ISSN: 2833-9320

Case Report

International Journal of Health Policy Planning

Importance of Complex BMV in Public Health: Safe Passage: Carotid Protection During BMV in Rheumatic Mitral Stenosis with Left Atrial Appendage Clot

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Submitted: 2024, Oct 10; **Accepted:** 2024, Nov 04; **Published:** 2024, Nov 11

Citation: Saha, R. N., Duggal, B. (2024). Importance of Complex BMV in Public Health: Safe Passage: Carotid Protection During BMV in Rheumatic Mitral Stenosis with Left Atrial Appendage Clot. *Int J Health Policy Plann, 3*(3), 01-05.

Keywords: RHD, MS, Emergency BMV, LA Clot, Carotid Protection Device

1. Introduction

Emergency BMV is a high-risk procedure often done in critically sick patients with rheumatic Mitral stenosis. It is often a life-saving procedure, especially in a middle and low-income country like ours. Unfortunately, the practice is dying out partly due to rheumatic heart disease being mainly a disease of lower socio-economic strata and partly due to the non-availability of essential equipment like Inoue balloon. Still, a few public hospitals regularly do such complicated balloon mitral valvotomies, and we are presenting such a case.

2. Case Presentation

A 54-year-old lady presented to our department with complaints of dyspnea on exertion for the last two years, which increased over the last three months. She also complained of abdomen distension with jaundice for the last three years with intermittent pedal oedema. On examination, she was frail and had an irregularly irregular pulse. She also had a variable S1 with a mid-diastolic murmur localised in the cardiac apex. Electrocardiography showed an atrial fibrillation with a fast-ventricular rate. Echocardiography revealed a severe rheumatic mitral stenosis with a dilated left atrium and severe pulmonary hypertension assessed by tricuspid regurgitation gradient. Transoesophageal Echocardiography suggested a Type IB LAA clot with no significant MR. After stabilisation of heart failure, she was opined for Mitral valve replacement with LAA clot extraction. However, given the high STS score and after counselling with family, she underwent high-risk Balloon mitral valvotomy with retrievable temporary carotid protection devices kept in the bilateral carotid artery. She became symptomatically better and was discharged. On follow-up, she said she had been rehabilitated to her usual life.

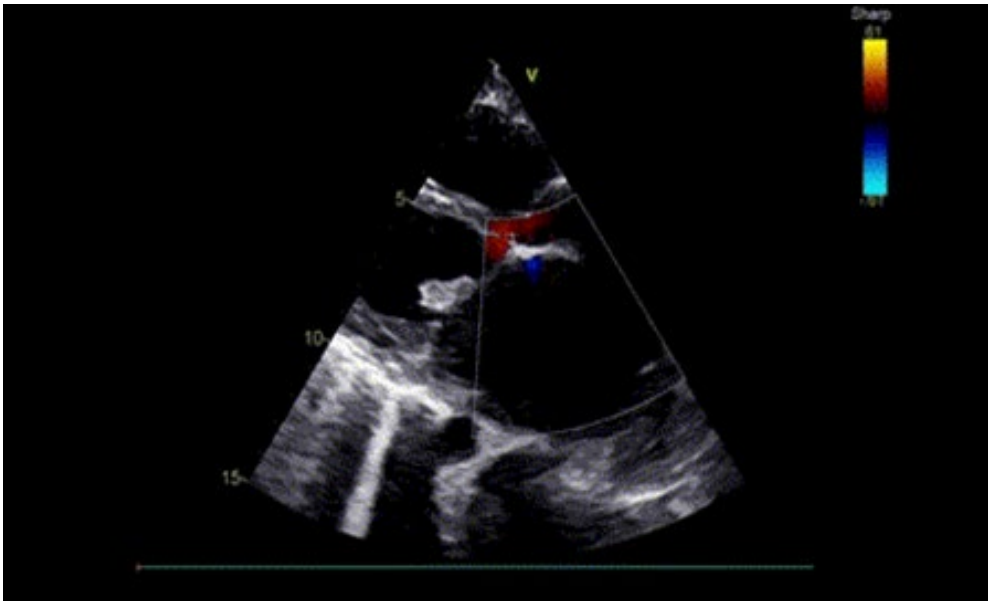

Figure 1: TTE PLAX showing Severely Stenosed Thickened Mitral Valve with Dilated LA

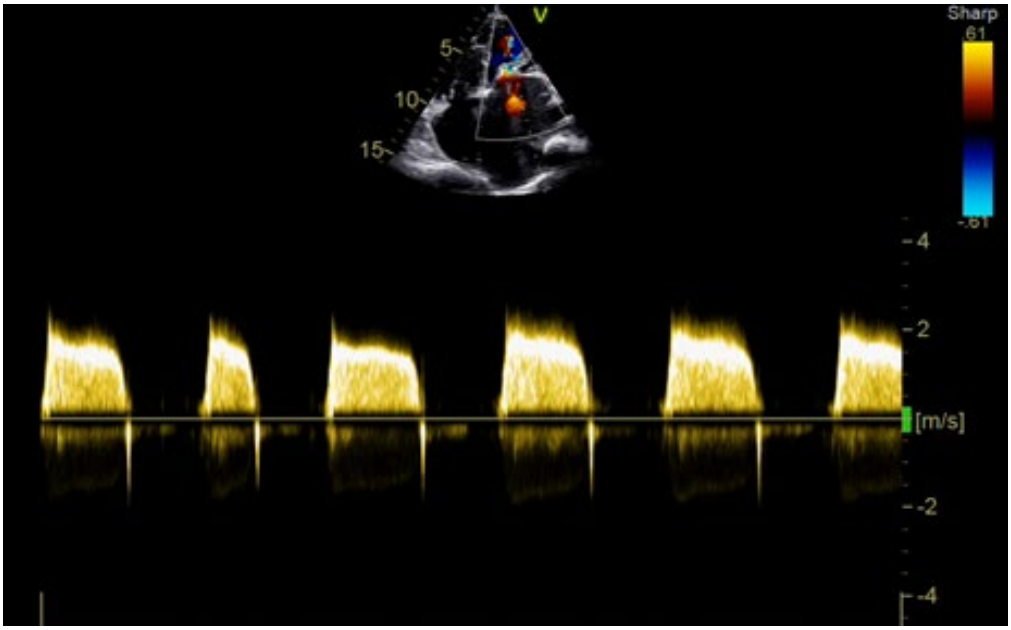

Figure 2: TTE A4C showing the Severely Stenosed Mitral Valve in Atrial Fibrillation with Increased Mitral Valve Gradient

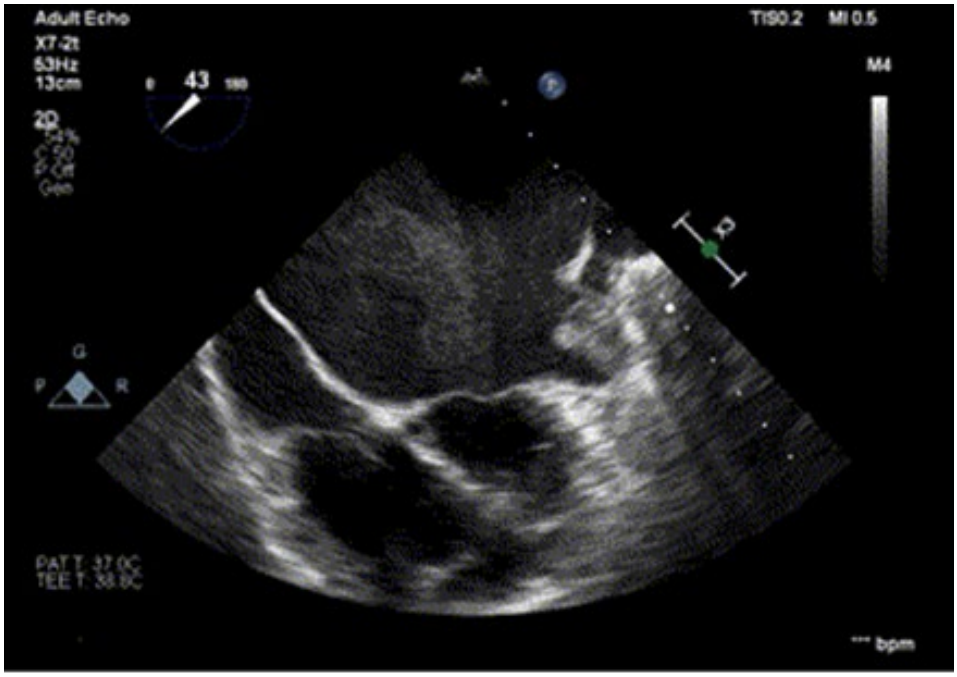

Figure 3: TEE Suggestive of LAA Clot Type IB, with Thin IAS

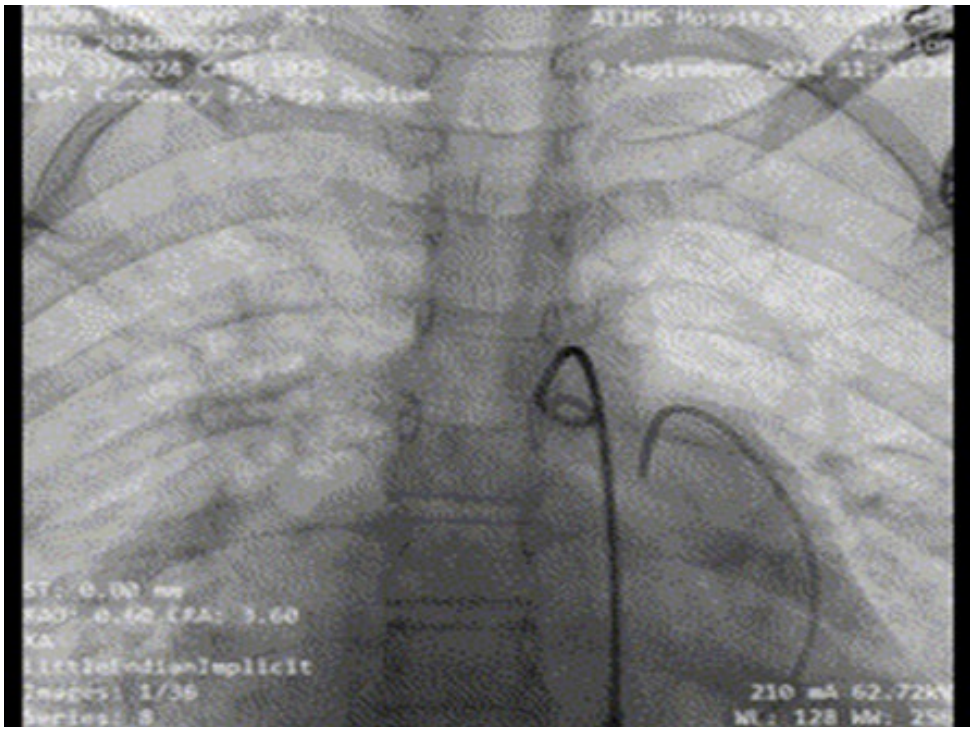

Figure 4: Carotid Angiogram in Fluoroscopy AP Cranial View for Sizing and Placement of SpiderFx Protection Device

Figure 5: SpiderFx Device in Bilateral Carotids in Situ with Capture Wires in Fluoroscopy

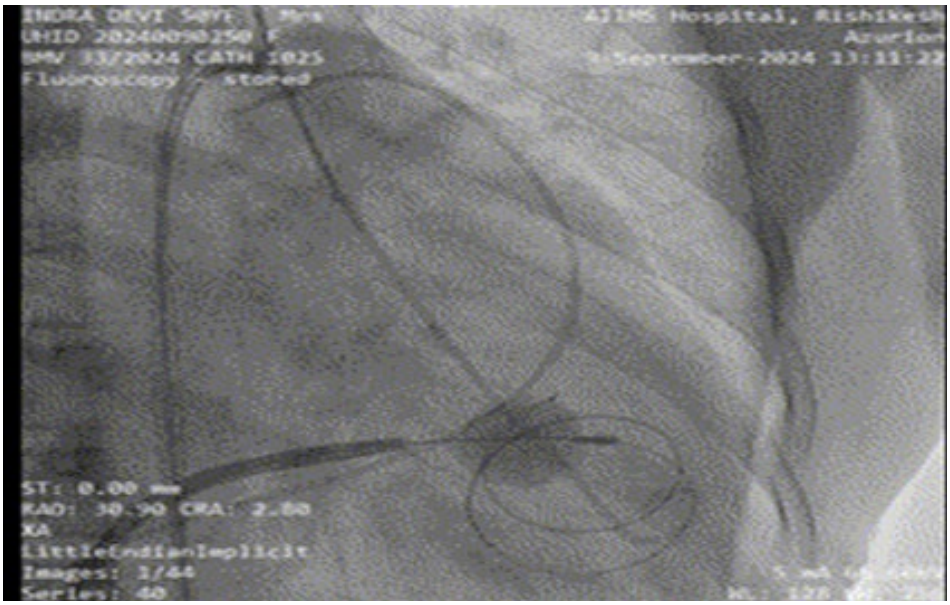

Figure 6: Fluoroscopy Showing Repetitive Balloon Dilation of the Mitral Valve by Inoue Balloon

3. Discussion

Since its inception in 1984, Inoue Balloon mitral valvotomy has been an interesting alternative to surgical commissurotomy for severe mitral stenosis [1]. It is often a life-saving procedure for critical stenosis landing up in an emergency with cardiogenic shock/refractory pulmonary oedema or severe right heart failure. In India, a large number of rheumatic heart disease patients belong to the lower socio-economic strata and are often neglected from routine healthcare, thus ending up in such critical conditions. The mortality is much higher in such an emergency procedure, with one study reporting 35% mortality [2]. However, successful balloon mitral valvotomy patients usually have excellent hemodynamic outcomes. Thus, such complicated balloon mitral valvotomy as ours should be encouraged to improve public health. The few steps that can be addressed in public health planning would be

- Availability of widespread awareness programs for rheumatic heart disease and its treatment
- Early diagnosis and screening with regular follow-up to avoid any complications of such a rheumatic heart disease
- Making structured multi-tiered national programs for referring and management of a severe disease
- Making all necessary equipment like Inoue balloon TEE facilities available at the tertiary center for easy and uncomplicated cases
- Specialized skill-based workshops for improving and honing

advanced skills for complicated BMVs

4. Conclusion

Emergency BMV, despite its high mortality rate, should be performed on deserving candidates. Here, a complicated BMV was done in rheumatic heart disease -mitral stenosis with Left atrial clot with the help of carotid protection devices to protect from cardioembolic events.

References

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2. Lokhandwala, Y. Y., Banker, D., Vora, A. M., Kerkar, P. G., Deshpande, J. R., Kulkarni, H. L., & Dalvi, B. V. (1998). Emergent balloon mitral valvotomy in patients presenting with cardiac arrest, cardiogenic shock or refractory pulmonary edema. *Journal of the American College of Cardiology, 32*(1), 154-158.