Journal of Neonatal Surgery
ISSN(Online): 2226-0439
Vol. 14, Issue 25s (2025)
https://www.jneonatalsurg.com

OPEN ACCESS

Incidental Finding of Coronary Artery Fistula in Infective Endocarditis Patient: A Case Report

Rilman Ilma Januar[1], Yan Efrata Sembiring[2], Dhihintia Jiwangga[3], Philia Setiawan[4]

[1]M.D., Dept. of Thoracic, Cardiac and Vascular Surgery, Faculty of Medicine, UNIVERSITAS AIRLANGGA, Surabaya, Dept. of Thoracic, Cardiac, and Vascular Surgery, Dr. Soetomo General Academic Hospital, Surabaya, Indonesia

[2]M.D., Dept. of Thoracic, Cardiac and Vascular Surgery, Faculty of Medicine, UNIVERSITAS AIRLANGGA, Surabaya, Dept. of Thoracic, Cardiac, and Vascular Surgery, Dr. Soetomo General Academic Hospital, Surabaya, Indonesia

[3]M.D., Dept. of Thoracic, Cardiac and Vascular Surgery, Faculty of Medicine, UNIVERSITAS AIRLANGGA, Surabaya, Dept. of Thoracic, Cardiac, and Vascular Surgery, Dr. Soetomo General Academic Hospital, Surabaya, Indonesia

[4]M.D., Dept. of Anesthesia and Reanimation, Dr. Soetomo General Academic Hospital, Surabaya, Indonesia

***Corresponding Author:**

Yan Efrata Sembiring,

M.D. Dept. of Thoracic, Cardiac and Vascular Surgery, Faculty of Medicine, UNIVERSITAS AIRLANGGA, Surabaya, Dept. of Thoracic, Cardiac, and Vascular Surgery, Dr. Soetomo General Academic Hospital, Surabaya, Indonesia, Jl. Prof. DR. Moestopo No.6-8, Airlangga, Kec. Gubeng, Surabaya, Jawa Timur 60286

Email ID: yanefratas@yahoo.com

Cite this paper as: Rilman Ilma Januar, Yan Efrata Sembiring, Dhihintia Jiwangga, Philia Setiawan, (2025) Incidental Finding of Coronary Artery Fistula in Infective Endocarditis Patient: A Case Report. *Journal of Neonatal Surgery*, 14 (25s), 455-458.

ABSTRACT

Introduction: Coronary artery fistulas (CAF) is rare congenital anomaly often discovered incidentally and can lead to serious complications, particularly when associated with infective endocarditis, a severe heart infection.

Case Presentation: A 26-year-old woman presented with dizziness and left-sided weakness, is diagnosed with embolic stroke and infective endocarditis. Preoperative transesophageal echocardiography revealed a CAF from the right coronary artery draining into the right atrium. She underwent successful aortic valve replacement with bioprosthetic valve and closure of the CAF with pledgeted sutures. Postoperative recovery was smooth, with significant improvement in symptoms and cardiac function.

Discussion: Coronary artery fistula diagnosis and management still remain challenge until today for surgeon. Small CAF usually was asymptomatic, meanwhile medium and large CAF usually had variety of hemodynamic signs and symptoms which could be challenging to be recognized. Combination of coronary artery fistula and infective endocarditis was rare, yet it would usually present in complicated conditions thus complicating the management. Early diagnosis leading to prompt surgical intervention gave result to good prognosis in our case. Management of the infective endocarditis was done by performing aortic valve replacement using bioprosthetic aortic valve. The coronary-cameral fistula, where in our case the right coronary artery was connected to the right atrium chamber, was managed by closing the fistula with pledgeted sutures on the right atrium side of the fistula

Conclusion: This case emphasizes the importance of comprehensive preoperative evaluation in complex cardiac conditions, as incidental CAF can complicate infective endocarditis management. Early diagnosis and surgical intervention led to a positive outcome, demonstrating the effectiveness of surgical management in such cases.

Keywords: *Coronary artery fistula; Infective Endocarditis; aortic valve replacement; Cardiac surgery; Pledgeted sutures*

1. INTRODUCTION

Coronary artery fistulas (CAF) is a rare malformation of coronary system, which can be divided into two categories, the coronary-cameral fistulas, which is an abnormal connections between coronary arteries and the heart chambers, and the coronary arteriovenous malformations, which is an abnormal connections between coronary arteries and systemic or pulmonary circulation vessels. Majority is caused by abnormal embryological development, but it can also be caused by trauma or surgical procedures. [1] Although most are asymptomatic and found accidentally, but untreated medium and large

CAF can enlarge and cause serious clinical implications including cardiac chamber enlargement and myocardial ischemia. [1,2] Meanwhile, infective endocarditis which is an infection of the endothelium of the heart is a rare yet deadly infection with up to 30% mortality rate. [3] Infective endocarditis complicating coronary artery fistula increase the challenge in the management of both cases. [4] Herein, we report a case of incidental finding of coronary artery fistula in adult patient diagnosed with infective endocarditis. Aortic valve replacement was done simultaneously with closure of the CFA.

2. CASE PRESENTATION

A 26-year-old woman initially was presented to the emergency room with severe dizziness and weakness of the left side of her body. She was initially diagnosed with embolic stroke and infective endocarditis. Vital sign was stable and systolic murmur could be found from physical examination. Electrocardiogram showed sinus rhythm and chest radiograph showed cardiomegaly. (Figure 1) Transthoracic echocardiography (TTE) initially showed dilated left ventricle and bilateral atrium; right coronary cusp (RCC) and non-coronary cusp (NCC) vegetation; moderate-severe aortic regurgitation; and moderate pericardial effusion. TTE evaluation in 2 weeks after first examination showed improvement of vegetation condition but worsening of aortic regurgitation. Patient then was consulted to the cardiothoracic and vascular surgery department for aortic valve replacement. Additional pre-operative transoesophageal echocardiography (TEE) revealed a fistula arising from right coronary artery forming a pseudoaneurysm and ended into right atrium chamber.

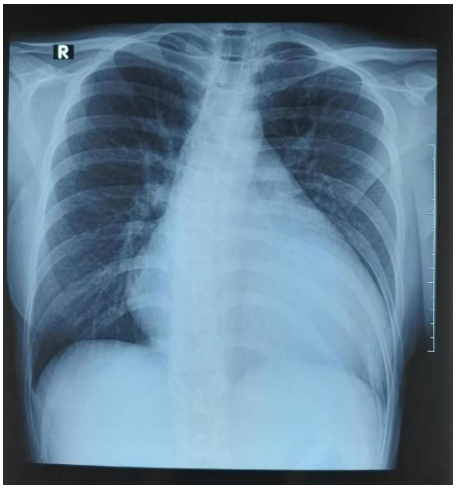

Figure 1. Preoperative chest radiograph

Intraoperative finding showed cardiomegaly with good cardiac contractility, thrill at the right atrium chamber, and dilated ascending aorta. (Figure 2) All the aortic valve cusps were calcified with vegetation. (Figure 3) The CAF could be seen arising from right coronary toward the right atrium chamber, which classified into the coronary-cameral type of CAF. (Figure 4)

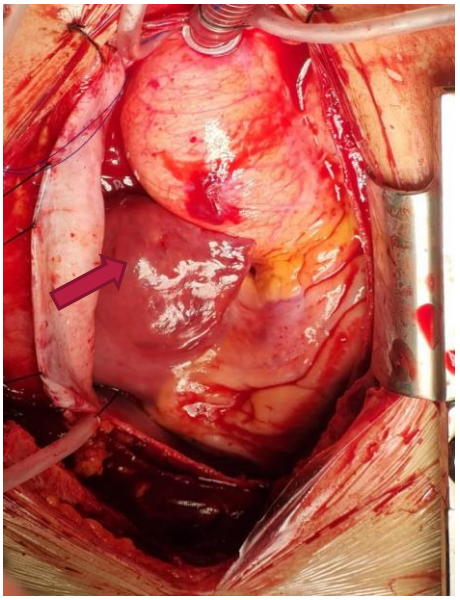

Figure 2. Intraoperative finding: dilated descending aorta (arrow)

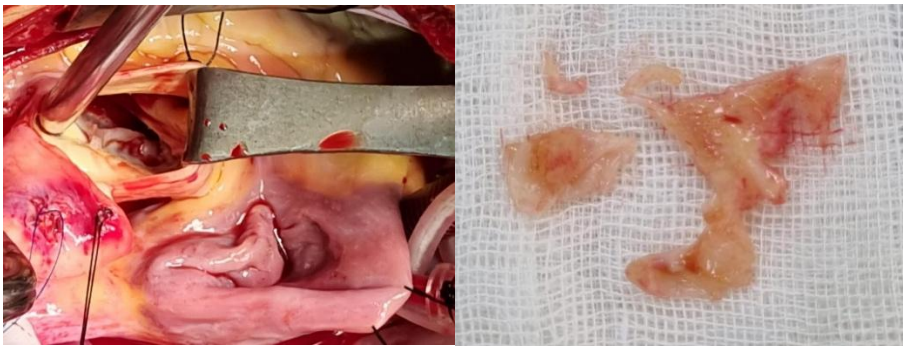

Figure 3 Intraoperative finding: calcified aortic valve cusps

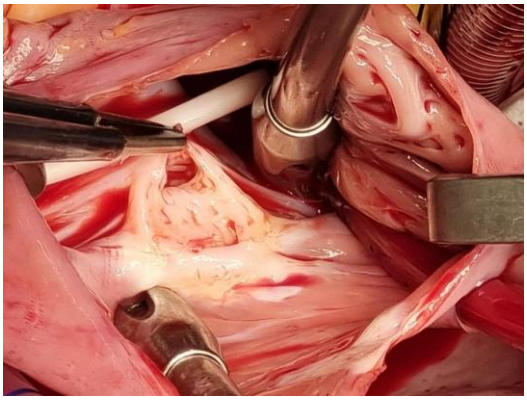

Figure 4. Intraoperative finding: coronary-cameral fistula arising from right coronary artery toward the right atrium chamber

Aortic valve replacement with bioprothesis valve size 21 were done (Figure 5) followed by closure of coronary artery fistula at the right atrium with 3 pledgeted sutures. Patient's postoperative vital sign was stable without any support. Patient was intubated with tube in mode synchronized intermittent mandatory ventilation and then she was moved to the ICU for closed observation.

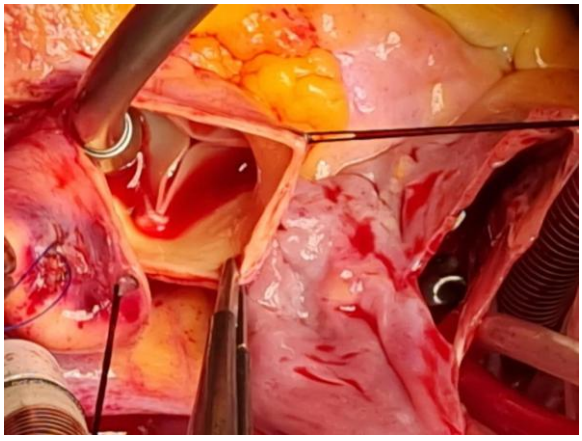

Figure 5. Aortic valve replacement with bioprosthetic valve

Post operative TEE revealed improvement of the valve function, normal function of the bioprosthetic aortic valve with minimal lateral leakage. The right coronary artery fistula was closed without any residual flow. For the post operative management, apart from fluid and pharmacotherapy, patient hemodynamic and drainage production was observed closely, gradual ventilator weaning was started so she could be extubated. On postoperative day-5, the patient was discharged with minimal symptoms. On postoperative day-7, patient was planned for control in outpatient department and showed improvement in symptoms and had better quality of life.

3. DISCUSSION

Coronary artery fistula diagnosis and management still remain challenge until today for surgeon. Small CAF usually was asymptomatic, meanwhile medium and large CAF usually had variety of hemodynamic signs and symptoms which could be challenging to be recognized. [1,2] Majority of the cases were found incidentally, [5,6,7] just like our case. The patient was presented with severe dizziness, weakness of the left side of her body, and murmur on physical examination. She was then diagnosed with infective endocarditis. Despite initial treatment, the aortic regurgitation didn't improve and the patient was planned to have aortic valve replacement. A coronary artery fistula malformation arising from the right coronary artery to the right atrium chamber was found on accident after preoperative TEE examination. Several previous studies had reported the same finding in which CAF was found on accident in either asymptomatic or symptomatic patient with varied hemodynamic symptoms and signs. [5,6,7]

Combination of coronary artery fistula and infective endocarditis was rare, yet it would usually present in complicated conditions thus complicating the management. [5,8] Our patient showed stable condition with mild to moderate symptoms on initial admission. Early diagnosis leading to prompt surgical intervention gave result to good prognosis in our case. Management of the infective endocarditis was done by performing aortic valve replacement using bioprosthetic aortic valve. The coronary-cameral fistula, where in our case the right coronary artery was connected to the right atrium chamber, was managed by closing the fistula with pledgeted sutures on the right atrium side of the fistula. Management of coronary artery fistula could be divided into surgical and minimal invasive intervention using catheter approach, although the difference in prognosis between both methods hadn't been fully studied. [9] Although the usage of minimal invasive method was increasing, percutaneous catheter approaches had some risks including myocardial infarction, device embolization and fistula recanalization compared to open surgery method. [2,10]

4. CONCLUSION

This case highlights the incidental discovery of a coronary artery fistula in a patient with infective endocarditis, which was successfully managed with simultaneous aortic valve replacement and CAF closure. Prompt diagnosis and surgical intervention led to a favorable postoperative outcome, demonstrating the importance of thorough preoperative evaluation in complex cardiac cases.

Acknowledgements

The authors report no funding

REFERENCES

[1] Rao SS, Agasthi P. Coronary Artery Fistula [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan-. [cited 25 November 2024]. Available from: https://www.ncbi.nlm.nih.gov/books/NBK559191/

[2] Al-Hijji M, El Sabbagh A, El Hajj S, AlKhouli M, El Sabawi B, Cabalka A, et al. Coronary Artery Fistulas: Indications, Techniques, Outcomes, and Complications of Transcatheter Fistula Closure. JACC. Cardiovascular interventions. 2021;14(13):1393–1406.

[3] Rajani R & Klein JL. Infective endocarditis: A contemporary update. Clinical medicine (London, England). 2020;20(1):31–35.

[4] Green T & Crilley J. Endocarditis and coronary artery fistula: a case report. European heart journal. Case reports. 2018;2(1):yty023.

[5] Agrawal DP, Joshi AS, & Nm S. The curious case of coronary cameral fistula with infective endocarditis: A rare harbinger of a common clinical entity. Turk gogus kalp damar cerrahisi dergisi. 2021;29(2):248–251.

[6] Alammar AK. Coronary Artery Fistulae Discovered during Presentation of a Patient Having Heart Failure due to Severe Aortic Stenosis. Case reports in cardiology. 2014;2014:213673.

[7] Vaz Silva P, Marinho JC, & Pires A. Accidental finding of a giant right coronary artery aneurysm associated with a fistula to the right atrium. Cardiology in the young. 2014;24(3):528–530.

[8] Lin YH, Chao CL, Lee YT, Chen SJ, & Wang SS. Coronary artery fistula presented as infective endocarditis with pulmonary septic emboli. International journal of cardiology. 2005;98(1):159–160.

[9] Latson LA. Coronary artery fistulas: how to manage them. Catheterization and cardiovascular interventions : official journal of the Society for Cardiac Angiography & Interventions. 2007;70(1):110–116.

[10] McMahon CJ, Nihill MR, Kovalchin JP, Mullins CE, & Grifka RG. Coronary artery fistula. Management and intermediate-term outcome after transcatheter coil occlusion. Texas Heart Institute journal. 2001;28(1):21–25.