Editorial

Uncomplicated type A intramural hematoma: surgery or conservative approach?—surgery

Arturo Evangelista[1,2], Giuliana Maldonado[2], Sergio Moral[3], Jose Rodriguez-Palomares[1]

[1]Servei de Cardiologia, Hospital Universitari Vall d'Hebron, VHIR, Ciber-CV, Barcelona, Spain; [2]Instituto del Corazón, Quirón-Salud Teknon, Barcelona, Spain; [3]Hospital Universitari Doctor Josep Trueta, Ciber-CV, Girona, Spain

Correspondence to: Arturo Evangelista. Institut de Recerca Hospital Vall d'Hebron, Pº Vall d'Hebron 119, 08035 Barcelona, Spain.
Email: arturevangelistamasip@gmail.com.

Submitted Apr 12, 2019. Accepted for publication Jul 18, 2019.
doi: 10.21037/acs.2019.07.04
View this article at: http://dx.doi.org/10.21037/acs.2019.07.04

Aortic intramural hematoma (IMH) is a variant on the spectrum of acute aortic syndrome (AAS) along with classic acute aortic dissection (AD) and penetrating aortic ulcer. By definition, IMH is characterized by a hemorrhage in the aortic wall media in the absence of a primary intimal tear and a false aortic lumen. Some authors suggest that IMH represents acute AD with false lumen thrombosis with an intimal tear not identified. However, several characteristics differentiate both entities. IMH occurs in older patients, with a higher incidence of arterial hypertension, atherosclerotic disease and a greater tendency of descending aorta involvement (60% *vs.* 35%) compared to those with AD (1). The most significant feature of this entity is that evolution is very dynamic and progression to localized or classic aortic dissection, aneurysm formation or complete resolution have all been described (2). Intramural hematoma is associated with fewer severe complications than AD, such as aortic regurgitation, renal failure, mesenteric ischemia or peripheral ischemia but with a higher incidence of periaortic hematoma and pericardial effusion (1), perhaps as a consequence of the more subadventitial location of the intramural hemorrhage. Nevertheless, most studies have shown that IMH presents a lower mortality risk profile than AD.

Controversy still exists regarding the appropriate treatment of patients with type A aortic IMH. Most studies in Western countries reported a better prognosis for surgical cohorts in comparison with medical treatment (1). Nonetheless, several centers, particularly from Japan and Korea, have reported good results with initial medical therapy with surgical treatment reserved for complicated cases, with an in-hospital mortality <10% (3,4). These prognostic discrepancies may be explained by some significant differences between Asian and Western cohorts: (I) most studies included a small number of patients, (II) the reported prevalence of IMH in the IRAD registry or other Western studies ranged from 5% to 18% (1,2) compared with Japanese and Korean series in which the prevalence was >30% of AAS patients (3-5). The clear inverse relationship observed between the percentage that IMH represents in the AAS at each center and the mortality rate of type A IMH is striking (1,3-6), (III) IMH diagnosis demands a higher level of expertise than that of AD. IMH thickness may be small and more subtle findings of wall thickening may be overlooked. Thus, it is plausible to think that some benign IMH are not diagnosed in community hospitals and the most "malignant" cases are referred to specialized centers. Unfortunately, in many reported studies, aorta wall thickness, maximum aortic diameters and proximity of the IMH to the aortic valve were not well specified. In favor of this being a severity factor rather than a racial factor, other Asian studies found high progression rates and mortality was 32% in Chinese patients with medically-treated type A IMH (7).

Several meta-analyses and systematic reviews, including both Asian and Western series, pointed out that patients who underwent early surgery had slightly lower in-hospital mortality (10.1% to 10.4%) compared with those treated medically (14.4% to 18.4%) (5,6). However, even at centers where the treatment policy is initial medical therapy with good results, the development of AD or need for delayed surgery rises to around 30% of cases within the first 6 months after symptom onset (3,4,8). Most

dissection conversions occurred during the first week from symptoms onset; nevertheless, conversion could occur in the early hours or some months after the acute episode (8). The therapeutic plan for urgent surgery for unstable patients and initial medical treatment for stable cases with surgery indicated for those who develop complications seems reasonable but requires close follow-up by imaging techniques in the early phase and prolonged hospital stay. Furthermore, the risk of aortic complications remains high during the first year after clinical presentation which highlights the importance of detecting potential factors of a complicated course. Several parameters such as maximum aortic diameter >50 mm, IMH thickness >10 mm, or development of focal intimal disruption in acute phase (9,10) have been proposed as risk factors for aortic complications or progression.

Emergency surgery is indicated in complicated cases with hemodynamic instability, large aneurysms, pericardial effusion or periaortic hematoma, and urgent surgery (<72 hours after diagnosis) is required in patients with type A IMH presenting persistent and recurrent pain despite aggressive medical treatment, difficult blood pressure control, increase in the IMH thickness during imaging surveillance or development of focal intimal disruption.

Heterogeneity in previous reported experiences led to discrepancies in IMH type A treatment recommendations: European guidelines recommend surgery (IC), the Americans also recommend surgery (IIaC) but Asian bodies advise medical treatment (IIaC) provided the IMH is <11 mm and the aortic diameter <50 mm (10). In patients with low risk for cardiovascular surgery, it seems logical to recommend prophylactic replacement of the aortic wall that presented the intramural hemorrhage, since the risk of new complications could be similar to that of a dilated aorta where prophylactic surgery is indicated.

In conclusion, although acute type A IMH presents lower in-hospital mortality than classic AD, surgical treatment should be recommended in high-risk cases owing to potential evolution to dissection or aortic rupture. For stable patients with low-risk features, such as those with maximum aortic diameter <50 mm, hematoma thickness <10 mm and absence of focal intimal disruption, initial medical treatment plus surgery in cases of a subsequent complicated course seems reasonable. Randomized data on treatment options for non-complicated type A IMH could help to establish the best management strategy.

Acknowledgments

None.

Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

References

1. Evangelista A, Mukherjee D, Mehta RH, et al. Acute intramural hematoma of the aorta: a mystery in evolution. Circulation 2005;111:1063-70.
2. von Kodolitsch Y, Csösz SK, Koschyk DH, et al. Intramural hematoma of the aorta: predictors of progression to dissection and rupture. Circulation 2003;107:1158-63.
3. Song JM, Kim HS, Song JK, et al. Usefulness of the initial noninvasive imaging study to predict the adverse outcomes in the medical treatment of acute type A aortic intramural hematoma. Circulation 2003;108 Suppl 1:II-324-8.
4. Song JK, Yim JH, Ahn JM, et al. Outcomes of patients with acute type a aortic intramural hematoma. Circulation 2009;120:2046-52.
5. Choi YJ, Son JW, Lee SH, et al. Treatment patterns and their outcomes of acute aortic intramural hematoma in real world: multicenter registry for aortic intramural hematoma. BMC Cardiovasc Disord 2014;14:103.
6. Pelzel JM, Braverman AC, Hirsch AT, et al. International heterogeneity in diagnostic frequency and clinical outcomes of ascending aortic intramural hematoma. J Am Soc Echocardiogr 2007;20:1260-8.
7. Kan CB, Chang RY, Chang JP. Optimal initial treatment and clinical outcome of type A aortic intramural hematoma: a clinical review. Eur J Cardiothorac Surg 2008;33:1002-6.
8. Evangelista A, Padilla F, López-Ayerbe J, et al. Spanish Acute Aortic Syndrome Study (RESA). Better diagnosis is not reflected in reduced mortality. Rev Esp Cardiol 2009;62:255-62.
9. Evangelista A, Dominguez R, Sebastia C, et al. Prognostic value of clinical and morphologic findings in short-term evolution of aortic intramural haematoma. Therapeutic implications. Eur Heart J 2004;25:81-7.
10. Sandhu HK, Tanaka A, Charlton-Ouw KM, et al. Outcomes and management of type A intramural hematoma. Ann Cardiothorac Surg 2016;5:317-27.

Cite this article as: Evangelista A, Maldonado G, Moral S, Rodriguez-Palomares J. Uncomplicated type A intramural hematoma: surgery or conservative approach?—surgery. Ann Cardiothorac Surg 2019;8(5):556-557. doi: 10.21037/acs.2019.07.04

