





Figure 2: Transesophageal echocardiogram showing vegetation on aortic valve.



Figure 3: Transesophageal echocardiogram showing no vegetation on aortic valve after antibiotic treatment.

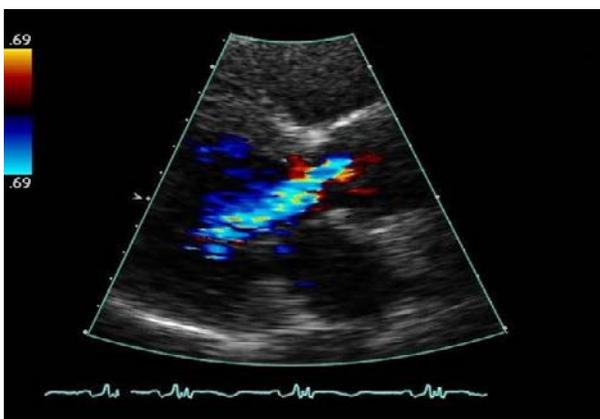


Figure 4: Transthoracic echocardiogram showing Aortic regurgitation.

was taken for an aortic bioprosthetic valve and aortic root replacement. The rest of the course was uncomplicated and patient did well after the surgery.

## Discussion

Nutritionally variant *Streptococcus* (NVS) was first identified by Frenkle and Hirsh in 1961 in a case of subacute infective endocarditis [10]. NVS was initially classified as *Streptococcus defectiva* and *Streptococcus Adjacens* and later their names were changed to *Abiotrophia defectiva* and *Abiotrophia adjacens* [11]. Later many several other species such as *A. balaenopterae* and *A. paraadjacens* were identified [22-24]. Finally *A. defectiva* remained as a separate genus and others were renamed as *Granulicatella* species [12]. *A. defectiva* usually isolated from immunocompetent hosts and *Granulicatella* species from immunocomprised hosts. *A. defectiva* is a very important cause of blood culture negative infective endocarditis. It is notorious to cause serious complications like congestive heart failure, septic embolization and destruction of the valve despite of use appropriate antibiotics hence aggressive treatment is necessary including surgery with the first sign of complications. In vitro antibiotics susceptibility does not reflect clinical outcome. The aggressive nature of this organism is because of secretion of exopolysaccharide and ability to adhere to fibronectin [13]. *A. defectiva* has a special affinity for endovascular tissue. *A. defectiva* is difficult to identify because it is a very slow growing, pleomorphic [14], and has special nutritional requirements such as thiol containing compound pyridoxine and Vitamin b6 for growth. It is often seen as a satellite lesion around other bacteria that secrete pyridoxal such as *staphylococcus* [2]. On gram stain it can be seen as a gram positive cocci or *coccobacillary* or bacillary. It does not grow well on typical culture media however it does grow well on Columbia blood agar and Todd-Hewitt broth. Growth is enhanced by supplementation with pyridoxal hydrochloride and L-cysteine. It is often seen as white grey, non hemolytic colonies. It shows a positive reaction for production of pyrrolidonyl arylamidase and leucine aminopeptidase and negative for hydrolysis of hippurate. 16S RNA gene amplification follows by PCR-RFLP shown to be a rapid and more accurate method for identification. MALDI-TOF-MS (Matrix associated laser desorption ionization time of flight mass spectrophotometer) is another simple and inexpensive method of identification [15]. Prevalence of resistance to beta lactams is about 50% and to macrolide antibiotics is about 93% in this organism [16], however, resistance to aminoglycoside is not so high hence penicillin and gentamicin combination is better than penicillin alone. There is a bacteriologic failure rate of 17-40% [17]. American Heart Association guidelines recommend treatment of *A. defectiva* should follow the guidelines for the treatment of enterococcal endocarditis [18]. The regimen is penicillin or ampicillin with gentamicin for 4-6 weeks. As mentioned, previously complications are high with this organism even on appropriate antibiotics, hence close, frequent and long term follow up is necessary to look for complications. 50% of the patients require surgery [19-21].

## Conclusion

Clinicians should be aware of this highly aggressive organism when dealing with blood culture negative infective endocarditis. Isolation of *A. defectiva* is difficult due to special nutritional requirements hence special techniques are required. *A. defectiva* is known to cause complications even on sensitive antibiotics consequently close monitoring is required.

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