

Grape Like Coronary Aneurysm of First Diagonal Branch of LAD: Stenoses Sandwiching one Aneurysm

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Abstract

We report a rare case of grape shaped coronary aneurysm of first diagonal branch of left anterior descending artery (LAD) which has been rarely reported in literature. Coronary atherosclerosis with negative vascular remodelling results in coronary stenosis and positive vascular remodelling result in coronary aneurysm. Local vascular pathobiology varies markedly even in a short segment of coronary artery where two focal stenoses sandwich one aneurysm resulting in grape shaped coronary aneurysm which is rare to see in clinical practice. We successfully revascularised the diagonal with Drug Eluting Stents (DES) followed by postdilatation with good angiographic result.

Keywords: Coronary; Stenosis; Aneurysm.

Introduction

Coronary artery aneurysm occurs in 0.3-4.9% cases of patients undergoing invasive coronary angiogram. Atherosclerosis is the most common cause attributable in almost 90% of cases where as Kawasaki disease is the most common cause in children.¹ Recently Drug Eluting Stents (DES) are reported to be associated with developing late coronary aneurysms.² Destruction of arterial elastic

media leads to thinning of the arterial wall with increased wall stress and progressive dilatation of the coronary artery resulting in coronary aneurysm. Coronary aneurysms are classified as fusiform where longitudinal diameter is more than the transverse diameter and saccular when transverse diameter is more than longitudinal diameter. One third of the coronary aneurysms are associated with coronary stenosis. Coronary artery aneurysms most frequently occur in proximal and mid segment of right coronary artery (68%) followed by left anterior descending artery (LAD) (60%) and left circumflex artery (LCX) (50%), left main coronary artery aneurysm occurs rarely in 0.1% of cases only.³ We report a rare case of coronary aneurysm in first diagonal branch of LAD sandwiched between two stenoses resulting in a peculiar grape shaped coronary aneurysm.

Case: 52 old diabetic gentleman presented with anterior wall ST elevated myocardial infarction and was subjected to transradial coronary angiogram which revealed significant coronary stenosis sandwiching one aneurysm in first diagonal branch of left anterior descending artery (LAD) resulting in grape shaped coronary aneurysm (Fig 1). We planned for revascularisation to diagonal putting

one guide wire in LAD for the event of bail out bifurcation stenting. We revascularised the diagonal with 2×18 mm DES followed by postdilatation with 2.5 mm ×10 mm non compliant (NC) balloon with good angiographic result. Although large coronary aneurysm mandates revascularisation with covered stent for exclusion of the aneurysm, as our case had small aneurysm we decided to go for spot stenting followed by postdilatation to achieve good



Fig. 1: Grape shaped Coronary Aneurysm.

Discussion

Coronary artery aneurysm is defined when the diameter of coronary artery is more than 1.5 times the reference vessel diameter, dilatation of less than 1.5 times the reference vessel diameter is known as coronary ectasia. Giant coronary aneurysm is defined as more than 8 mm in diameter or 4 times the reference vessel diameter. Coronary aneurysm is associated with myocardial ischaemia, infarction and sudden cardiac death. Presence of coronary aneurysm increases the risk of coronary thrombus due to local sluggish coronary blood flow. Small coronary aneurysms are managed conservatively with antiplatelets and statin besides conventional stenting, large aneurysms may be treated with PTFE covered bare metal stents but those covered stents paradoxically increase the risk of restenosis and thrombosis.⁴ Coil occlusion of coronary aneurysm has been reported sporadically.⁵ Large coronary artery aneurysm with risk of imminent rupture needs surgical intervention in the form of excision or ligation, marsupialisation with interposition graft or coronary artery bypass surgery. Our case was a rare case of grape shaped small coronary aneurysm in diagonal branch of LAD which was managed with conventional stenting with post dilatation

angiographic result (Fig 2). Paradox of nature is well evident in our case; two segments of coronary artery had developed focal stenosis sandwiching the aneurysm resulting in grape shaped coronary aneurysm. Marked variation in the behaviour of coronary vascular bed to atherosclerosis is well demonstrated in our case; "diversity is the rule of nature".



Fig. 2: Post revascularisation status.

and dual anti platelet therapy with statins. Statin inhibit the secretion of metalloproteinase 1, 2, 3 and 9 from macrophage and smooth muscle cells and prevent the progression of coronary aneurysm.⁶ Large coronary aneurysm also needs therapeutic anticoagulation to prevent the formation of thrombus in side coronary artery and distal thromboembolisation.

Conclusion

Grape shaped coronary aneurysm of first diagonal branch of LAD has not been described in literature so far. Peculiarity of our case was that two significant stenoses sandwiched one aneurysm resulting in this grape shape which was less evident after post revascularisation with DES with postdilatation with appropriate sized non compliant balloon. In very short segment of coronary artery nature's pathobiology varies from stenosis to aneurysm and again to stenosis; "diversity is the rule of nature".

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