



NEWLY DETECTED SEVERE RHEUMATIC HEART DISEASE IN ELDERLY AND THE CHALLENGES IN ITS MANAGEMENT—A CASE REPORT

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ABSTRACT A 60-year-old man with a history of frequent lower respiratory tract infections presented with symptoms of face puffiness, swelling of bilateral limbs, palpitation, and shortness, but subsequent diagnostic testing at the hospital revealed rheumatic heart disease with poorly managed atrial fibrillation, severely enlarged left atrium, and mitral valve area 1.1 cm². It was determined that replacing the patient's mitral valve with a mechanical prosthesis would be the best course of action. Our choice was influenced by the fact that the patient will require chronic anticoagulation for atrial fibrillation anyway, despite the common trend of employing bio prosthesis in the elderly. Our case presentation demonstrates a late-presenting example of RHD with unexpected connections and the difficulties in selecting the most effective treatment.

KEYWORDS : Rheumatic heart disease, atrial fibrillation, valve replacement, elderly, anticoagulation

Introduction

Our patient's extremely late presentation of rheumatic mitral valve disease and incidental discovery of a huge left atrium offered a number of problems in trying to choose the best course of action, including old age, atrial fibrillation, the need for long-term anticoagulation, and mitral valve calcification. By reporting this case, we hope to emphasize not only an atypical case presentation of rheumatic heart disease, but also to provide a logical method to determining treatment for comparable patients, with an emphasis on old age and long-term survival benefit. Additionally, we want to emphasize how important it is to tailor a patient's treatment to their unique circumstances. The MV apparatus may exhibit anatomical or functional problems that lead to valve stenosis or, more frequently, regurgitation. Rheumatic heart disease is the most frequent cause of MS, yet it is uncommon for the condition to go untreated until later in life. Elderly people are more likely to develop degenerative MV annulus calcification, although it's not clear how often this might have a noticeable hemodynamic consequence. There have been reports of functional MS in older patients with significant annular calcification and decreased leaflet excursion in the range of 2.5% to 18.0%. According to statistics from the Euro Heart Survey, 12.5% of MS cases were degenerative. For surgery, the degree of calcification has a substantial impact. Debridement of the posterior annulus may be difficult, and remaining calcium may make it difficult to adequately suture the MV prosthesis, increasing the chance of post-operative paravalvular regurgitation due to suture dehiscence. Furthermore, there is a non-negligible risk of significant damage and subsequent disruption of the left ventricle, as well as mortality.

Case report

A 60 year old hindu ,male , farmer by occupation from Daund came to the casualty department of PCMC'S,PGI, YCM hospital with complaints of facial puffiness , swelling of bilateral limbs , palpitation , breathlessness. Swelling of bilateral limbs was gradual in onset over a period of 4 days, pitting type not associated with tenderness redness or local rise of temperature. He had past history of complains of repeated sore throat, fever for which he was not admitted . The patient denied ever experiencing any rheumatic fever-like symptoms as a child. He had never previously experienced a stroke or a transient ischemic attack.

On examination, He had irregular pulse at the rate of 140/min, blood pressure of 140/80 mm Hg, jugular venous pressure was raised and a pale appearance, generalised anasarca. An examination of the chest revealed a palpable parasternal heave, diastolic shock, and an apical impulse of right ventricular type on the left fifth intercostal region. First heart sound (S1) of variable intensity, loud P2, diastolic murmur of variable length, no pre-systolic accentuation, barely audible opening snap with variable A2-OS interval, and systolic murmur in the tricuspid region that became louder on inspiration with bilateral basal creeps were all audible upon chest auscultation. Further Investigations were done which revealed the following:

Electrocardiography(ECG) showed atrial fibrillation with ventricular rate of 140/min as shown in figure 1.



Figure 1: ECG showing atrial fibrillation

Chest roentgenogram showed hugely dilated left atrium, right atrium and right ventricle with double density sign and convex left atrial appendage as shown in figure 2



Figure 2: Chest roentgenogram showing massive cardiomegaly and gross dilation of left atrium with double density sign and convex left atrial appendage.

Echocardiography as shown in Figure 3 and 4 carried out at that time had shown dilated LA, RA and RV, D-Shaped LV, AML thick and doming PML restricted mobility with calcification with severe mitral stenosis mitral valve area 1.1cm² – these findings are very typical of RHD[1]. A colour doppler scan revealed moderate mitral regurgitation and severe tricuspid regurgitation, as well as an estimated pulmonary artery systolic pressure of 72 mm Hg and a mitral valve area of 1.1 cm².



Figure 3 shows D shaped LV



Figure 4 shows Severe Mitral Stenosis

The patient was started on diltiazem and ventricular rate was controlled. Blood investigation as shown in table 1

Table 1: Blood investigations

CBC	HB-8.14g% TLC - 7600mm ³ Platlet- 151000
BSL (R)	153MG%
RFT	BUL -196MG% Creatinine—2.8
LFT	BIL(T)—4.0mg/ (D)—2.3mg/dl SGOT—36 IU/L SGPT—24 IU/L Alkaline phosphate—123 IU/L
ASO TITRE	NEGATIVE
CRP	4.8MG/L
ESR	48MM/HR
BNP	254pg/l

Patient maintains ventricular rate on T diltiazem 90mg SR and T Lasix 40mg. Additionally, he began warfarin anticoagulation with an INR target range of 2.0 to 3. He was explained the need for mitral valve replacement and tricuspid valve replacement and patient was transferred to cardiovascular thoracic surgeon where he underwent MVR and TVR. Now patient is better and in regular follow session

Discussion

Significant morbidity and mortality have been caused by rheumatic heart disease in emerging nations. Following a throat infection with group A streptococci, this autoimmune illness has been observed to primarily afflict younger people. Rheumatic heart disease-related mitral stenosis might be asymptomatic for a long time or even develop in older adults. In these situations, it's possible that the patient won't always remember having rheumatic fever as a child. As a result, the condition may not manifest until an adult age, which is far later than the typical age at which rheumatic heart disease manifests. We also attempt to outline various therapeutic techniques for an elderly patient with serious mitral valve disease and substantial calcification in this case report.

There have been previous reports of patients with rheumatic heart disease having a significant left atrial enlargement. Despite the fact that mitral regurgitation has been hypothesised to have a significant impact on this association^[1], it is not unusual for people with mitral stenosis to also have the condition.^[2] Our patient's large left atrium was discovered to have trivial aortic regurgitation, severe tricuspid regurgitation, and dominant mitral stenosis with moderate grade mitral regurgitation. Park et al^[3] described a case of a large left atrium with significant mitral stenosis but only mild mitral regurgitation. Similar results were reported by Okayay et al^[4] who found a significantly enlarged left atrium. Our patient's asymptomatic enormous left atrial enlargement (LA) may be caused by high LA compliance and a benign course of mitral stenosis (MS) that has progressed over time. The enlargement might potentially have been influenced by atrial fibrillation^[5].

The probability of long-term anticoagulation was increased by the presence of atrial fibrillation. Cardioversion would have been ineffective with a significantly dilated left atrium and prolonged atrial fibrillation. Due to the high risk of hemorrhagic consequences, anticoagulation in the elderly should only be taken at the lowest effective dose.^[6] Since the effective dose for anticoagulation in the elderly is frequently lower than in younger people, proper dose and INR monitoring is essential.

Although asymptomatic prior to the development of a significantly

dilated left atrium and severe pulmonary hypertension, the need for surgery in our instance was reinforced. Our patient's advanced age, 1.1 cm² of mitral valve area, and mitral valve calcification presented additional management concerns. The initial consideration in serious mitral stenosis that necessitates surgery is often valvular repair, however mitral valve repair is not recommended if there is considerable commissure calcification and valve leaflet thickness.^[7] According to a study by Wei et al^[8], patients with mitral commissural calcification and an echo score of less than 8/16 had a subpar outcome since there was no change in the valve area following balloon mitral valvuloplasty. Mitral valve replacement was chosen in our situation due to commissural calcification.

The decision between mechanical and biological prostheses was another issue. The preference is for biological valves in patients who are older than 70.^[9] This is primarily due to the patients' shorter life expectancies, the fact that these valves don't require anticoagulation, and the fact that older people experience less bioprosthetic degeneration.^[9,10] A review of the literature revealed some intriguing points, nevertheless. Using patients over the age of 70, Sidhu P et al^[11] conducted a comparison research on the long-term effectiveness of mechanical and bioprosthetics over a period of 20 years. The study came to the conclusion that mechanical valves are superior to bioprostheses in terms of longevity in the elderly. It is well established that mechanical prostheses are more durable, however this benefit is negated by anticoagulant-related mortality in patients who would not otherwise require anticoagulation.^[9,11]

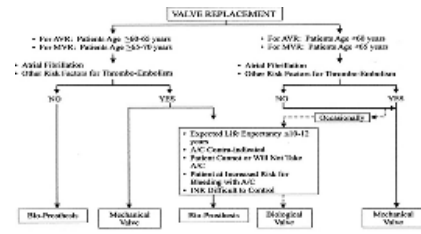


Figure 5 illustrates an algorithm for choosing the type of prosthetic valve in a patient.¹²

The need of performing a good diagnostic investigation for comorbidities, particularly coronary angiography, before undergoing surgery cannot be overstated. This age group is prone to coronary artery disease, which could increase the risk of perioperative death.

Conflict of interest

The Authors have no conflicts of interest that are directly relevant to the content of this clinic-pathological case

Financial Resources

There are no financial resources to fund this study

Informed Consent

Informed Consent was obtained from the patient.

Author's Contribution

All the authors contributed equally to the case report.

Data and materials availability

All data associated with this study done at PCMC'S PGI YCM hospital are present in the paper.

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