Right-sided native valve infective endocarditis in a non-intravenous drug user during the COVID-19 pandemic

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Introduction

RSIE is often seen because of history of intravenous drug use disorder, as a complications of permanent intravenous catheter placement or untreated skin, oral cavity, or genital infection. RSIE in nonaddicted patients and in patients with no predisposing factors is a clinical rarity. Tricuspid valve IE compromise up to 80% of all right-sided valve IE.

Staph aureus is the pathogens most isolated in RSIE and the most common port of entry is skin followed by genitourinary and colon.

Persistent fever is often the first symptoms that prompts medical treatment followed by pulmonary symptoms. Septic emboli because of dislodgment of vegetative material are also common.

Compared to left-sided IE, systematic embolization is not common in tricuspid valve IE and its occurrence is linked to PFO or presence of septic thrombi in pulmonary veins.

As opposed to left sided IE or device RSIE cases, non-device RSIE cases have been reported mainly in younger patients with less comorbidities. In general, non-device RSIE have better prognosis in comparison to LSIE.

Case Presentation

A 54-year-old male with no history of intravenous drug use or intracardiac device placement presented with a two-week history of sore throat, chills, fever, and joint pain in both the upper and lower extremities. At onset, he did not seek medical care due to the ongoing COVID-19; as the symptoms persisted, he presented to the hospital about 14 days post symptoms onset.

Chest imaging was consistent with bilateral septic pulmonary emboli with cavitiation, along with pneumoperitoneum. Blood cultured grew MSSA. TEE revealed a patent foramen ovale and 1-cm vegetation on the tricuspid valve. In 2 days, repeat echocardiogram showed enlargement of the tricuspid valve vegetation to 2.2 cm. He underwent urgent tricuspid valve replacement and patent foramen ovale repair, complicated by complete heart block managed with a leadless pacemaker.

An extensive, C6-T4 epidural abscess further complicated his hospital course. In addition, he suffered acute kidney injury requiring hemodialysis and liver dysfunction, both attributed to septic emboli.

After a prolonged hospital course, the patient was discharged home with intravenous antibiotic therapy.

Hospital Course

5/18: He presented to ED with co of fever and malaise for 2 weeks; found to have high-grade MSSA bloodstream infection (time to positivity of 10 hours) and RSIE. Urine drug test, HIV and COVID-19 tests were negative. He was started on Cefazolin.

5/19: He complained of neck pain with limited ROM; MRI of cervical spine showed empyema from C6-T4

5/20: TTE showed no valvular vegetation; CT-A chest showed bilateral upper and lower lobes ground-glass and nodular opacities; Abdominal/pelvic CT: large pneumo-peritoneum. Repeat blood culture was positive for MSSA


TEE: Large and mobile (1.7x1.6cm) echodensity attached to atrial side of TC valve. Possible intraarterial shunt (PFO).

5/26-5/27: TTE: TC valve vegetation increasing in size to 2.4cm; kidney functions continue to deteriorate; HD catheter was placed. Repeat blood culture was negative. Given worsening renal function, his antibiotic regimen was changed to Nafillin.

5/29: TAVR with Bovine pericardial valve and closure of PFO; started HD.

6/3: Returned to OR for medtronic pacemaker with RA lead placement due to complete AV block.

6/5: Thoracentesis for bilateral pleural effusion; pleural fluid grew ESBL and meropenem started.

6/7: Cardiac arrest with ROSC. Given progressive cholestasis, his antibiotic was changed from Nafillin to cefazolin. New palpable purpura non-pruritic rash on L ankle that was biopsied, ultimately consistent with leukocytoclastic vasculitis; therefore, Cefazolin was stopped and Meropenem continued.

6/6-6/18: Persistent pleural effusion with multiple thoracentesis, noted to have empyema, IR guided pleural catheter was placed.


6/26: Transferred to the hospital rehabilitation facility.

7/8: Discharge home with multidisciplinary outpatient follow up.

Discussion & Conclusion

RSIE in nonaddicted patients and in patients with no predisposing factors is a clinical rarity.

The indications for surgery in RSIE are persistent bacteremia lasting over one week after commencement of appropriate antimicrobial therapy, septic pulmonary embolism, and the size of vegetation (>2cm).

Multiple organ involvement (i.e. worsening renal function) required multiple antibiotics regimen adjustment.

COVID-19 pandemic has also resulted in delayed seeking treatment by patients which has led to poor prognosis and multiple complications.

This case was one of the a few similar cases of IE with multiple organ complications due to delayed diagnosis and treatment at our hospital during the COVID-19 pandemic.

With the future pandemics we should not be only more vigilant with the new diseases but also with the common medical conditions which possibly can present in more severe fashion, requiring increased medical attention and resources. This case highlights the multifaceted effects of Covid-19 pandemic.

Image Description

Figure 1. A 1.7 x 1.6 cm mass attached to atrial side of tricuspid valve

Figure 2. A 2.2cm vegetation on lateral tricuspid leaflet

Figure 3A & B. Septic emboli with bilateral pneumonia, RU lobe nodule 3.3x3.3cm; LU lobe nodule 2.7x1.8cm

Figure 5. Large pneumonotomium with concern for perforated hollow viscus, 5/20/20

Figure 6. Epidural empyema from C6-T4

References
