Case Report

Aortic Root Abscess - Diagnosis, Complications and Managment

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Introduction

Aortic root abscess is a complication of aortic valve infective endocarditis. Not uncommon, this is a devastating disease associated with high morbidity and mortality. It usually occurs in immune-compromised, debilitated patients with multiple co-morbidities or in I/V drug abusers either on native or on prosthetic valves. Early diagnosis and prompt surgical intervention goes a long way in treating such patients successfully. Echocardiography plays a key role in early detection of this dreaded complication. We report here a patient of native valve endocarditis of aortic valve complicated with formation of aortic root abscess.

Case Summary

A 45 years old male, an agricultural laborer by occupation, presented with history of fever for the past 2 months along with shortness of breath for the past 15 days. Fever was associated with chills and rigors which did not improve despite local treatments. His breathlessness, which was on routine activities initially, had progressed during the past few days accompanied with episodes of PND for 5 days before presentation.

There were no similar complaints in the past. He was not a known hypertensive or diabetic. There was no history of intravenous drug abuse but he had been a chronic smoker and alcoholic for the past 15 years.

On examination, the patient looked pale and emaciated, with a BMI of 17.3kg/m^2. Grade 2 clubbing was present but there was no icterus, cyanosis, pedal edema or lymphadenopathy. There were no stigmata of Infective endocarditis. His temperature was 102 degrees Fahrenheit, with pulse rate of 100/min and BP 90/40mmHg.Cardiac examination revealed normal JVP with cardiomegaly. LV S3 was audible along with a soft blowing early diastolic murmur in neoaortic area and a systolic flow murmur in the aortic area.

His investigations revealed severe anemia and leucocytosis (Hb - 7.1gm/dl, TLC – 15000/ml, Neutrophils predominating). Urine examination showed abundant red blood cells. His RFT and LFT were normal. ECG showed LVH with volume overload pattern. Chest X ray showed cardiomegaly. 2D echo showed vegetation on the aortic valve with an aortic root abscess causing severe AR with mild MR but with good LV function (Figures 1 & 2). Blood cultures showed growth of enterococcus faecium (Figures 3 & 4) which was sensitive to Vancomycin and Linezolid (but resistant to Pencillin, Aminoglycosides and Fluoroquinolones).

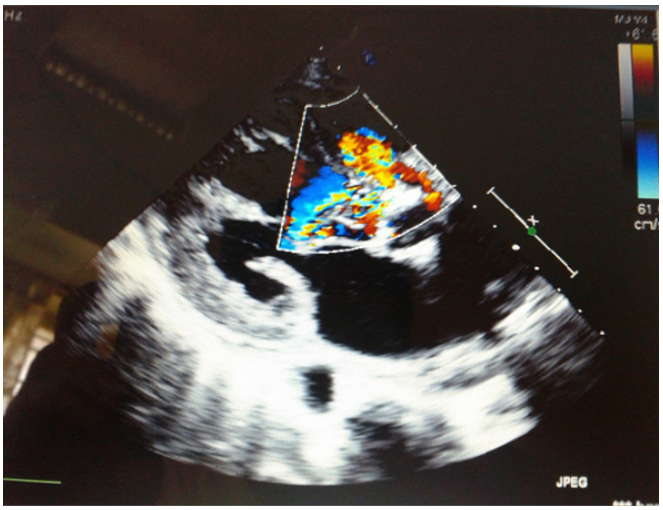

Figure 1. 2D Echo Plax View Showing Vegetations At Aortic Valve And Colour Flow Showing Aortic Regurgitation.

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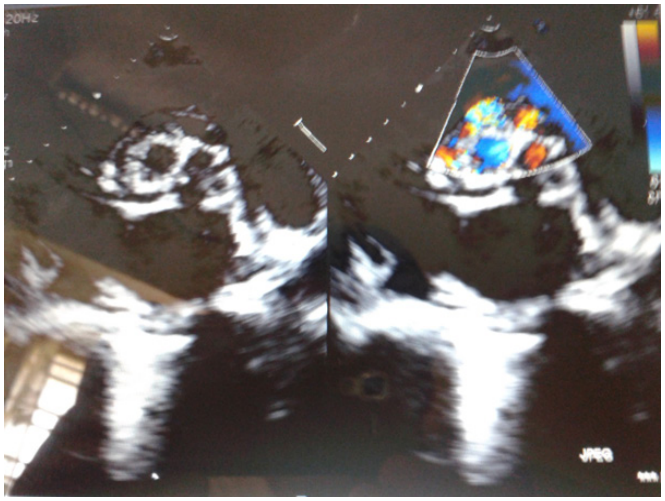

Figure 2. 2D Echo Psax View Shows – Vegetations with Thin Rim of Periannular Abscess

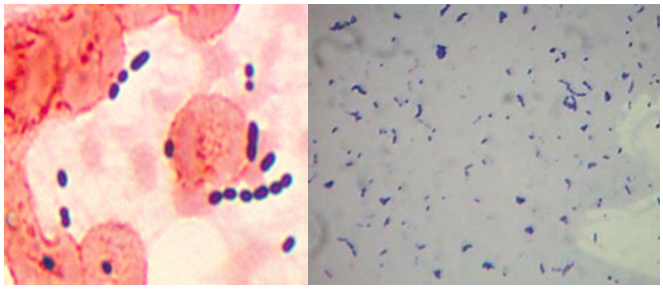

Figure 3 & 4. Shozwing Enterococci Faecalis – Gram Positive Cocci

Discussion

Aortic root abscess in patients with aortic endocarditis is not uncommon. Aortic root abscess may cause persistent sepsis, heart failure, conduction abnormalities, fistula formation, and an increased need for surgery (1).

Perivalular Abscesses occur in 10-15% of NVE & 60% of PVE in Aortic valve Infection.

It should be suspected in any patient with aortic valve endocarditis who fails to improve within 72 hours on appropriate antibiotics, particularly with prosthetic valve infection. Persistence or recrudescence of fever, persistently raised white blood cell counts, and other markers of systemic inflammation or the development of cutaneous manifestations or embolic phenomena while on treatment, all indicate uncontrolled infection. A lengthening of PR interval on the surface ECG or development of heart block are also ominous features.
Transthoracic echocardiography (TTE) can give useful information about vegetations, the haemodynamic consequences of valvular regurgitation, and presence of aortic root abscess (2). Attention should be directed by TTE to the sub-aortic zone of the Mitral-Aortic intervalve fibrous (MAIVF) and the AML in every patient with endocarditis of the aortic valve. Any thickening at the base of the mitral leaflet or the posterior aortic root, especially in the presence of an eccentric mitral regurgitation jet by color flow imaging, should alert the clinician to the possibility of these complications.

Furthermore, trans-esophageal echocardiography (TEE) provides useful anatomical definitions like the extent of annular involvement, extension of abscess to involve the sub-aortic curtain or upper inter-ventricular septum. All these are very important considerations for planning surgery in these patients (3).
Once an aortic root abscess is detected, urgent surgery is required. Aggressive debridement of all infected and devitalized tissue is the mainstay of the surgical treatment of aortic root abscess. Reconstruction of the left ventricular outflow tract with antilogous pericardium or translocation of the aortic valve may also be required. The use of biological material has clear advantages in this scenario. Aortic valve homo-grafts are particularly useful for several reasons: they enable the abscess cavity to be completely excluded from the circulation; they avoid the use of prosthetic material; and they are more resistant to infection than any other valve substitute (4).

References

1. Prashanth Panduranga Hindawi Publishing Corporation Case Reports in Critical Care Volume 2013, Article ID 636519, 3 pages http://dx.doi.org/10.1155/2013/636519
2. Wong CM, Oldershaw P, Gibson DG*(1981) Echocardiographic demonstration of aortic root abscess after infective endocarditis. Br Heart J* ***46****:584–586.*
3. S J D BRECKER, J R PEPPER and S J EYKYN, AORTIC ROOT ABSCESS HEART 1999 82 : 260-262.
4. Wong CM, Oldershaw P, Gibson DG. Echocardiographic demonstration of aortic root abscess after infective endocarditis. *Br Heart J* 1981;**46**:584–6.