

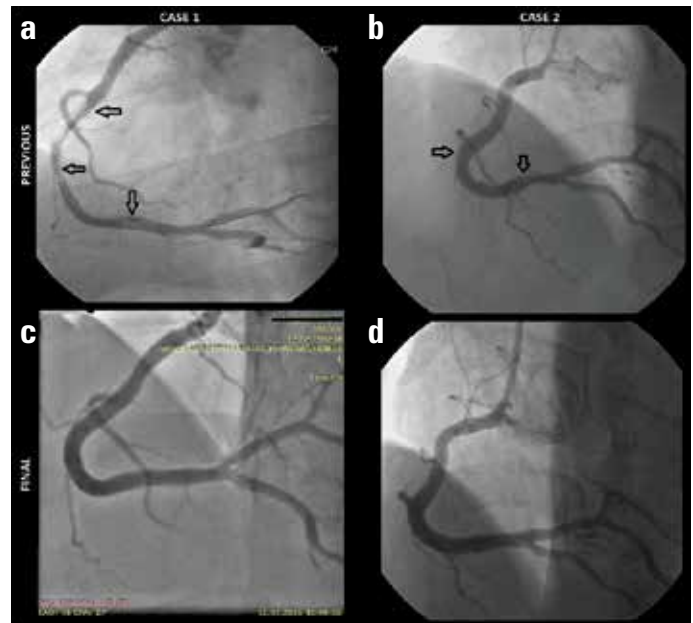
## A possible mechanism of spontaneous coronary dissection: coronary artery ectasia

Coronary artery ectasia (CAE) is usually defined as the enlargement of all layers of coronary artery segment, with the diameter of the ectatic segment being more than 1.5 times larger than that of the normal segment.

Atherosclerotic lesions within the ectatic regions of the coronary arteries appear to be highly inflamed high-risk plaques with proclivity to rupture. However, there is only limited evidence indicating the role of a CAE in the development of spontaneous coronary dissection. Recently, we treated two cases (24- and 33-year-old men) with an acute ST-elevation myocardial infarction as a result of spontaneous coronary dissection of ectatic RCAs (over 5 mm) in both of them (Fig. 1a, b). We thought that the role of atherosclerosis should be limited in the development of diffuse CAEs after regarding their contralateral coronary angiography and premature ages. Nevertheless, percutaneous coronary interventions were performed to treat coronary dissection and then improve the coronary perfusion in both cases (Fig. 1c, d).

According to Laplace's law, wall stress equals intra-arterial pressure multiplied by radius of the artery. Aneurysm formation increases wall tension, causing further expansion of the aneurysmal segment. As the vessel enlarges, it loses distensibility. When the tensile limit is reached, dissection may occur. However, aneurysms can occur without dissection and dissections can occur without aneurysms.

As a result, we think that diffuse CAEs of RCAs might be complicated into spontaneous coronary dissections in susceptible young patients. Further studies should be needed to suggest a definitive conclusion.



**Figure 1. Coronary angiography of diffuse coronary ectasia and spontaneous coronary dissection (arrows) of right coronary arteries in Case 1 (24-year-old man) and Case 2 (33-year-old man) who were presented with acute ST-elevation myocardial infarction (a, b). The patients were successfully treated with percutaneous coronary interventions (c, d)**

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