

Degenerative aortic valve with severe stenosis: A case report

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Abstract

This is a case report representing a 69-year-old female who was diagnosed with degenerative aortic valve with severe stenosis which is a disease characterized by narrowing of the aortic valve and restriction of blood flow from the left ventricle of the heart into the aorta. Periodontal diseases such as gingivitis and periodontitis have an association with infected heart tissue (Endocarditis) whereby the inflammation causes narrowing of arteries and aggravate aortic valve stenosis. Periodontal diseases also cause poor glycaemic control due to insulin resistance caused by gram negative oral microbes which gain entry into blood stream when periodontal breakdown occurs. Maintenance of good oral health is important for prevention of heart conditions and ensuring glycaemic control is not affected.

Keywords: Degenerative aortic valve with severe stenosis; Periodontitis; Gingivitis; Endocarditis

1. Introduction

Aortic degeneration with severe stenosis is a progressive condition where the aortic valve becomes narrow, restricting blood flow from the left ventricle of the heart into the aorta. It is the most common heart valve disease in developed nations, typically affecting older adults. (1)

There is a link between infected gums (gingivitis) and periodontitis with infected heart tissue (endocarditis). The inflammation of heart tissue caused by infection can narrow arteries and aggravate aortic valve stenosis. The oral bacteria associated with this link is *streptococcus mutans*. (2)

Also periodontal diseases may be associated with cardiovascular diseases (CVD) due to mutual risk factors for atherogenesis and periodontal disease.

In order to consider periodontal disease as a risk factor for atherosclerosis and other cardiovascular diseases, the presence of pathogens associated with periodontal infection should be localized in serum or atheromatous plaque.

Literature says there is association between periodontal diseases and cardiovascular diseases (3)

2. Case report

A 69-years old female, a peasant who was hospitalized at the Cardiac Institute.

She was presented to the Restorative Dentistry department for oral health examination and evaluation before being scheduled for heart surgery due to degenerative aortic valve with severe stenosis.

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2.1. Clinical history and Examination

A known case of degenerative aortic valve with severe stenosis. She has history of diabetes mellitus. She has no history of allergy

She was apparently well but one year ago she started experiencing a number of symptoms generally in her body

She had severe chest pain in the beginning, she was experiencing fatigue, feeling of fevers and gradually lost the ability to walk, she at times hardly try to walk with the support of a stick and help from another person

Other symptoms experienced were severe back pain which was increasing when bending and when on movement

The right upper limb was painful, she experiences numbness on the lower limbs and sometimes spontaneous pain on the same

Mouth opening is not sufficient. She has halitosis, Mucosa of the tongue, gingiva, palate and floor of the mouth looks normal. The upper and lower jaw teeth are stained. She has attrition on teeth 11 and 21

She also has plaque deposits on all sextants Calculus deposits on all sextants Mobility grade III on tooth 27 and missing teeth 17 & 38



Figure 1 Oral clinical presentation

2.1.1. Investigations done at the heart clinic were

- Echocardiogram
- ECG
- Chest X-ray

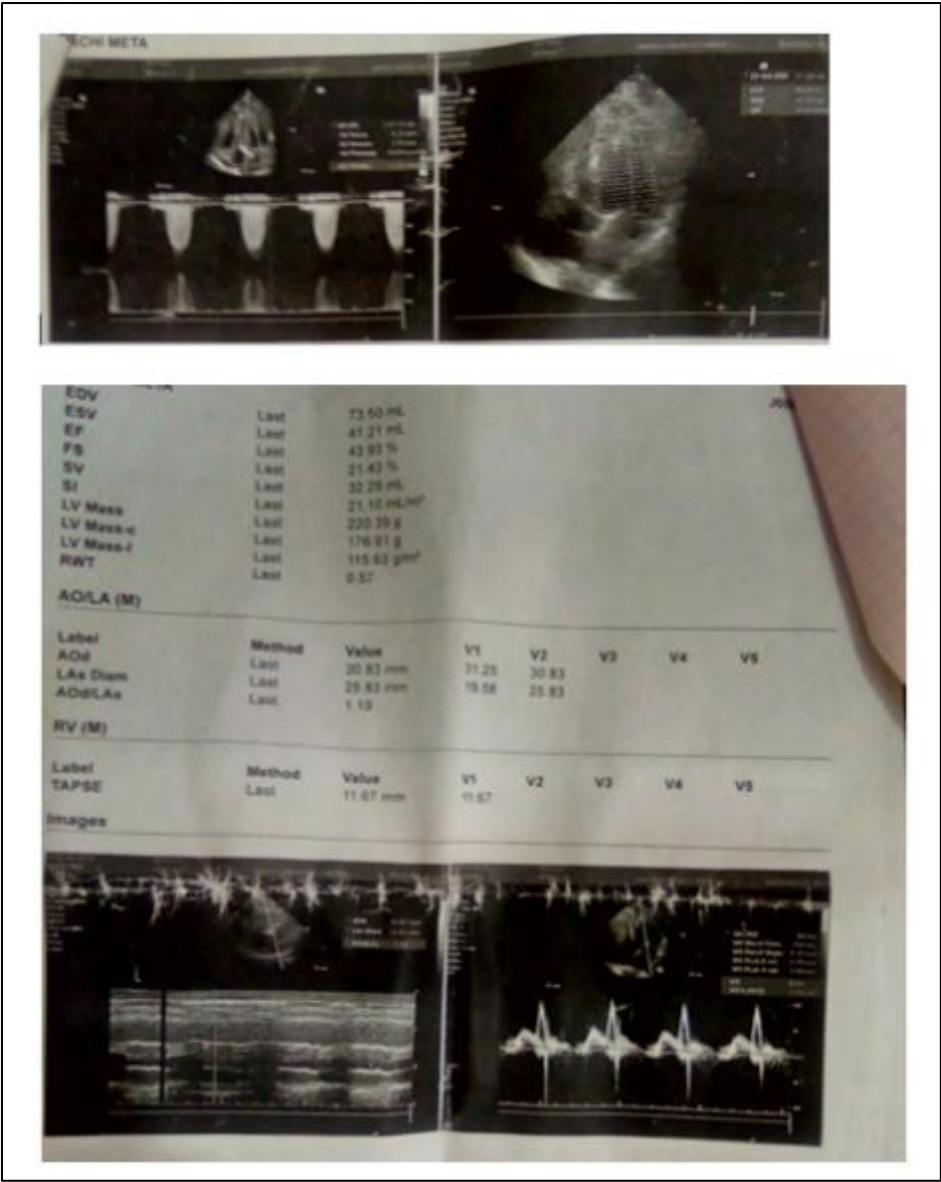


Figure 2 ECHO RESULTS



Figure 3 ECHO REPORT

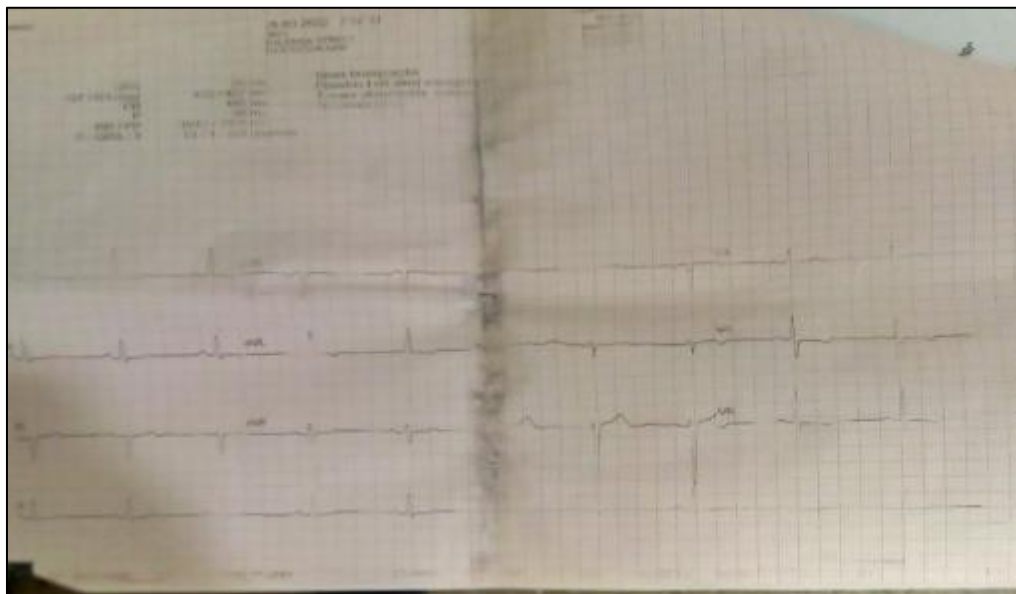


Figure 4 ECG

After all investigations the general diagnosis of **degenerative aortic valve with severe stenosis** was made.

Then the patient was scheduled to undergo heart surgery. But before surgery she was supposed to undergo oral health evaluation and at this point she was sent to the dental department.

2.1.2. Routine tests and investigations done at the dental clinic:

- Random blood glucose taken on the first day was 9.1mmol/l
- Random blood glucose test taken on the second day was 9.2mmol/l and the blood pressure was 118/85mmHg with pulse rate 82beats/minute

- Random blood glucose taken on the third day was 13.6 mmol/l and blood pressure was 110/80 mmHg with pulse rate 86 beats/minute

2.1.3. Oral diagnoses were

- Generalized chronic periodontitis
- Moderate fluorosis (Generalized)
- Attrition on 11 & 21
- 27-Chronic periodontitis with grade III mobility

2.1.4. Treatment plan at the dental department

- Oral hygiene instructions, motivation of the patient and demonstration of tooth brushing
- Scaling and root planing on all sextants
- Extraction of 27
- Composite restoration on 11 and 21

3. Discussion

3.1. Relationship of the underlying conditions with oral health

- There is a link between infected gums (gingivitis) and periodontitis with infected heart tissue (endocarditis) (4,5). The inflammation of heart tissue caused by infection can narrow arteries and aggravate aortic valve stenosis
- The oral bacteria associated with this link is *streptococcus mutans*. Periodontal disease may be associated with Cardiovascular disease (CVD) due to mutual risk factors for atherogenesis and periodontal disease (6)
- The hyperglycaemic state of this patient is not controlled and less attention has been paid
- The uncontrolled hyperglycemia may suggest the aggravation of the heart disease and the periodontal disease (7)
- Literature says there is association between diabetes, periodontal diseases and cardiovascular diseases (3)

3.2. Effect of the presenting condition to oral health

- This patient falls in the special need group in dentistry under medically compromised category
- The condition of the patient i.e. aortic valve degeneration with severe stenosis has affected the general condition of the patient
- The classical symptoms are felt in almost all parts of the body
- This impairs the effectiveness in the daily routine functioning of the individual and also the lag behind of personal hygiene including oral health care
- This is seen when the patient experiences dyspnea on exertion, excessive fatigue, discomfort, feeling of fever most of the time, muscle weakness hence it affects the effectiveness of oral hygiene measures
- Generally the patient pays less attention to oral hygiene due to devastation of other medical conditions hence poor oral hygiene leading to oral diseases
- This is evidenced by the patient presenting with generalized plaque and calculus deposits in the oral cavity.

3.3. Treatment given.

- Oral hygiene instructions, patient motivation and demonstration of tooth brushing, scaling and root planning and extraction then the patient allowed to continue with heart surgery
- The cosmetic part of treatment i.e. composite restoration of 11 & 21 was to be done later after heart surgery (Subjectively)
- Antibiotic prophylaxis (1gm Amoxycillin start) was prescribed a day prior to scaling and root planning
- Scaling and root planning done and then consultation was made to the physician to address the rising sugar levels which was then controlled.
- Later after finishing the dental treatment and ensuring clean oral cavity then the patient was brought back to the heart surgeon to continue with scheduled heart surgery and she was instructed later on to return to dental clinic for cosmetic treatment.

4. Conclusion

Maintaining good oral health is of paramount importance in prevention of periodontal diseases and heart diseases. Patients with heart conditions who need heart surgery need to be cleared with all kinds of oral infection and diseases before operation so as to prevent spread of oral bacteria to the heart tissues during and after surgery.

This approach in management ensures more patient safety by involving more than one specialty and is referred to as multidisciplinary patient management.

This case report is significant as it is important to consult respective specialties whenever the patient is presenting with complex conditions crosscutting specialties.

Compliance with ethical standards

Disclosure of conflict of interest

There were no conflicts of interest.

Statement of ethical approval

All procedures in this case report were in accordance with the ethical standards of *Muhimbili University of Health And Allied Sciences (MUHAS)*.

Statement of informed consent

Written informed consent was obtained from the patient to publish this case report in accordance with the journal's patient consent policy.

References

- [1] Yoshiba S. Metagenomic analysis of oral plaques and aortic valve tissues reveals oral bacteria associated with aortic stenosis *Clinical Relevance : Res Sq.* 2023;023(05053):8.
- [2] Lander H. Degenerative aortic stenosis. *Ger-E-News.*2021 Jan;3-4.
- [3] Litvinov E, Litvinov A. The Relationship Between Periodontitis , Gingivitis , Smoking , Missing Teeth , Endodontic Infections , Aortic Aneurysm , and Coronary Artery Disease : The 10-Year Results of 25 Patients. *Cureus.* 2024;16(11)
- [4] Anil S. The impact of periodontal infections on systemic diseases. An update for medical practitioners. *Saudi Med J.* 2006; 27(6):767–76.
- [5] Khan MA, Ahmed S. Interrelationship Between Cardiovascular and Periodontal Diseases. *Int J Health Sci.* 2022;6(March):1274–84.
- [6] Yaguchi E, Komiyama Y, Inami S, Shibasaki I, Shintani T, Shiraishi R. Oral Dysbiosis Is Associated with the Pathogenesis of Aortic Valve Diseases. *Microorganisms.* 2025; (13) (7)1–16.
- [7] Johansson CS. Periodontitis and coronary artery disease coronary artery disease.(doctoral thesis). Linköping University. 2013;(1343).