

The Incidence and Clinical Presentation of Coronary Artery Ectasia in Gaza

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1. Abstract

1.1. Background: Coronary Artery Ectasia (CAE) is considered an uncommon angiographic finding with varying patterns of presentation and carries significant morbidity burden to the patient.

1.2. Objective: was to evaluate the incidence of this condition, to analyze its clinical, and angiographic characteristics.

Patients and methods: retrograde analysis of coronary angiography which was performed in 8333 patients from march 2014 to march 2021. The clinical, angiographic, and follow up characteristics of 402 patients with coronary ectasia.

Results: Of the 8333 angiograms analyzed, CAE was found in 402 patients, an incidence of 4.8 %. The mean age was 59±6 and male gender predominate 80.3%. Non ST segment elevation acute coronary syndrome was the most common presenting symptom (50.7%). The Right Coronary Artery (RCA) was the commonest affected vessel by ectasia followed by the Left Circumflex Coronary Artery (LCX) in and then Left Anterior Descending Artery (LAD) and then left main artery

1.3. Conclusion: The incidence of coronary ectasia was 4.8 %. The majority of patients had single vessel involvement, and Right coronary artery was the most common involved vessel. This condition is mostly associated with atherosclerosis and occurrence of coronary events unstable including angina and myocardial infarction

2. Introduction

Coronary artery ectasia (CAE) is a rare cardiovascular condition, it is defined as dilatation of the coronary artery 1.5 times greater than that of an adjacent normal segment. It usually accompanies

coronary artery disease (CAD). which can either be localized or diffuse [1]. The clinical significance of CAE is not well defined in previous trial and conflicting results have been reported [2, 3]. The etiology of CAE is rare congenital causes associated with other cardiac abnormalities such as bicuspid aortic valve, aortic root dilatation, ventricular septal defect or pulmonary stenosis. and the most causes is acquired causes about 50% associated with Atherosclerosis is the most com-

mon etiology. other causes associated with inflammatory and connective tissue diseases, syphilis, and bacterial infections [4]. According to Markis CAE can be divided into four types [5]:

Type 1 includes diffuse ectasia involving two or three vessels.

Type 2 includes diffuse ectasia in one vessel and discrete ectasia in another vessel.

Type 3 includes diffuse ectasia in only one vessel.

Type 4 includes localized or segmental ectasia in only one vessel.

Our objective in this study was to examine the incidence, coronary arteries effected percentage and clinical presentation of CAE and its prognosis.

3. Methods

3.1. Study Sample

We retrospectively reviewed the coronary angiograms of 8333 patients between March 2015 and march 2021 at Al-Shifa Hospital, Cardiology Department. Gaza. Palestine. The aim of our trial are:

- To study the incidence of CAE in the patients referred to our cardiac catheterization laboratory for coronary angiography.

- To describe clinical characteristics of patients with CAE, analyzing clinical presentation.
- To study angiographic characteristics of patients with CAE.

3.2. Statistical Analysis

Data were analysed with the SPSS V.21.0 (SPSS Inc., Chicago, Illinois, USA) for Windows statistical package. Parametric variables were expressed as mean (SD) and categorical variables were expressed as percentages. Independent samples to test was used to determine differences in parametric variables and the x2 test was applied as

appropriate for categorical data. A value of p ,0.05 was accepted as significant.

4. Result

During the study period, 8333 coronary angiograms were performed. With mean age 59±62 and male gender predominance. The most common presentation of patient is non ST segment elevation acute coronary syndrome. (Table 1) baseline characteristics in study patients.

Table 1: Characteristics of patients

characteristic	(402)
Median age – year	59.62 (49.6-69.6)
Gender- no. (%)	
Male	323 (80.3)
Female	79 (19.7)
Presentation- no. (%)	
STEMI	71(17.7)
NONSTE-ACS	204(50.7)
Stable angina	127(31.6)
Recommendation	
OMT	244(60.7)
PCI	132(32.8)
CABG	26 (6.5)

STEMI: ST elevation myocardial infarction, NONSTE-ACS: Non ST elevation acute coronary syndrome. OMT: Optimal medical therapy: PCI: Percutaneous Coronary intervention. CABG: coronary artery by-pass grafting

4.1. Coronary Angiography Findings

The incidence of coronary ectasia was 4.8 % (402 patients). A 70.4 percent angiograms showed pure ectasia without associated stenotic lesions in the same ectatic vessel. A 53.2% of patients found to have single ectatic vessel at their angiographic results.

The Right Coronary Artery (RCA) was the commonest affected vessel by ectasia (46.8%), followed by the Left Circumflex Coronary Artery (LCX) (44.8%) and then left anterior descending artery (LAD) (39.8) and then left main artery (16.2%). In our series, 70.4% of patients with CE did not present significant coronary artery stenosis. 29.6% of the patients with angiographic ally significant lesions presented ischemic heart disease (Table 2).

Table 2: Coronary angiography findings

Results	No. (%)
LCX	
Ectasia	180(44.8)
Ectasia with stenosis	25 (6.2)
LAD	
Ectasia	160(39.8)
Ectasia with stenosis	49 (12.2)
RCA	
Ectasia	188(46.8)
Ectasia with stenosis	58 (14.4)
Left main	
Ectasia	65(16.2)
Ectasia with stenosis	3(0.7)
Ectatic vessels	
With stenosis	119(29.6)
Without stenosis	283(70.4)

RCA: right coronary artery. LCX: left circumflex coronary artery. LAD: left anterior descending artery

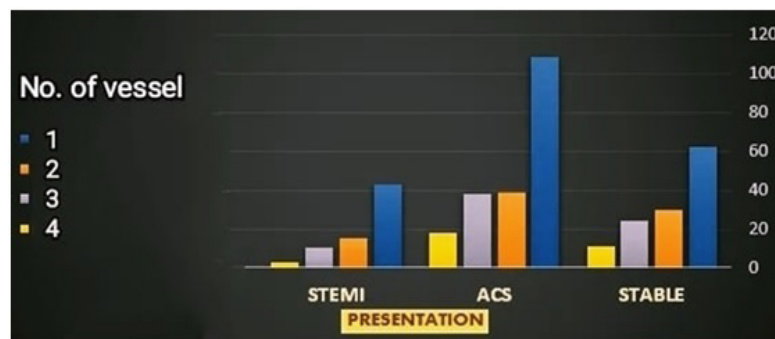
4.2. Number of Ectatic Vessel

The most common effected coronary artery was RCA, and one vessel were found in 214 patients (53%), in two vessels 84 patients (20.8%), in three vessels 72 patients (17.9%) and in three vessels plus left main in 32 patients (7.9%) (Table 3).

The single ectatic vessel was the most common causes of ST elevation myocardial infarction, Non ST elevation acute coronary syndrome and angina pectoris (Figure 1).

Table 3: Number ectatic coronary arter

	NO. Vessel	STEMI	Non-STE ACS	STABLE AP	Total
NO. Vessel	1	43	109	62	214
	2	15	39	30	84
	3	10	38	24	72
	4	3	18	11	32
Total		71	204	127	402



STEMI: ST elevation myocardial infarction, ACS: Non ST elevation acute coronary syndrome

Figure 1: The correlation between number of ectatic vessel and clinical presentation

5. Discussion

coronary artery ectasia defined as a dilatation with a diameter of 1.5 times the adjacent normal coronary artery with prevalence ranges from varies between 0.3% and 5.3% depending on series, but appears to have increased in recent years. [6-8] The ratio of male to female ratio was 3:1 [6]. According to our results CAE occurs predominantly in men and the incidence was 4.8%. male to female ratio was 4:1. In some previous studies, the RCA was reported to be the most commonly involved vessel.

In our trial about 70% of patients have CAE without significant coronary artery stenosis. The patients with CAE without significant coronary narrowing may present with angina pectoris, positive stress tests or acute coronary syndromes. Ectatic vessel may be an origin of thrombus formation with distal embolization, vasospasm or vessel rupture.

Patients with CAE without significant coronary narrowing may still present with angina pectoris, positive stress tests, or acute coronary syndromes [9-11]. In our trial the clinical spectrum of CAE is variable, including stable angina pectoris, acute coronary syndrome, and myocardial infarction. The most common presentation in this study is non ST elevation acute coronary syndrome.

6. Limitations

Although the number of patients with CAE in our study makes this one of the largest series reported, it is not enough.

7. Conclusion

A 4.8% of the patients who undergo coronary angiography in alshifa hospital Cardiac Catheterization Department to test for ischemic heart disease present with CAE and most of these are men. About 70% of the patients have CAE without significant stenosis in coronary arteries. Non ST segment elevation acute coronary syndrome was the most common presenting symptom (50.7%). The Right Coronary Artery (RCA) was the commonest affected vessel by ectasia further studies are needed to determine the most appropriate therapy and long-term prognosis.

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