

# Anomalous Culprit of Typical Chest Pain

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## Background

- Coronary artery anomalies (CAA) are uncommon but clinically relevant congenital variation of one or more coronary arteries
- The three types of CAA are anomalies (1) of origin and course, (2) of intrinsic coronary arterial anatomy, and (3) of termination
- Anomalous origin of a coronary artery from the opposite sinus (ACAOS) is a type of CAA associated with interarterial course of the artery within the aortic wall and is associated with severe prognosis
- The reported incidence of CAA and ACAOS is between 0.3% - 5.34% and 0.17% - 1.07%, respectively

## Case Presentation

49yo man with hypertension and a history of invasive bladder carcinoma presented to the outpatient office with typical chest pain. Chest pain was substernal, crushing in character, worse with exertion, and relieved with rest. Initial transthoracic echo was normal. During stress echocardiography he experienced reproduction of his chest pain. While experiencing chest pain his ECG showed significant ST-segment depressions and inferior T-wave inversions and echo showed hypokinesis of the inferior lateral, apical lateral, and basal lateral walls consistent with an ischemic response. Subsequent left heart catheterization revealed no obstructive coronary artery disease but a dominant right coronary artery (RCA) that was noted to have an anomalous origin. Coronary CTA confirmed the intra-arterial course for which he underwent surgical unroofing of the RCA. He is doing well without recurrence of chest pain 4 months later.

## Conclusion

- CAA are often found incidentally or post-mortum following sudden cardiac death
- Patients often lack 'typical' symptoms and may only complain of atypical chest pain with exertion
- Evaluation of ACAOS should identify the coronary origin and proximal course
- Definitive treatment options include coronary angioplasty with stent deployment or surgical repair
- Surgical repair options include (1) unroofing by resecting the inner wall of the intramural segment, (2) re-implantation of coronary artery if little or no intramural component present, and (3) bypass surgery

## References

1. Schubert SA, Kron IL (2016) Surgical unroofing for anomalous aortic origin of coronary arteries. Oper Tech Thorac Cardiovasc Surg 21:162-177
2. Angelini P: [Coronary artery anomalies: an entity in search of an identity](#). Circulation. 2007, 115:1296-305. [10.1161/CIRCULATIONAHA.106.618082](#)

