

# Isolated Left Main Ostial Coronary Stenosis in a Young Woman

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## Abstract

Coronary arteritis is a rare but potentially fatal condition either by itself or in conjunction with other diseases in all age groups. Coronary arteritis is most closely associated with the polyarteritis syndromes and other collagen vascular diseases, immune system dysfunction, Mediterranean fever, Kawasaki disease, fibrous pericarditis and staphylococcal septicemia.

Isolated left main coronary arteritis may be associated with specific and non-specific aortoarteritis or in some cases after mediastinal irradiation.

In this young woman, with regard to her age of 22 years old, sex, absence of familial and personal risk factors, and elevated CRP and ESR and the report of severe left main stem inflammation at open heart surgery and negative response to intracoronary injection of nitrate during angiography, the diagnosis of isolated left main stem coronary arteritis is very high in probability (*Iranian Heart Journal* 2007; 8 (3): 56-59).

**Key words:** left main stem ■ arteritis ■ coronary artery

Coronary arteritis is a rare entity but can be fatal either by itself or in conjunction with other diseases in all age groups.<sup>1</sup>

Coronary arteritis is most closely associated with collagen vascular disease, immune system dysfunction, Mediterranean fever, Kawasaki and during septicemia.<sup>4-5</sup>

Isolated left main coronary arteritis may be associated with specific and non-specific aortoarteritis, Takayasu or in some cases after mediastinal irradiation.<sup>9-11</sup>

Isolated left main coronary stenosis in a young woman without any personal and familial risk factors for coronary artery disease is highly suggestive for arteritis as an etiology, especially in this case with elevated ESR, CRP and evidence of inflammation during open heart surgery. Also, intracoronary injection of nitrate ruled out coronary spasm.

## Case Report

A 22 year-old female presented to a local Dubai hospital with typical chest pain radiating to the left arm. It was preceded by neck and throat pain for two weeks that was brought on by exertion and was progressively worsening.

Physical exam revealed BP 100/64mmHg, JVP not elevated, PR 70/min, regular, S1 and S2 normal, no murmurs.

EKG: sinus rhythm, ST-T changes in leads V1 to V6 and I, AVL.

CXR: normal.

Echo: normal study, no RWMA, EF 62%.

Lab data: ANA, Anti-ds DNA= Neg.

HBS, Anti-HCV, Anti-HIV = Neg.

C3, C4: normal. ESR=38mm/h, CRP=Positive.

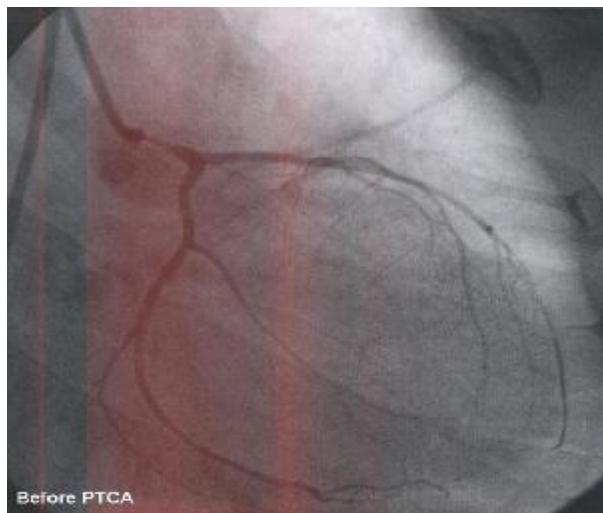
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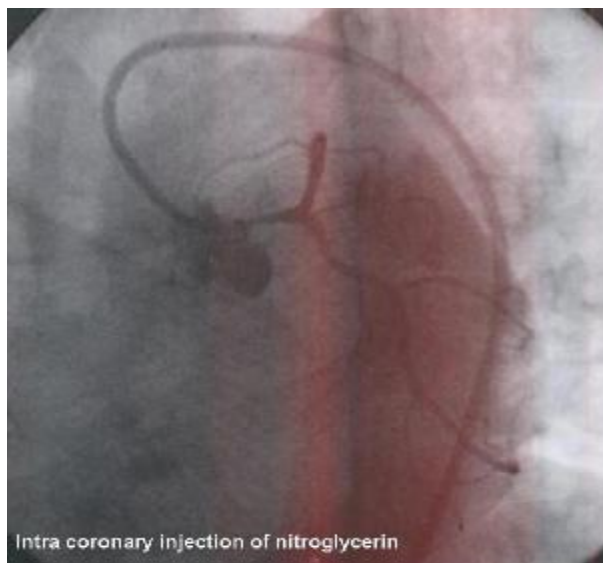
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She had a history of abortion followed by two successful pregnancies.

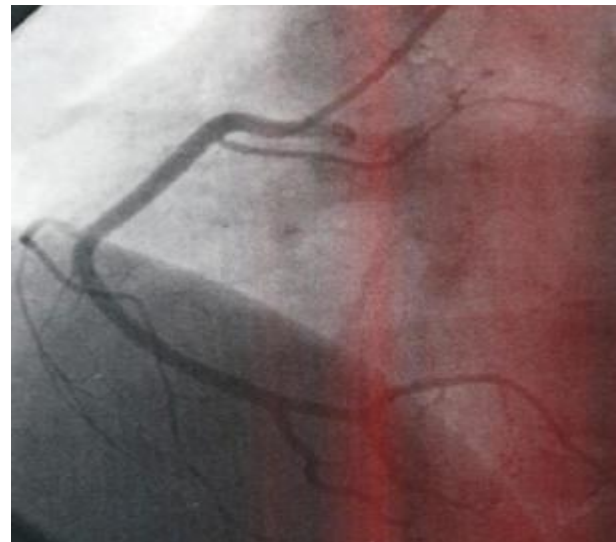
She presented with acute coronary syndrome and was subjected to coronary angiography due to ongoing chest pain. This revealed critical ostial left main stenosis; the rest of the coronary arteries were normal and repeated angiography after nitroglycerin injection into the left aortic sinus showed no change in the ostial LM stenosis (Figs. 1-3).



**Fig. 1.** Left coronary angiogram depicting significant left main stem stenosis.

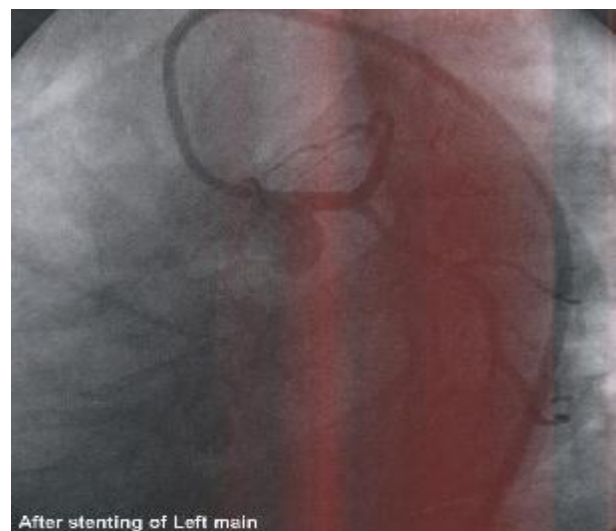


**Fig. 2.** Left coronary angiogram after intracoronary injection of nitroglycerin.



**Fig. 3.** Right coronary angiogram.

She underwent stenting of the unprotected left main coronary stem with a drug-eluting stent (Fig. 4).



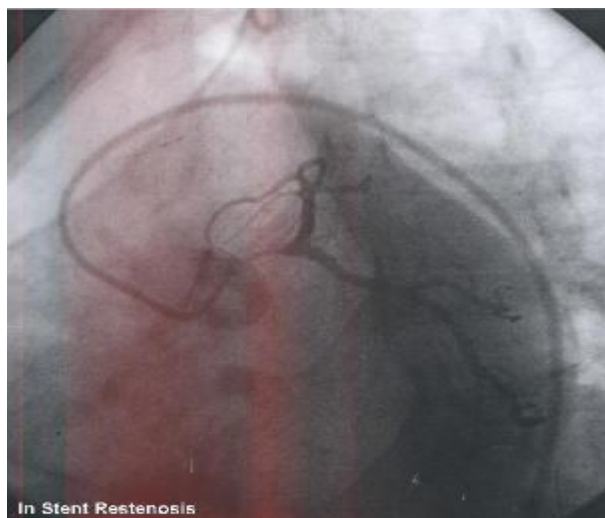
**Fig. 4.** Left coronary angiogram after stenting of the left main stem.

Arteritis of the LMCA was considered as the etiologic possibility and she was put on prednisolone.

On steroid therapy, the ESR levels were consistently low and CRP was negative. Stress test was negative for provokable ischemia.

After 6 months, she presented with effort-related throat discomfort to the emergency department. She becomes symptomatic only when she walks on the treadmill.

Stress test was positive for provokable ischemia. She was subjected to coronary angiography which revealed left main in-stent restenosis (Fig. 5).



**Fig. 5.** Left coronary angiogram showed in-stent restenosis.

The patient underwent coronary artery bypass graft surgery (CABG) the day after her admission. The left main coronary artery was reported to be inflamed during operation, suspected of arteritis.

## Discussion

This 22 year-old female presented with acute coronary syndrome and unstable angina to a local hospital in Dubai and was subjected to coronary angiography. This revealed diffuse critical left main stem stenosis, while the remainder of the coronary anatomy was normal. *Ad hoc* angioplasty and stenting was performed. A good result was obtained.

In view of possible arteritic etiology due to elevated ESR and CRP, a course of steroids was started. She was well for 6 months without any complication.

Thereafter she presented with chest pain and was admitted to the emergency department

with the diagnosis of acute coronary syndrome, and was subjected to coronary angiography which revealed critical left main in-stent restenosis.

She was operated (CABG) the day after admission and discharged without complication after a week.

In this special case, two points are worth considering:

The first is the etiology of coronary artery disease and the second is diffuse isolated left main involvement.

With regard to the age of this patient, and absence of any risk factor like family history, diabetes, hyperlipidemia or hypertension, and elevated ESR and CRP and negative intracoronary injection of nitrate to rule out spasm, and the observation of severe inflammation of left main stem during open heart surgery, the possibility of arteritic origin is high.

Carson and Feickert<sup>1</sup> reported cases of three men in whom coronary arteritis was an interesting finding that may have caused or contributed to death.

One 45 year-old man collapsed at work, another 56 year-old man was found dead in his parked car, and one 80 year-old man had a recent cerebrovascular accident (CVA). All three men had coronary arteritis, atherosclerotic CVA, some form of myocardial disease and fatty liver change. Two had different lung disease.

The finding suggests that coronary arteritis may be an independent cause of death, part of a systemic disease, or, as these three cases illustrate, part of a constellation of cardiac and cerebrovascular pathologies with a possible relation to other medical conditions.

Lie et al.<sup>2</sup> in a paper entitled coronary vasculitis, believed that arteritis can be a life-threatening cause of ischemic heart disease in all age groups.

Coronary vasculitis is most closely associated with the polyarteritis group and other collagen vascular diseases like granulomatous giant cell arteritis.

Gurka et al.<sup>3</sup> found that there is an association between acute myocardial infarction and immune system dysfunction.

Serrano et al. reported a case and found an association between Mediterranean fever and acute myocardial infarction secondary to coronary vasculitis.

Other researchers<sup>5-7,9</sup> found an association between coronary arteritis and SLE, Kawasaki disease, fibrous pericarditis, and staphylococcal coronary arteritis as a complication of septicemia.

Failoni et al.<sup>8</sup> found an association between giant cell aortitis, coronary arteritis and myocardial infarction and Bahl et al.<sup>10</sup> reported coronary arteritis in non-specific aortoarteritis.

Channasamin et al.<sup>11</sup> reported a case with isolated left main stenosis after mediastinal irradiation. The report highlights two patients who developed selective left main coronary artery stenosis post-mediastinal irradiation.

In animal models, it has been shown that high serum cholesterol levels at the time of, or soon after, irradiation are necessary to initiate atherosclerotic plaque formation.

Allonnes et al.<sup>12</sup> conducted a follow up of 106 patients who underwent surgery and they found that in 19 patients, the stenosis was localized on the left main stem, a subgroup characterized by a high proportion of women (68%).

Koh and Hwang et al.<sup>13</sup> reported a study on a total of 684 pts who underwent coronary angiography between March 1989 and July 1999. They found six patients, all women, to have isolated left main coronary ostial lesions.

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