

Introduction

- Aortic valve disease is the most common valvular heart disease globally with an estimated more than 200,000 aortic valve replacements performed annually worldwide¹.
- Due to an aging population, and an increased frequency of these procedures, repeat aortic valve replacements are frequently being performed, due to poor durability especially noted in bioprosthetic valves.
- Common complications of prosthetic valves include valve thrombosis, arrhythmias, infective endocarditis, and valve regurgitation. Acute coronary syndrome is an uncommon complication of a prolapsed bioprosthetic valve.

Case Description

- 62YO F presented with sudden onset precordial chest pain, nausea and vomiting.
- PMH: Bicuspid AV stenosis, with initial Mechanical AV replacement, and redo Bioprosthetic AVR (20yrs) , due to INR instability from antiepileptic medications
- Vitals: BP 82/40 (54)mmHg; HR 59mmHg, Afebrile
- Physical Examination: Altered mentation; Marked Jugular venous distension, few bilateral crackles, cold, poorly perfused extremities, no peripheral edema.

	At presentation	24hrs	Day 8
Troponin (ng/L)	173	43,110	-
Sodium (mmol/L)	134	128	137
K (mmol/L)	5.4	5.5	4.0
BUN (mg/dl)	6	22	8
Cr (mg/dl)	1.21	1.79	0.73
WBC (k/UL)	15.82, (N81.7)	13.49 (N86.6)	9.26
AST (Units/L)	46	1525	80
ALT (Units/L)	23,	1396	360

- 12-leadEKG: ST depressions in the inferolateral leads.
- She was diagnosed with NSTEMI, complicated by cardiogenic shock.
- Admitted to the ICU, intubated and mechanically ventilated, and required vasopressors and Inotropes, and heparin infusion.

Clinical Course

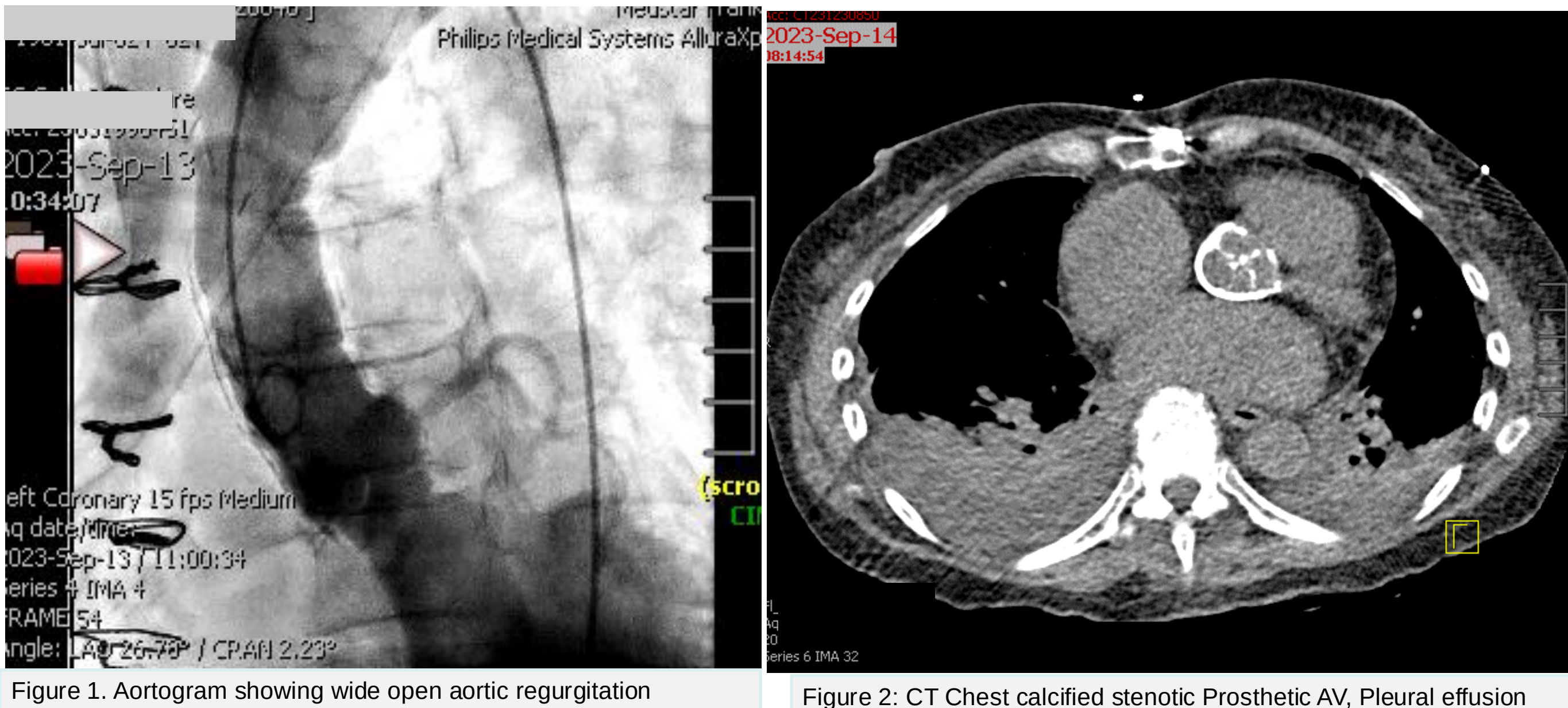


Figure 1. Aortogram showing wide open aortic regurgitation

Figure 2: CT Chest calcified stenotic Prosthetic AV, Pleural effusion

- Day 1: Coronary Angiography : Subtotal chronically occluded RCA, with collaterals, Severe Aortic Insufficiency.
- ECHO: Prolapsed AV, severe paravalvular aortic regurgitation hyperdynamic systolic function EF 70-75%.
- Day 2 : Swan Ganz inserted for hemodynamic monitoring.
- Day 3 : She underwent TAVR; Transvenous pacing for severe Bradycardia. Inotrope Requirements decreased. AKI Improved. Extubated
- Day 5 –8 : MRI done for slow speech and altered mentation; Tiny recent infarcts in bilateral cerebral hemispheres. Weaned off pressors, and oxygen, and discharge home.



Figure 3. TAVR done, no regurgitation noted

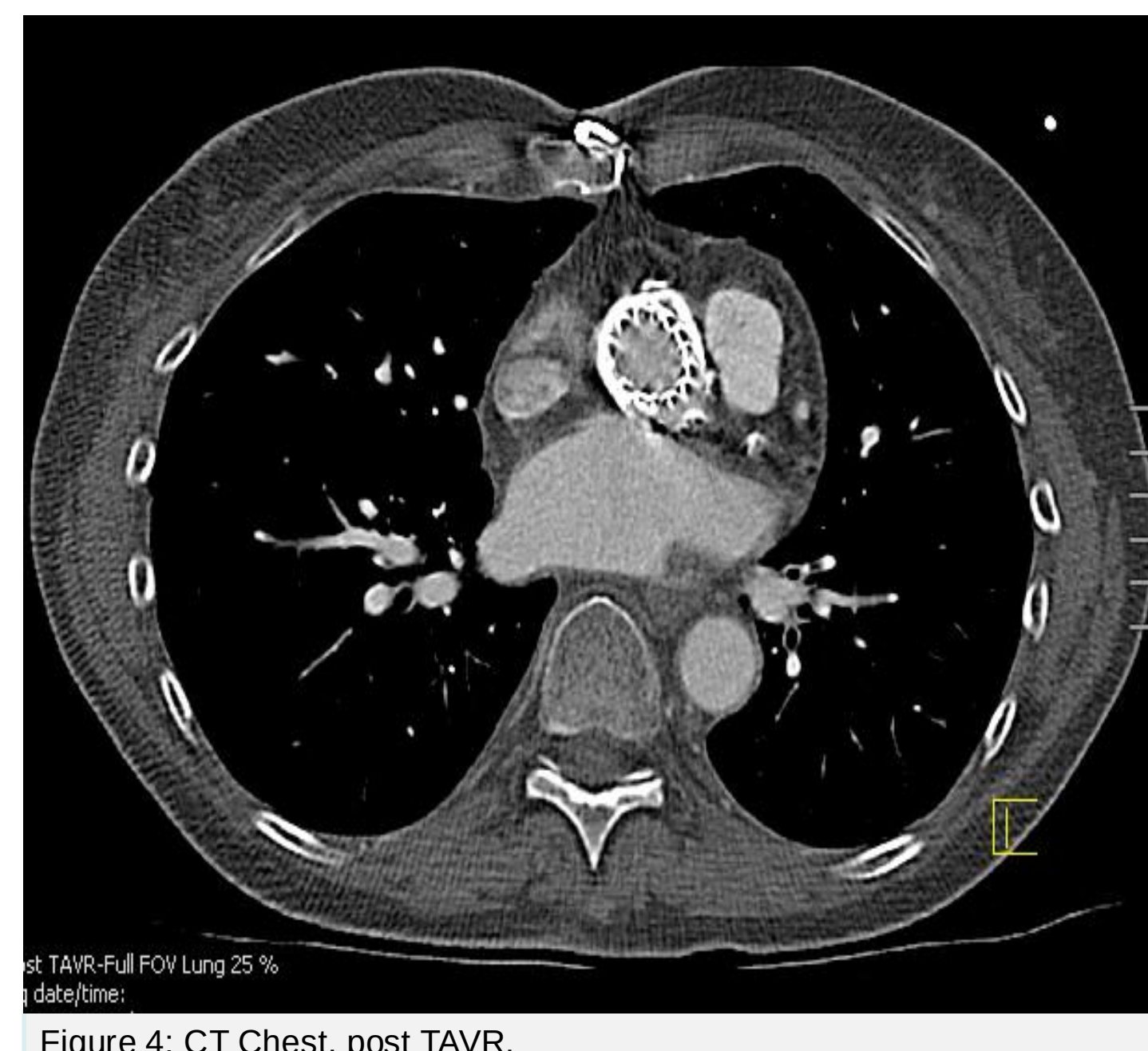


Figure 4: CT Chest, post TAVR.

Discussion

- Initial choice of valve replacement is determined by multiple factors, including age/life expectancy, comorbidities and risk assessment.
- Bioprosthetic Valves are less durable with an estimated 15-year life span² but was indicated in this patient due to lack of effective anticoagulation management.
- Prosthetic valve dysfunction occurs early in bioprosthetic valves and encompasses obstruction (stenosis), and regurgitation (transvalvular and paravalvular)³. Regurgitation often presents as symptomatic Heart Failure. ACS is an unusual manifestation of valve degeneration.
- Valve intervention is indicated in severe regurgitation with symptoms, and surgical intervention is often preferred³. In this case, guidelines recommend a transcatheter Valve in Valve procedure, due to high risk for open surgical therapy

Conclusion

Acute coronary syndrome is an unusual manifestation of bioprosthetic valve dysfunction; it should be considered in patients with atherosclerotic risk factors as it is associated with significant morbidity.

References

- Bax JJ, Delgado V. Bioprosthetic heart valves, thrombosis, anticoagulation, and imaging surveillance. JACC Cardiovasc Interv. 2017; 10:388–390
- J Am Heart Assoc. 2020 Oct 6; 9(19): e018506. Published online 2020 Sep 21. doi:10.1161/JAHA.120.018506
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