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Case Report Open Access

Acute Inferior Myocardial Infarction in a Young Female; Initial Presentation of Takayasu Arteritis: A Case Report

Loai Abudaqa, Ashraf Hayder, Al Nooryani A and Wael Elabbassi*

Division of Cardiology, Al Qassimi Hospital, Sharjah, United Arab Emirates

***Corresponding author:** Wael Elabbassi, Division of Cardiology, Al Qassimi Hospital, Sharjah, United Arab Emirates, Tel: 00971506153522; E-mail: welabbassi@yahoo.com

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Abstract

Takayasu's arteritis (TA) is a chronic large-vessel inflammation of unknown etiology that mainly affects the aorta and its major branches. Coronary involvement is not uncommon (9%-11% of cases). Coronary artery involvement consists mostly of stenosis at the coronary ostia. We report the case of a 42-year-old lady who presented with acute inferior wall MI. although our patient is older than 40 years at the time of presentation, the diagnosis has been confirmed by anatomic imaging.

Keywords: Acute STEMI; Takayasu's arteritis; Coronary angiogram; Drug-eluting stent

Case Report

In February 2016, a 42-year-old lady known case of poorly controlled hypertension and mild renal impairment; presented to a nearby hospital with retrosternal chest pain that radiates to left arm; associated with profuse sweating and vomiting. Her ECG showed ST segment elevation in inferior leads and V1, with reciprocal ST depression in lead I and aVL. She was admitted to CCU and received thrombolytic therapy (Tencteplase) and referred to our cath lab 3 hours latter for a rescue PCI due to persistent angina. She had no known history of peripheral vascular disease, and there was no family history of coronary artery disease. Physical examination revealed a pulse of 70 beats/min and BP of 110/60 mmHg. Asymmetric radial pulses, with left side weaker. Blood pressure was 168/74 on left arm and 122/60 on right arm. Right sided groin demonstrated no femoral artery pulse, however extremity was warm with good capillary refill. The patient's cardiac biomarkers were high; however, her C-reactive protein and ESR were within normal limits. Her plasma homocysteine levels, lipoprotein A were all within normal limits, while total cholesterol was mildly elevated at 268 mg/dl. IgM and IgG anti-cardiolipin, antinuclear factor, anti-double-strand DNA results were all negative. Coronary angiography showed an occluded mid right coronary artery by organized thrombus and a tapering CTO of mid LAD (Figures 1 and 2). We recanalized the RCA and used a drug eluting tent 2.75×38.

Due to a transient mild deterioration in kidney function, LAD was tackled a week later before discharge in a staged procedure; where we utilized a drug eluting stent (2.5×23) and a drug eluting balloon distal to it (2.0×30).

In both vessels we noted diffusely diseased and narrowed vessels that responded poorly to PTCA. RCA had developed a protracted perforation upon recanalization that sealed with prolonged low pressure ballooning (Figure 1). LAD mid segment could not accommodate a stent and hence was treated using a Drug eluting balloon (Figure 2).

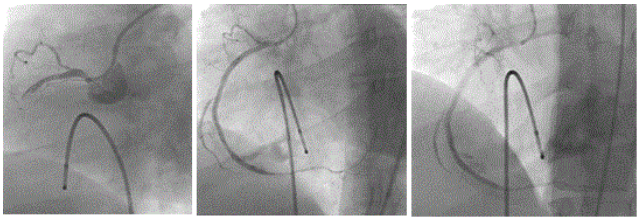

Figure 1: Mid RCA occluded by organized thrombus, developed a protracted perforation upon recanalising that sealed with prolonged ballooning. Lesion extends down to rPda (type 2 presentation).

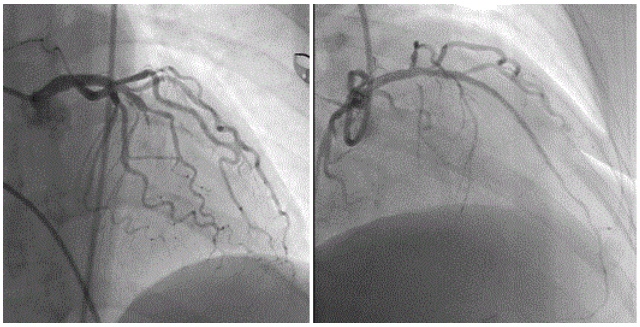

Figure 2: CTO of mid LAD, after diagonal branch, treated by a DES followed by DEB distally. Diseased segment is long extending into apical LAD (type 2 presentation).

After two weeks she was called in for a CT angiography with contrast that showed diffuse narrowing of mid segment of abdominal aorta and stenosis of both ostial of renal arteries right more than left as well as occlusion of external iliac down to superficial femoral artery on right and stenosis in first segment of left subclavian artery (Figure 3).

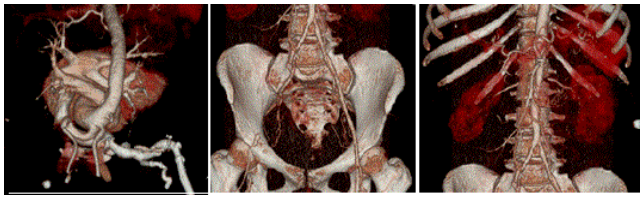

Figure 3: (a) Cephalic overview of a 3D reconstruction of CT angiogram of ascending and transverse portion of aorta with the left Subclavian as it emanates from it, showing "ostial" stenosis. (b) aorta bifurcating into both iliacs, showing CTO of right external iliac extending down to left SFA. (c) abdominal segment of aorta showing diffuse narrowing and stenosis involving both renal aartery ostia right more than left.

After discussing with rheumatologist she was discharged uneventfully on prednisolone 40 mg daily and Azathioprine and folate 5 mg daily, as well as aspirin 100 mg, clopidogrel 75 mg and atorvastatin 40 mg, amloddipine 5 mg and indepamide 1.5 mg daily.

Discussion

Takayasu's arteritis (TA) is an idiopathic vasculitis involving large vessels that is characterized by the involvement of the aorta and its major branches; affecting primarily women (in 80% to 90% of cases) and appearing at a relatively young age, usually between 10 and 40 years'. It has a worldwide distribution but the greatest prevalence is in the Far East, particularly in Japan [1].

Cardiac involvement presents with dyspnea, palpitations, angina, myocardial infarction, heart failure or sudden death. Coronary involvement in TA is not rare and is detected in approximately 10% to 30% of the cases, while a smaller amount may develop aortic root dilatation and valve regurgitation due to the sustained high vascular resistance.

A ten-year follow-up study involving 130 Japanese patients with TA revealed 31 patients developed coronary involvement, among them 24 patients with significant coronary disease including ostial left main coronary artery stenosis. Three main coronary pathological features detected in autopsies of TA patients presented as stenosis or occlusion of the coronary ostia and the proximal segments of the coronary arteries (Type 1); or diffuse or focal coronary arteritis, extending diffusely to all epicardial branches or may involve only focal segments (so-called skip lesions). Alternatively coronary aneurysms may feature (type 3) [1-3].

Type 1 lesions are detected most frequently.

From a pathophysiologic point of view; narrowing of the coronary arteries mainly develops due to the progression of the inflammatory process of the intima and contraction of the fibrotic media and adventitia [4].

The optimal revascularization method for coronary involvement has not been determined. The presence of ostial coronary disease with concomitant inflammation of the aorta and the subclavian arteries further complicates therapeutic decisions, rendering revascularization procedures more challenging to perform.

Apart from the "classical" surgical revascularization approach, percutaneous coronary intervention (PCI) approach is driven by recent advances and developments particularly with advent of drug-eluting stents (DES). Using DES may have a potential therapeutic benefit in TA due to local anti-inflammatory properties and may have the capacity to attenuate the arteritis.

In setting of acute myocardial infarction, prompt revascularization with PCI using DES is strongly recommended and can be lifesaving.

For the time being our patient remains angina free, 9 months later and in follow up she has shown good effort tolerance. A follow up CT coronaries at 12 months is planned while renal artery stenting is being currently considered.

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