Significance of Coronary Artery to Pulmonary Artery Fistulae in Takayasu Arteritis

George Joseph

1Department of Cardiology, Christian Medical College, Vellore, Tamil Nadu, India

Address for correspondence
George Joseph, MD, DM, FCSI, Department of Cardiology, Christian Medical College, Vellore 632004, Tamil Nadu, India (e-mail: joseph59@gmail.com).

In this issue of Indian Journal of Cardiovascular Disease in Women, Moode et al1 present the clinical and imaging features of a series of patients with Takayasu arteritis (TA), with special focus on coronary artery involvement and the presence of coronary artery-pulmonary artery fistulae.

Takayasu arteritis was originally classified by Ueno et al2 in 1967 into three main types. Type IV was added by Lupi et al3 when there was associated pulmonary artery involvement, and type V was added by Panja et al4 when there was associated coronary artery involvement. However, the classification by Ueno et al and the later additions have largely supplanted by the system proposed by Numano’s group5,6 in which there are five main types of TA (type II being divided into subtypes a and b) and in which associated pulmonary and coronary artery involvements are indicated as P (+) and C (+), respectively.

Angiographic Classification of Takayasu Arteritis (Numano)5,6

Type I—Only branches of aortic arch involved.
Type IIa—Ascending aorta and/or aortic arch involved +/- branches of aortic arch.
Type IIb—Descending thoracic aorta +/- type II a distribution. Abdominal aorta not involved.
Type III—Descending thoracic aorta and abdominal aorta and/or renal arteries involved.
Type IV—Abdominal aorta and/or renal arteries involved.
Type V—Generalized type with combined features of the other types.

Note: Involvement of the coronary or pulmonary arteries is indicated as C (+) and P (+), respectively.

Coronary involvement in TA has varied from 8 to 38% in various series and most commonly affects the ostial and proximal segments of the coronary arteries.7-9 Computed tomographic (CT) angiography reveals coronary artery involvement in a higher proportion of TA patients (44–53%).10,11 At Christian Medical College, Vellore, 91 (18.0%) of 505 TA patients who underwent conventional coronary angiography over a 23-year period had evidence of coronary artery involvement; presence of coronary artery-pulmonary artery fistulae was not classified as a coronary artery abnormality in this series.

Demonstration of systemic artery-pulmonary artery communications in TA in the absence of other causes of a shunt is strongly suggestive of pulmonary artery involvement.12 Such communications may arise from internal mammary, bronchial, lateral thoracic, intercostal, and coronary arteries.12-17 Development of these communications is considered to be secondary to pulmonary involvement with reduced perfusion pressure in the affected part of the lung.18 Pulmonary angiography in the two patients presented in the current report could have shed more light on this aspect. In any case, presence of coronary artery-pulmonary artery fistulae in TA is reflective of pulmonary involvement and is not a primary pathology of the coronary arteries; therefore, rather than classifying such fistulae as a subtype of coronary artery involvement in TA, it may be more appropriate to consider this as pulmonary involvement with systemic collaterals and designate it P (+) with systemic collaterals. Endo et al,1 however, classified the presence of coronary artery-pulmonary artery fistulae as a coronary artery abnormality of TA, underscoring the fact that there is no uniformity in the nomenclature used by different workers.

Conflict of Interest
None.

References

1 Moode S, Malayathi S, Maddury J, Nemani L. Does Type 5 of Takayasu’s Arteritis Require Subclassification? Ind J Car Dis Wom 2018;3(1):23–26
15 Sharma S, Talwar KK, Rajani M. Coronary artery to pulmonary artery collaterals in nonspecific aortoarteritis involving the pulmonary arteries. Cardiovasc Intervent Radiol 1993;16(2):111–113