

# The Conus Artery Arising From Posterolateral Branch Of The Right Coronary Artery; A Case Report

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## ABSTRACT

Congenital coronary anomalies are relatively uncommon, with a prevalence varying from 0.3% of autopsy series to 1.3% of angiographic studies. We report a case of a conus artery originating from posterolateral branch of the right coronary artery. The anomaly was discovered incidentally during cardiac catheterization. Such an anomaly is identified for the first time.

**Key Words:** Right coronary artery; conus artery; coronary angiography; coronary anomaly.

## ÖZET

### *Sağ Koroner Arterin Posterolateral Dalından Köken Alan Konus Arteri; Vaka Takdimi*

Kongenital koroner anomaliler göreceli olarak seyrek görülürler. Prevelans otopsi serileri ve anjiyografik çalışmalarda %0.3 ile %1.3 arasında değişen oranlarda rapor edilmiştir. Biz sağ koronerin posterolateral dalından köken alan bir konus arter anomalisini rapor ediyoruz. Anomali kalp kateterizasyonu sırasında tesadüfen bulunmuştur. Böyle bir anomali ilk defa tanımlanmaktadır.

**Anahtar Kelimeler:** Sağ koroner arter, konus arter, koroner anjiyografi, koroner anomali.

## INTRODUCTION

Congenital coronary anomalies are relatively uncommon, with a prevalence varying from 0.3% of autopsy series (1) to 1.3% of angiographic studies (2). The conus artery supplies coronary blood flow to the conus, or outflow tract, of the right ventricle and is generally considered to be the first branch of the right coronary artery (RCA). On coronary arteriograms, the conus artery is generally viewed in the left anterior oblique (LAO) and right anterior oblique (RAO) projections. Here we describe a previously unreported coronary anomaly.

## CASE REPORT

A 67-year-old woman was admitted to our hospital with a history of atypical chest pain. She had a history of systemic hypertension and a family history of atherosclerotic heart disease as risk factors for coronary artery disease. Physical examination was found to be normal. Standard 12-lead surface electrocardiogram, two-dimensional and Doppler echocardiogram, and chest X-ray were normal. Cardiac catheterization was performed after an exercise stress test was equivocal for ischemia. The left ventriculogram showed a normal chamber size and wall motion. Selective injection of the contrast media into the left main coronary artery revealed normal left anterior descending and circumflex coronary artery. Selective right coronary angiography with a right coronary Judkins catheter revealed a normal right coronary artery (Figure 1) and conus artery arising from the posterolateral branch of the right coronary artery (Figures 2 and 3).

## DISCUSSION

Coronary anomalies are often asymptomatic and may be accidentally discovered. The incidence of coronary artery anomalies in reported series ranges from 0.6–1.3% (1). The largest angiographic series of more than 125,000 patients by Yamanaka and Hobbs reported 1.3% incidence of anomalous coronary artery (2).

The conus artery normally arises from the proximal RCA and supplies not only the right ventricular outflow tract, but also a large portion of the anterior free wall of the right ventricle. The latter territory is usually supplied by right

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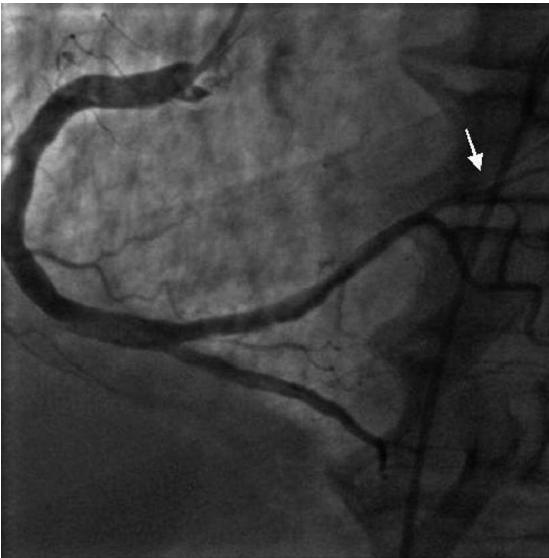
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**Figure 1:** Selective right coronary angiography with a right coronary Judkins catheter revealed a normal right coronary artery.



**Figure 2-3:** Conus artery arising from the posterolateral branch of the right coronary artery.

ventricular and marginal branches of the RCA, so that a pre-infundibular branch may be considered a combination of conus, right ventricular and marginal arteries. The principal importance of the conus artery in adult patients with coronary artery disease (CAD) is to serve as a major source of collateral circulation when the LAD becomes obstructed. The conus artery can also collateralize the distal segment of an obstructed RCA (3).

Cademartiri et al. (4) report that the conus branch artery may arise from RCA (64.1%), in proximity with the RCA ostium (22.3%) or from the aorta (11.6%). Careful anatomic studies (5-7) have shown that in approximately 50% of human hearts, the conus artery is actually not a branch of the RCA but arises instead from a discrete ostium in the right sinus of Valsalva close to, but separate from, the RCA ostium. In this case, we found an unusual anatomic variation of the conus artery arising from posterolateral branch of the right coronary artery. This was interesting in the sense that this sidebranch coursed a very long route to supply the conal area.

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