCI: Incidence, Causes and Treatment

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Coronary artery perforation (CAP) is a rare but potentially catastrophic complication of percutaneous coronary interventions (PCI). We conducted a review of our computerized database of over 14,000 PCI's and identified 40 cases of CAP. All patient case records, cath and PCI reports as well as angiograms underwent detailed review to confirm the diagnosis, cause, treatment and outcome

Results: CAP was caused by guide wire perforation in 18 patients, balloon (10) or stent (8) dilatation, and in 3 cases the cause was undetermined. 13 CAP occurred in patients with multivessel disease, and in 5 CAP occurred after multiple wires were used. In 15 patients CAP resolved spontaneously, 5 with intramyocardial staining. In 15 patients CAP caused pericardial tamponade: 13 underwent pericardiocentesis. In 8 CAP patients the tamponade occurred up to 8 hours after leaving the cath lab. 7 had a stent placed at the CAP site: 6 with attempted covered stent, 4 of which failed to stop the leak. In 8 patients CAP was treated with prolonged balloon inflation. 5 patients with CAP due to balloon or stent had cardiovascular collapse with resuscitation: 1 with medical treatment, 4 were sent for emergency operation under CPR of whom 2 survived.

Conclusions: Almost 50% of CAP are due to distal perforation by the guide wire and are probably avoidable. If recognized promptly, CAP can be successfully treated with a combination of pericardiocentesis, balloon or stent inflation and if necessary emergency operation.