Infectious aortitis or acute aortic syndrome—that is the question

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Submitted Dec 15, 2015. Accepted for publication Dec 24, 2015.

doi: 10.3978/j.issn.2305-5839.2015.12.56

View this article at: http://dx.doi.org/10.3978/j.issn.2305-5839.2015.12.56

Nowadays aortitis is becoming an increasing disease, but its diagnosis tends to be initially missed despite the newest technologies.

Aortitis is a general term that refers to a wide category of infectious or not infectious conditions in which there is an abnormal inflammation of the aortic wall. It might be associated with aortic dilatation, fibrous thickening, ostial stenosis or dissection, resulting in aortic insufficiency or rupture if not adequately treated with antibiotic therapy (1).

The antibiotic therapy, or better antibiotic abuse, made the diagnosis of aortitis increasingly uncommon, and when diagnosed, the typical patient is an elderly male who may be immune-compromised and develops a *Staphylococcus* or *Salmonella* infection with underlying atheromatous cardiovascular disease. Additional etiologies include: bacterial arteritis, lymphatic spread from nearby infected organs, arterial trauma, infected prosthetic bypass grafts, and opportunistic infections secondary to diabetes, alcoholism, renal failure, and medications' use. Other infections causes of aortitis include streptococcal and fungal pathogens.

Therefore aortitis should be strongly considered in the differential diagnosis of patients presenting with complaints of generalized, thoracic, abdominal or back pain along with fever and increased laboratory inflammatory markers, because urgent indiscriminate surgery is troubled by elevated mortality.

At one time, the most cases of aortitis were attributed to a streptococcal valvular endocarditis. Recently, the incidence to the latter has fallen down in conjunction with early diagnosis and effective microbial therapy, so the bacteremia has become the most common mechanism of aortic infection (2).

The diagnosis of aortitis requires a high index of suspicion and is frequently missed on initial assessment of affected patients. Clinical features are non-specific and might include fever, generalized thoracic or abdominal pain, nausea, leukocytosis, and bacteremia. Even when the suspicion is high, many patients will not demonstrate such clinical signs or symptoms. Moreover, Gomes *et al*. reported positive blood cultures only in the 70% of the patients with infected aortic aneurysms (3).

Patients who do present with signs of sepsis and any of these non-specific clinical features of acute aortic syndrome generally are considered for a total-body CT scan. However, its use in the differential diagnosis of aortitis can be very problematical, in fact, the scans might appear normal early in the course of the disease, and in case of associated acute aortic syndrome, the underline inflammatory nature cannot be at all detected.

Treatment of infectious aortitis is aortic replacement only in case of concomitant aortic dissection or aneurysm, whereas the disease might uniformly progress to rupture (4). Associated antibiotic therapy is crucial to recovery, but no study has reported long-term survival in patients treated with different approaches.

Traditionally, aortic replacement has been undertaken using open surgical techniques; only spotted reports of repair using endovascular techniques were described (5).

In general, replacement of mycotic aneurysms or arterial infections with prosthetic graft should be avoided, especially in the face of significant virulence or antibiotic-resistant strains of bacteria because the risk of post-operative suture dehiscence is very high (6).

The antibiotic-bonded graft could be a suitable alternative to conventional prosthetic grafts. Bandyk

demonstrated success in treatment of certain arterial infections with rifampin-bonded prosthesis with good outcomes solely for patients concerning low-grade of gram-positive arterial infections (7).

Although not an optimal solution, the procedure of *in-situ* replacement of mycotic aortic aneurysms or intramural hematoma or PAU using prosthetic aortic grafts in the contest of an aortitis is a reasonable option in case of life-threatening disease. All the other patients with infectious aortitis require specific antibiotic therapy before any surgical treatment.

Decisions regarding the length of antibiotic therapy are based on guidelines developed for cases of prosthetic graft infection. However, given that the procedure most commonly involves placement of a prosthetic graft in an infected area, the use of lifetime antibiotic therapy is strongly recommended as advocated by Hollier *et al*. (8).

In summary, cases of infective aortitis must be strongly considered in the differential diagnosis of patients presenting with an acute aortic syndrome and fever and/or increased laboratory inflammatory markers. All cases of leaking or ruptured mycotic aneurysms should be treated with emergency surgery; otherwise urgent surgical intervention should be avoided because associated with high mortality. Antibiotics are essential in the aortitis treatment, with or without associated surgery, in terms of improved operative results and long-term survival.

Acknowledgements

None.

Cite this article as: Lucchese G, Luciani GB, Faggian G. Infectious aortitis or acute aortic syndrome—that is the question. Ann Transl Med 2016;4(1):19. doi: 10.3978/j.issn.2305-5839.2015.12.56

Footnote

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

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