



ORIGINAL ARTICLE

Coronary artery abnormalities: Current clinical issues

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Received 2 February 2017; accepted 20 June 2017

KEYWORDS

Anomalous aortic origin of the coronary artery;
Sinus of Valsalva;
Interarterial course;
Cardiac surgery

Abstract

Introduction and Objective: Patients with anomalous coronary arteries arising from the opposite sinus of Valsalva (ACAOS), the left coronary artery (LCA) arising from the right sinus or the right coronary artery (RCA) from the left sinus with an interarterial course, may present from complete absence of symptoms to sudden cardiac death. Although there are guidelines on indications for surgery, controversy remains.

Methods: A retrospective review was performed of all adult patients diagnosed with ACAOS in our hospital between 2007 and 2016. Demographic, clinical, perioperative and follow-up data were collected from clinical records and summarized. A review of the published literature was performed with special emphasis on clinical presentation, surgical indications and results.

Results: Seven symptomatic patients underwent surgery (mean age 57.1 ± 8.9 years, two male, five female); they recovered without complications and to date have had no recurrence of myocardial ischemia. One asymptomatic patient with an anomalous RCA has been medically followed without evidence of myocardial ischemia. A 75-year-old woman, diagnosed in 2008 with an anomalous LCA, was not referred for surgery and died suddenly six months after diagnosis.

Conclusions: Surgery for coronary abnormalities is performed with low risk and all published series report full operative survival. The indications for surgery are well established for patients with interarterial anomalous LCA and symptomatic patients with interarterial anomalous RCA. However, there is some uncertainty concerning asymptomatic patients, particularly those with an anomalous interarterial RCA, for whom we propose a more assertive approach, if young or engaged in strenuous activities.

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PALAVRAS-CHAVE

Origem aórtica
anômala da artéria
coronária;
Seio de Valsalva;
Trajeto interarterial;
Cirurgia cardíaca

Anomalias das artérias coronárias: especificidades clínicas atuais**Resumo**

Introdução e objetivo: Doentes com origem anômala de uma artéria coronária no seio coronário oposto (OAAC – artéria coronária esquerda, ACE, proveniente do seio direito ou artéria coronária direita, ACD, originária do seio esquerdo) com um percurso interarterial podem apresentar desde ausência de sintomas até morte súbita. Apesar da existência de *guidelines* para orientação cirúrgica, controvérsias persistem.

Métodos: Foi feito um estudo retrospectivo de todos os doentes adultos diagnosticados com OAAC no Hospital de S. João, entre 2007 e 2016. Foram recolhidos dados demográficos, clínicos, perioperatórios e do seguimento. Uma revisão da literatura foi feita, enfatizou a apresentação clínica, as indicações e os resultados cirúrgicos.

Resultados: Sete doentes sintomáticos foram submetidos a cirurgia (a média de idade foi de $57,1 \pm 8,9$ anos; dois homens, cinco mulheres), recuperaram sem complicações e sem recorrência de isquemia do miocárdio. Uma doente jovem assintomática, com uma ACD anômala, mantém-se em seguimento, sem intervenção e sem evidência de isquemia. O primeiro doente da série, sexo feminino, 75 anos, foi diagnosticada em 2008 com ACE anômala, não foi proposta para cirurgia e morreu subitamente seis meses após o diagnóstico.

Conclusões: A cirurgia das anomalias coronárias é feita com risco baixo e sem mortalidade operatória em todas as séries publicadas. As indicações para cirurgia estão bem estabelecidas para doentes com ACE anômala e trajeto interarterial e em doentes sintomáticos com ACD anômala. Contudo, permanecem incertezas em doentes assintomáticos, particularmente naqueles que apresentam uma ACD anômala com trajeto interarterial, para os quais propomos uma abordagem mais interventiva, se jovens ou sujeitos a atividades vigorosas.

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List of abbreviations

ACS	acute coronary syndrome
ACAOS	anomalous coronary arteries arising from the opposite sinus of Valsalva
CAA	coronary artery anomaly
CABG	coronary artery bypass grafting
CT	computed tomography
ECG	electrocardiogram
IVUS	intravascular ultrasound
LAD	left anterior descending artery
LCA	left coronary artery
RCA	right coronary artery
SCD	sudden cardiac death
STEMI	ST-elevation myocardial infarction

‘abnormal’ are generally used to define any variant form of coronary arterial anatomy; variant forms are observed in less than 1% of the general population.³ Isolated CAAs have been described in 0.5% of patients undergoing coronary angiography,^{4,5} 0.3% of individuals at autopsy⁶ and 0.17% in a prospective echocardiographic series.⁷ An anomalous coronary artery arising from the opposite sinus of Valsalva (ACAOS) is the subgroup of coronary anomalies with the most potential for clinical repercussions in adults, especially sudden cardiac death (SCD).²

A systematic review of the diagnostic databases of the cardiology and cardiothoracic surgery departments of Centro Hospitalar S. João retrieved a total of nine adult patients with ACAOS between 2007 and 2016. Although the first paper published in Portugal reporting the surgical repair of an ACAOS dates from 2006,⁸ this is the first surgical series so far reported in this country.

Introduction

Coronary artery anomalies (CAAs) are a diverse group of congenital disorders with highly variable manifestations and pathophysiological mechanisms.¹

The wide spectrum of CAAs has been comprehensively organized by Paolo Angelini,² who divided them into anomalies of origin and course; anomalies of intrinsic coronary arterial anatomy; anomalies of coronary termination; and anomalous anastomotic vessels. The terms ‘anomalous’ or

Methods

This retrospective study was performed by reviewing the clinical records of all patients at our institution, including coronary angiograms, computed tomography (CT) coronary angiograms and follow-up consultations. Patients with CAAs other than ACAOS were excluded. Individual reports were categorized by demographics, clinical presentation, method of diagnosis, type and course of coronary anomaly, type of surgery, time of cardiopulmonary bypass and aortic

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