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Invasive streptococcus pneumoniae in an immunocompetent host

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Introduction

Invasive streptococcus pneumoniae (ISP) is an isolated infection of *Streptococcus pneumoniae* in normally sterile sites (e.g. blood, CSF, synovial fluid). It is typically seen in adults ≥ 65 years of age or children < 2 years of age and immunocompromised individuals. Mortality rates range between 15-20% and are highest during the first 72 hours after bacteremia is identified. *S. pneumoniae* is an uncommon cause of infective endocarditis (IE). The extent of damage to the cardiac valves is a key prognostic factor, thus it is essential for early detection and timely medical and/or surgical intervention. Our case involves a 50-year-old immunocompetent male who presented with ISP with IE secondary to a tooth abscess.

Font Size and Type

A 50-year-old African American male with no past medical history nor substance abuse history who presented with decreased right visual acuity with associated photophobia, pain and swelling of his right wrist, and right lower extremity weakness. Exam was significant for poor dentition. He had right-sided peri-orbital erythema with elevated intra-ocular pressure, as well as edema and erythema of his left sternoclavicular joint and right wrist. Strength was 4/5 in the right lower extremity with intact sensation. A 3/5 holosystolic murmur was present at the apex.

Initial labs were significant for leukocytosis, elevated ESR and CRP, and transaminitis. Chest x-ray was unremarkable. CT Abdomen/Pelvis revealed an L4 rim-enhancing fluid collection confirmed to be a paraspinal abscess on MRI. MRI of the thoracic spine revealed a left sternomanubrial fluid collection and mediastinitis, while MRI Orbit confirmed right endophthalmitis. Orthopantomogram revealed bilateral mandibular molar abscesses. TTE/TEE both revealed a 16.5x7.9 mm vegetation and abscess on the anterior mitral leaflet. Cultures of blood, right eye aspiration, joint aspirations, and paraspinal fluid collection were all positive for *S. pneumoniae* types 22/23F. He underwent a right vitrectomy for endophthalmitis, debridement of the manubrium for osteomyelitis, and eventually mitral valve debridement of the perforation in the anterior leaflet and annuloplasty. During his hospitalization, he was evaluated for an immunosuppressive condition, however workup including HIV, ANA, C3/C4, SPEP/UPEP, immunoglobulin levels, Sick Cell, and peripheral blood smear were all unremarkable. He completed a 6-week course of IV Ceftriaxone and made a full recovery.

Images

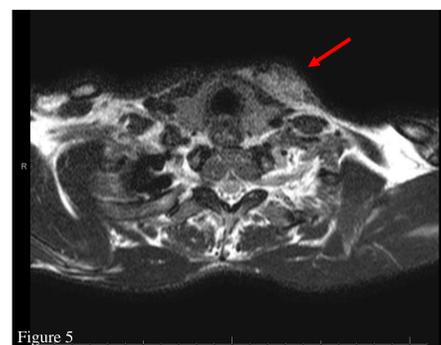
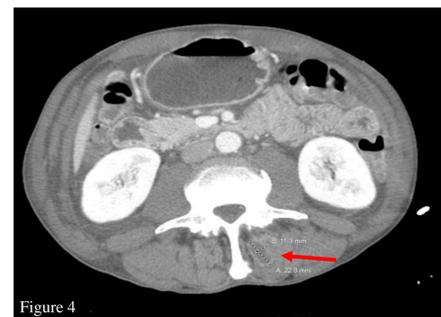


Figure 1. Orthopantomogram. Periapical abscesses at maxillary molars bilaterally.
Figure 2. MRI Orbit Axial Flair. Right sided endophthalmitis.
Figure 3. TEE. 16.5mm x 7.9mm mitral valve vegetation.
Figure 4. CT Abdomen/Pelvis. 2.3 x 1.1 x 4.4 cm left paraspinal fluid collection.
Figure 5. CT Thoracic Spine. Left sternomanubrial joint fluid collection.
Figure 6. MRI Lumbar Spine. 9.0 x 14.2 x 39.3 mm left paraspinal fluid collection.

Discussion

ISP is an isolated infection of *Streptococcus pneumoniae* in normally sterile sites (e.g. blood, CSF, synovial fluid). It is typically seen in adults ≥ 65 years of age or children < 2 years of age, and immunocompromised individuals. Mortality rates range between 15-20% and is highest during the first 72 hours after bacteremia is identified. *S. pneumoniae* causes approximately 6% of cases of IE, but the extent of damage to the cardiac valves is a key prognostic factor, thus it is essential for early detection and timely medical and/or surgical intervention.

Conclusions

It is important to assess for endocarditis in patients with *S. pneumoniae* bacteremia and to evaluate for potential causes of immunosuppression, however, ISP can occur in immunocompetent individuals. It is also urgent to initiate antibiotic management within 72 hours of positive blood cultures and prompt surgical evaluation to decrease mortality. Lastly, we should continue to encourage our patients to receive immunization against *S. pneumoniae* by receiving their PCV13/PPV23 vaccines.

Sample Bibliography

1. Aronin SI, Mukherjee SK, West JC, Cooney EL. Review of pneumococcal endocarditis in adults in the penicillin era. *Clin Infect Dis.* 1998 Jan;26(1):165-71. PubMed PMID: 9455526.
2. Centers for Disease Control and Prevention. Active Bacterial Core Surveillance (ABCs) Report Emerging Infections Program Network: *Streptococcus pneumoniae*, 2010 (ORIG). (Accessed on March 11, 2019, at <http://www.cdc.gov/abcs/reports-findings/survreports/spneu10-orig.pdf>)
3. Hausdorff WP, Feikin DR, Klugman KP. Epidemiological differences among pneumococcal serotypes. *Lancet Infect Dis.* 2005 Feb;5(2):83-93. Review. PubMed PMID: 15680778.
4. Laupland K, Gregson D, Zygun D, et al. Severe Blood Stream Infections: a population-based assessment. *Critical Care Medicine.* 2004;32(4):992-997. 15071391