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

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In this article, “intramural hematoma (IMH)” is defined as the entity including both the original/pathological lesion of the aortic media without any primary entry (intimal tear) and the radio-/echo-graphical condition with the false lumen (FL) of aortic dissection (AD) completely thrombo-occluded (excluding partially thrombosed) with or without clearly-demonstrated imaging intimal tears. The treatment strategies for IMH are depending on the aortic segment of IMH, the degree/thickness of IMH, and the presence of coexisting critical sequelae of acute type A AD such as pericardial effusion (PE)/cardiac tamponade, rupture, significant aortic regurgitation, and organ malperfusion. The patients’ conditions including a variety of comorbidities and age also should be assessed for emergent/urgent open aortic repairs. The initial treatment strategies for type A IMH are discussed, focusing on the conventional approach for “uncomplicated” type A IMH.

The surgical indication for acute type A IMH remains controversial, because its natural history is more variable, compared with acute type B IMH. The ACCF/AHA guideline in 2010 and the ESC guidance in 2014 recommend emergency open aortic repair, particularly for “complicated” type A IMH with the above-described critical sequelae of acute type A AD (1,2). However, for “uncomplicated” type A IMH, it remains unclear without any descriptions on it in the both guidelines. In the literatures, the mortality rates of medically-treated patients in the European and American series are higher (3-5), compared with the Asian series (6-8). The reasons are not clear; however, they might be due to some differences in the medical care systems and the medical treatments between the American/European and Asian countries. In Japan, there are over 580 cardiovascular surgical centers in the whole country, including 42 hospitals in the small and crowded area of Tokyo where emergency medical and surgical treatments for acute AD are feasible.

Without urgent or timely surgical treatments, the “Wait-and-Watch Strategy” including optimal medical therapy with blood pressure and pain control and with repetitive imaging should be essential as the best conservative treatment option. The optimal medical treatment directed at decreasing aortic wall stress by controlling heart rate and blood pressure as followed; intravenous beta blockade or calcium channel-blocking agents are given and titrated to a target heart rate of 60 bpm or less. Given the systolic blood pressures greater than 120 mmHg after adequate heart rate control, angiotensin-converting enzyme inhibitors and/or other vasodilators are administered intravenously. In this conservative Wait-and-Watch strategy, the FL hematoma would resolve in some instances. In contrary, without it, IMH may convert to a classical (double-barrel) AD or the aorta may dilate with thickening of the FL, in particular, for the initial 24-48 h (3-5). An ulcer-like-projection (ULP) cause by a small intimal tear sometimes happens to appear in the thrombo-occluded FL. Such a conversion or change of AD pattern would be associated with the above serious sequelae following acute type A AD.

Type A IMH tends to have a higher incidence of the above complications due to higher wall stress and tension on the ascending aorta compared with more stable type B IMH. Particularly, in the presence of aortic dilation of the diameter of 48/50 mm and IMH thickness of 11 mm, these conversion and changes of the AD pattern potentially occur in the studies of the conventional treatment strategy.
(6-8). In these settings, the initial treatment should be an emergent or urgent surgery for most patients without extremely-high surgical risks. Interestingly, Uchida et al. demonstrated higher incidences of PE/cardiac tamponade in type A IMH compared with a classical type A AD (9). The pathological findings of the surgical aortic specimen revealed that AD tended to occur in the media closer to the adventitia. In other words, the actual incidence of “uncomplicated” type A IMH without PE might be lower. In cases with more than moderate amount of PE and without the above surgical criteria of over 50 mm in diameter and 11 mm of IMH thickness, pericardial drainage would be a useful treatment option particularly for high-risk or inoperable patients to improve the hemodynamics preventing cardiac tamponade, instead of more invasive open repairs (10).

In the conservative approach with Wait-and-Watch strategy, the interval of imaging evaluation is also important. However, there have been no clear recommendations for the appropriate interval in the guidelines. Within 24 h after the initial imaging test, the second imaging evaluation should be carried out, because AD is unstable during the super-acute phase of the first 24–48 h. Fortunately, the IMH thickness is easily recognized even in non-enhanced CT-scans. However, during this phase, a conversion from IMH to IMH with a ULP or to classical AD potentially occurs. In cases with enlarged ascending aorta or thickened IMH, if possible, enhanced CT-scans is recommended to demonstrate it clearly at the 2nd assessment.

Consequently, in cases with ‘uncomplicated’ type A IMH with the maximum diameter less than 50 mm and the IMH thickness less than 11 mm, the first line treatment might be along the Wait-and-Watch strategy by a multidisciplinary aorta team including sufficient surgical support. However, during the conservative treatment, with occurrence of critical sequelae such as PE/cardiac tamponade, rupture, significant aortic regurgitation, and organ malperfusion, or with further dilatation of the aorta over 50 mm and/or extension of IMH over 11 mm, treatment conversion to urgent open aortic repair is recommended.

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Footnote
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References


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