Endocarditis

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LECOMT LAKE ERIE CONSORTIUM FOR OSTEOPATHIC MEDICAL TRAINING

Background and Learning Objectives

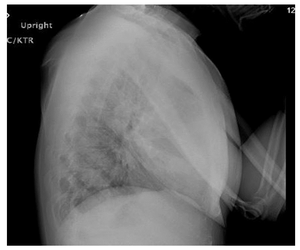
- ✓ Learn about the presentation of endocarditis.
- ✓ Discuss the difficulties in treating patients for endocarditis.
- ✓ Learn about the Dukes criteria and applying it to this case.
- ✓ Discuss the why its important to treat it efficiently.
- ✓ Discuss ideas for the future to optimize outcomes for high risk patients.

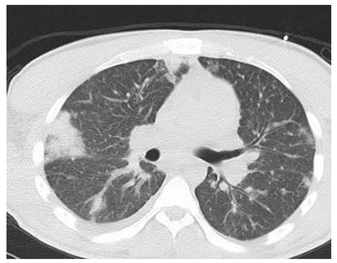
Case Report

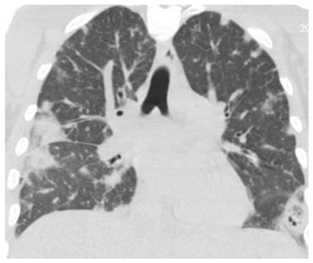
This is a 29-year-old male with no significant Past Medical History. The patient says he was not feeling well for the last seven days, was having chills, rigors, non productive cough, diaphoresis, and body aches. Which were all getting worse over the last week. The patient has been taking Tylenol on a regular basis with no relief. The patient then presented to the emergency department because of extreme myalgias, and severe body pain which have become intolerable.

Notable Exam Findings: Heart rate 119, Anxious, appeared sick.
Mucous membranes are dry.
LUNGS: Bilateral decreased air entry scattered wheezes
ABDOMEN: Soft, flat, extremely thin, nontender, nondistended, no organomegaly. Bowel sounds are present, but sluggish
EXTREMITIES: Numerous scabs on arms and torso

Radiology







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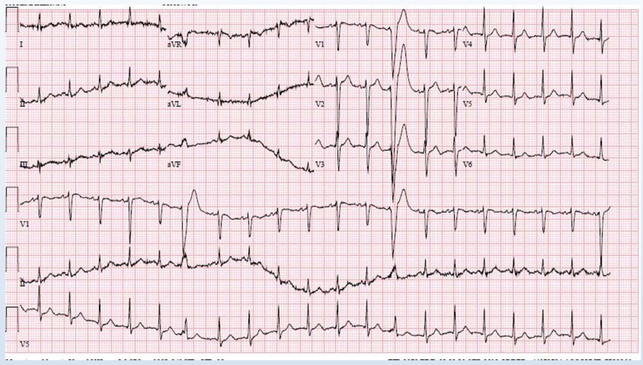
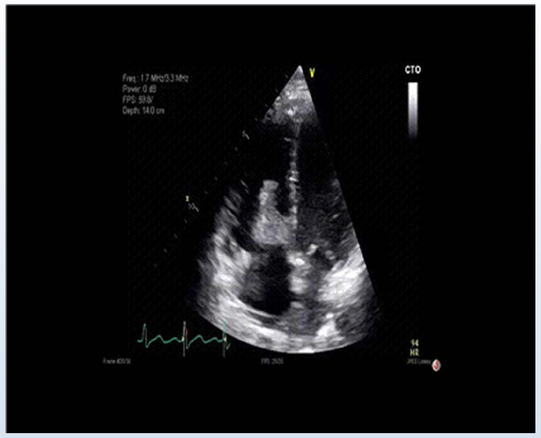
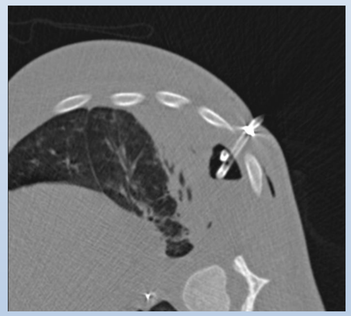
EKG





LABS

White blood cell count 25.4, hemoglobin 12.4 hematocrit 6.3 platelets 47, total neutrophils 87%, Sodium 125, potassium 3.7, chloride 89,carbon dioxide 24, glucose 111, BUN 30, creatinine 1.1, calcium 7.5, albumin1.9, total protein 5.8, alkaline phosphatase 143, total bilirubin 1.6, AST57, ALT 53
anion gap 12
Magnesium 1.8
First troponin 0.04
Urinalysis moderate leukocyte esterase, white blood cell count 30-40
Lactic acid 2.3.
Repeat lactic acid 1.6..



Impression and Plan

This is a 29-year-old male who has been ill for the last one week with chills, rigors, and nonproductive cough. Blood culture showing Gram Positive Cocci in clusters. With Echocardiographic findings of a vegetation on the tricuspid valve measuring 9 mm X 16 mm, with septic emboli to the lungs, and was sick enough requiring intubation at one point. After, several days in the ICU he developed hemolytic anemia that was treated with steroids. Eventually he was stabilized enough for discharge. He was sent home with 6 weeks of once weekly Dalbevecin infusions.

- Arriving vitals: Temperature 99.1, heart rate 119, respiratory rate 18, blood pressure 124/63, saturating at 93% on room air
- Admitted to step down Blood cultures positive for MRSA. Patient was febrile overnight. Initial work up found the septic emboli and an echo was obtained.
- Next day patient deteriorated rapidly and was sent to the ICU and quickly intubated for respiratory distress.
- Cr trended from 1.0-> 1.5->3.4, URINE +MRSA Sputum + MRSA Blood + MRSA, Hemoptysis developed.
- Hemolysis and/or blood loss anemia received 4 total bags of blood HgB 12.4->9.9-> 7.4-> 6.5-> Transfuse 2X->6.6-> transfuse X 2 7.7 ->7.1 Steroids started here after hemolysis work up was positive. HgB stabilized at 7.5
- Blood cultures were clear on the fifth day, and his fever broke. He was extubated and transferred to the floors.
- He was treated for 6 days inpatient, and stabilized enough for discharge.
- He established with a Local PCP and received his 6 weeks of therapy.

Unfortunately he came back 6 months later in respiratory distress. His vegetation had doubled in size and he was sent to UR for emergent surgery.

Conclusion

Dukes Criteria

MAJOR: Positive blood culture for Infective Endocarditis, Evidence of endocardial involvement

MINOR: Predisposition, temperature > 38.0° C (100.4° F), Vascular phenomena, Immunologic phenomena: glomerulonephritis, Osler's nodes, Roth spots and rheumatoid factor, Microbiological evidence, Echocardiographic findings

Must have: Two major criteria, One major and three minor criteria, or Five minor criteria.

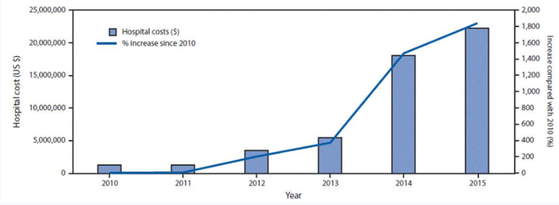
Why is Endocarditis Significant

- One year Mortality 40%
- In hospital mortality 20%
- Septic embolization 23%
- Stroke 17%
- Need for Surgery 48%

Risk factors

- IVDA
- Age
- Immunosuppression
- Congenital heart disease
- 2TDM
- Implanted cardiac device

FIGURE 2. Hospital costs for persons with drug dependence–associated endocarditis, and percentage increase since 2010 — North Carolina, 2010–2015



Indications for surgery

1. hemodynamic decompensation due to acute valvar regurgitation

2. persistent fever and bacteremia despite appropriate antibiotic treatment

3. development of abscesses or fistulae caused by local spread of infection

4. involvement of microorganisms highly resistant to treatment (for example, fungi, Brucella, Coxiella species) with potential for rapid tissue destruction (for example, Staphylococcus lugdunensis).

5. A low threshold for surgery is also recommended in early prosthetic valve endocarditis, particularly when associated with S aureus infection, and in those with complications arising from a late presentation.

Surgery may be considered for patients with large vegetations of high embolic potential (notably those > 10 mm or on the mitral valve), those increasing in size despite antibiotic treatment, and those > 20 mm on the tricuspid valve after recurrent pulmonary emboli.

In the difficult scenario where cerebral embolism causes neurological deficit, surgery should be considered early (within 72 hours) once cerebral hemorrhage has been excluded. If this is impractical, surgery should be deferred for 3–4 weeks in those with cerebral infarction and for longer in those with intracerebral hemorrhage.

Acknowledgements

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