

Cardiac intervention in a nonagenarian – A 7-year follow-up: A case report



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ARTICLE INFO

Article history: Received 28 September 2015 Accepted 1 April 2016 Available online 16 May 2016

Keyword: Cardiac intervention follow-up

ABSTRACT

Percutaneous coronary intervention (PCI) has been utilized for coronary revascularization for 27 years since the first application by Dr. Andreas Gruentzig in Zurich, Switzerland in September 1997. The first case was a 37-year-old male. Initially, percutaneous transluminal coronary angioplasty (PTCA), as coined by Dr. Gruentzig, was suggested to be used in restricted conditions: discrete, concentric, non-calcific, etc. With experience and refinement of devices developed, the scope of coronary intervention expanded. Nowadays, complex coronary anatomy, such as MVD, CTO, heavily calcified, bifurcation lesions and left main stem lesions, smaller vessels, acute myocardial infarction, heart failure or even cardiogenic shock all have proved to gain benefits from the interventions.

This article collected 20 nonagenarians who were proved to have significant coronary lesions. Of them, 2 were treated with CABG, 6 with medical treatment and 12 with PCI. For the 12 patients treated with PCI, a control group of 48 patients with ages younger than 90 years was collected from the same institution for comparison.

On reading this article, it may be safe to conclude that age itself is not a limitation for adapting PCI to treat the elderly patient, whether he or she is 65 years old or 95 years old. But the associated conditions, including general condition, anatomic changes, co-morbid conditions, etc., should be carefully considered before making a decision to choose PCI as the treatment modality for the patient. Special care should be taken to manage the patient's non-cardiac abnormalities to obtain the optimal outcome.

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A 94-year-old hypertensive, non-diabetic, previous user of oral tobacco male, resident of Mizoram, was referred to us on 19/04/ 2005 for further management of frequent episode of chest pain at rest in spite of optimal anti-anginal medication. The patient had led a fairly active life till February, 2005, when he had his first episode of high-intensity precordial chest pain, which was diagnosed as acute anterior MI and treated with anti-anginal

http://dx.doi.org/10.1016/j.jicc.2016.04.002 1561-8811/© 2016 medication. He was not thrombolyzed in view of his advanced age. He kept on having recurrent chest pain ever since.

On admission to our CCU, the patient was found to be alert, conscious and cooperative with a pulse rate of 60/min reg and BP of 140/90 mm of Hg. His heart sounds were normal and chest was clear. Other systemic and general examinations were unremarkable. His 12-lead ECG showed evidence of old

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antero-septal MI. His chest X-ray was within normal limits. His Echocardiogram showed concentric hypertrophy of left ventricle, scar of mid antero-septal wall, good LV systolic function with LVEF of 55% mild pulmonary hypertension and normal valves. In view of his persistent rest angina in spite of optimal anti-anginal therapy and preserved left ventricle function, decision was taken in favour of a coronary angiography with a view to offer suitable coronary revascularization.

After 48 h of intravenous nitrates along with LMWH, oral anti-platelets and other anti-anginal medications, the patient was taken for coronary angiography on 21/4/2005. His coronary angiogram revealed normal LMCA, and 70–80% long-segment eccentric narrowing of proximal LAD, with minor mid LAD disease. Distal LAD was free of disease with good distal run off. D1 was small in calibre and diseased in its proximal third. LCX and RCA had no significant disease. His LV angiogram revealed normal-sized LV cavity with moderate hypokinesia involving apical segment with LVEF of 54%.

Based on his coronary angiogram, it was concluded that patient's symptoms were due to his LAD lesion. Hence, his LAD was stented with 3.5 mm \times 18 mm vision stent after predilatation with a 2.5 mm \times 20 mm Crossit balloon on 23/4/05 with excellent results. The procedure was uneventful.

1. Results

The patient's symptoms improved steadily over the next couple of days. His intravenous nitrate and LMWH were withdrawn and doses of oral medication were suitably titrated. The patient remaining totally pain free over 48 h, and was gradually mobilized out of bed uneventfully and sent home on 28/4/05.

On his yearly follow-ups, he is found to be absolutely symptom free with unremarkable clinical examination findings. His serial 2D Echocardiography reveals no regional wall motion abnormality with good LV systolic function. On his last follow-up in February 2013, he was doing well and leading a symptom-free life. TMT has been avoided in view of his age. A follow-up coronary angiography has been suggested but the patient's family is somewhat reluctant in view of the patient's symptom-free status and age (Figs. 1–4).

2. Introduction

Percutaneous coronary intervention (PCI) has been utilized for coronary revascularization for 27 years since the first application by Andreas Gruentzig in Zurich, Switzerland in September 1997. The first case was a 37-year-old male, the same age as Dr. Gruentzig. Initially, this technique, percutaneous transluminal coronary angioplasty (PTCA) as coined by Dr. Gruentzig, was suggested to be used in restricted conditions: discrete, concentric, non-calcific, proximal lesions of left and right coronary arteries and short stenosis of bypass graft. Then, experience accumulated and more importantly, there were refinement of instruments and new devices developed, expanding the scope of coronary intervention. Nowadays, in the era of stenting, complex coronary anatomy, such as multi-vessel disease, chronic total occlusion, heavily calcified lesions, bifurcation lesions, coronary graft lesions, left



Fig. 1 – Left coronary injection in RAO cranial view shows 70–80% eccentric narrowing of proximal LAD.



Fig. 2 – Left coronary angiogram in RAO cranial view showing inflated balloon.

main stem lesions and smaller vessels, are all candidate targets for interventions when indicated. Poor general conditions, such as acute myocardial infarction, heart failure or even cardiogenic shock, are also proved to gain benefits from the interventions.

Then, there comes the concern: is there any age limit for performing CPI?^{3,4} In 1979, soon after the introduction of PTCA into clinical use, the National Heart, Lung and Blood Institute of the United States established a voluntary registry to evaluate the safety and efficacy of the newly developed technique and to record the learning experience.¹ The data from the Registry showed that only 12% of PTCA patients were

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