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Clot on top of chaos: A case of fungal endocarditis with superior vena cava thrombosis

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Introduction

Fungal endocarditis is a rare but serious complication. It accounts for 1-3% of all infective endocarditis cases, a mortality rate exceeding 70% [1,2]. Fungal endocarditis is a medical challenge not only in terms of diagnosis but management and source control. Candida and Aspergillus species are the most common fungal culprits [3], often evading detection in blood cultures. Echocardiography plays an important role in identification of vegetations on the heart valve. The culprit organism can sometimes be isolated from surgically removed emboli, resected heart valves, or infected foreign materials. A successful treatment strategy typically involves a combination of long-term antifungal medication and surgical intervention.

Case presentation

34 years old women with history of intravenous substance use since 3 years came with complain of high grade fever since 15 days associated with cough and generalized weakness. Patient was referred from other facility where she was managed with infective endocarditis and pneumonia. On arrival, patient was hypoxic and tachycardiac and was admitted in special care unit. Lab workup sent showed raised leukocytes, low platelet, deranged INR and raised inflammatory markers, fungal markers were also sent. Patient was managed with empirical antibiotics after sending blood cultures. During the hospital course, due to history of intravenous substance use and indwelling PICC line for long term antibiotics and provisional growth of budding yeast in blood culture raise high suspicion of fungal endocarditis so transthoracic echocardiogram was done which initially showed very large mobile mass 7.2 cm x 1.7 cm reduced right ventricle function and preserved ejection fraction. Infectious disease was consulted and antifungal were also added. Patient was shifted to intensive care unit and was electively intubated due to worsening respiratory distress. Due to suspicion of pulmonary embolism, CT chest was also done which showed partial thrombosis in superior vena cava and right atrium and no evidence of pulmonary embolism. Cardiothoracic team was consulted for removal of vegetation and high risk surgery was scheduled. After optimization with blood products, patient un-

derwent surgery under general anesthesia and large vegetation 15 x 3 cm in right atrium attached to posterior leaflet of tricuspid valve was removed along with excision of posterior leaflet and biscupidization of anterior and septal leaflet and removal of inflamed thrombotic superior vena cava. PICC line was also removed. Blood culture and infected emboli showed growth of candida albicans. Post operative, patient become hypotensive and urine output was reduced to nil. Vasopressors was started and nephrology was consulted for resistant metabolic acidosis and CRRT was planned but unable to tolerate due to hypotension. Patient condition worsened and eventually passed away due to cardiac arrest.

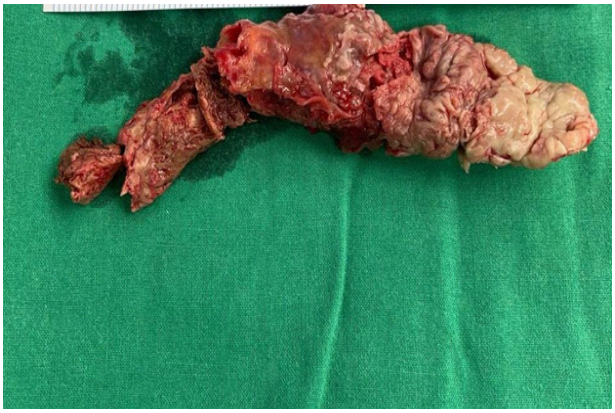

Figure 1: Figure showing large vegetation resected from tricuspid valve along with superior vena cava thrombus.

Discussion

Right-sided IE accounts for 5% to 10% of all IE cases. Compared with left-sided IE, it is more often associated with intravenous drug use, intracardiac devices, and central venous catheters. Intravascular catheter-related infections are a major cause of morbidity and mortality [4].

Indwelling central venous catheters are used to administer chemotherapy, parenteral nutrition and long-term antimicrobial therapy. In general, the rate of catheter-related complications is low. For instance, in a 5-year prospective study, the overall incidence of complications was 0.09 per 100 days. Most complications were due to either infection (0.02 per 100 days) or thrombosis (0.03 per 100 days) [5]. A few of the authors have felt that large vegetation size (diameter >10 mm) have a chance to benefit from surgery while others felt that many of the members of this population will eventually recover with non-surgical, medical treatment [6].

Fungal endocarditis mostly involves multidisciplinary care team. These patients are best managed by an interprofessional team that consists of a cardiologist, infectious disease specialist, intensivist, cardiac surgeon, and internist as in our patient with unsual presentation of extensive superior vena cava thrombosis and large vegetation of tricuspid valve [5]. Early surgical intervention along with antifungal therapy can only bring better outcomes. Even with multimodality treatment, mortality rate is very high [7]. Showed that only 4% of cases were treated successfully with antifungal therapy alone, while even with surgical therapy, the survival rate was 32%.

Conclusion

Despite of novel diagnostic tools and several advancements in medical and surgical therapies, fungal endocarditis continues to be associated with a poor prognosis. In era of increase intravenous substance use and long term use of intravenous central venous catheter for immunocompromised patient, incidence of fungal endocarditis is increasing. A high index of suspicion needs to be exercised in these high risk patients when presenting with prolonged fever. Early diagnosis and a prompt surgical intervention coupled with optimal antifungal therapy are still our only option to reduce the exceedingly high mortality and morbidity associated with fungal endocarditis.

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