Case Report

Burst Coronary Artery: Managing A Type III Coronary Perforation

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A 46 year old gentleman underwent a coronary angiogram for symptomatic ischemic heart disease. Angiogram showed diffuse lesions of the right coronary artery (RCA) with the tightest (~90%) in the proximal segment (Figure 1A). There were no significant angulations, tortuosities or calcifications. The lesion was crossed with a floppy-wire and predilated serially with a 1.25mm balloon, followed by 1.5mm balloon and finally by 2mm balloon (Figure 1 B). The lesion in mid-RCA was stented with a 3 x 24mm drug eluting stent (DES) (Figure 1 C). Finally the proximal lesion was stented with another 3 x 24 mm DES. The patient developed hypotension and became dyspnoeic. Reinjection showed a free-flowing Type III perforation of the proximal RCA with hemopericardium, amounting to tamponade (Figure 1D). He was managed by immediate balloon-tamponade followed by stenting with a polytetrafluoroethylene (PTFE) covered stent (Figure 2A and 2B) and pericardiocentesis. He subsequently stabilized and was discharged in good condition.

Figure 1.

Figure 2.

A) Coverd stent being positioning at the site of perforation, B) Final injection after percutaneous repair of the perforation

Coronary perforation is a rare complication of percutaneous intervention with an incidence <0.5%. Common risk factors include aggressive pre-dilatation, post-dilatation with an oversized balloon, Type C lesions, and use of cutting balloons and rotabulators. According to the Ellis angiographic classification they are classified into three: Type I which is an extraluminal crater without extravasation, Type II where there is myocardial blush without contrast extravasation and Type III where there is free flowing extravasation through a 1mm rent in the artery [1]. Type III perforations, though extremely rare, are catastrophic. In a multicenter registry Type III perforations resulted in cardiac tamponade in 63%, the need for urgent bypass surgery in 63% and mortality of 19%[1]. While traditionally treated with emergency bypass surgery, several reports have advocated stenting with PTFE-covered stents with high success rates[2].

References:


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