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IMPACT OF DUAL ANTIBIOTIC PROPHYLAXIS ON STERNAL WOUND INFECTIONS IN CARDIAC SURGERY PATIENTS

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INTRODUCTION: Sternal wound infections (SWI) are a prominent concern after cardiac surgery due to associated morbidity and mortality. Recent observational studies have evaluated the use of vancomycin with a cephalosporin as surgical prophylaxis to broaden coverage against resistant organisms, with varying results. This study investigated the effect of vancomycin and a cephalosporin compared to a cephalosporin alone on overall incidence of SWI after cardiac surgery.

METHODS: This single-center retrospective cohort study included all patients who underwent cardiac surgery requiring preoperative antibiotic prophylaxis between January and November 2020. Patients with left ventricular assist device implantation, concomitant infectious pathology, receipt of other antibiotics within 24 hours, or allergy to beta-lactams were excluded. Patients who received preoperative vancomycin with a cephalosporin were included in the combination therapy group and compared to patients who received a cephalosporin alone. Case-matching based on the presence of diabetes and body mass index was performed to minimize confounding. The primary outcome of this study was overall postoperative SWI within 30 days. This outcome was assessed using a chi square test with a p-value less than 0.05 indicating significance.

RESULTS: Of the 339 analyzed patients, 184 patients met criteria for inclusion. There was no significant difference in incidence of overall SWI between monotherapy and combination groups (3 versus 4 respectively, $p=0.69$). There were also no significant differences in secondary outcomes including but not limited to 30-day mortality, readmission, or reoperation. Incidence of acute kidney injury (AKI) was numerically higher in the combination therapy group, although this was not significant.

CONCLUSIONS: Addition of vancomycin to a cephalosporin did not reduce incidence of SWI prior to cardiac surgery and may have increased incidence of adverse events such as AKI. However, this study is limited by sample size, and more research is needed to determine impact of patient-specific risk factors.

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PNEUMOTHORAX EX VACUO AS INITIAL PRESENTATION OF ENDOBRONCHIAL TUBERCULOSIS BY MYCOBACTERIUM BOVIS

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INTRODUCTION: Mycobacterium bovis infection in humans is an extremely rare entity. *M. tuberculosis* and *M. bovis* are clinically and radiographically indistinguishable, hence, genotype-based identification is required. Management and outcomes of *M. bovis* infection are not well described. We present the first case of endobronchial tuberculosis secondary to *M. bovis* in an immunocompetent host.

DESCRIPTION: A 19 year old woman without past medical history presented to the emergency department for sudden onset left-side chest pain and dry cough. A pre-occupational evaluation noted a positive tuberculin skin test with normal chest-xray. Physical exam significant for absent breathing sounds in the left upper lung. Laboratory tests include leukocyte count of 9.8 bil/L, hemoglobin of 11 gr/dL and procalcitonin of 0.02ng/mL. Computed Tomography of the chest showed complete left upper lobe collapse with obstruction of the left main bronchial lumen and left side pneumothorax ex-vacuo. Emergency bronchoscopy revealed a partially obstructed left mainstem bronchus with erythematous, friable mucosa and granular white tissue. Balloon dilation was performed successfully and samples from bronchoalveolar lavage (BAL) and biopsy of the granular tissue were obtained. Acid Fast Bacilli in Sputum and Quantiferon tests resulted negative, but Protein Chain Reaction analysis of BAL came positive for Mycobacterium tuberculosis and the patient was started on rifampicin, isoniazid, pyrazinamide and ethambutol (RIPE) therapy. BAL culture grew Mycobacterium bovis identified by pyrazinamide monoresistance, confirmed by the Michigan Department of Health and Human Services. At 6 months follow up, the patient complained of a lingering cough, wheezing and shortness of breath. Bronchoscopy control showed recurrence of initial lesions that required balloon dilation. Cultures obtained grew Aspergillus spp and the patient was started on voriconazole.

DISCUSSION: To our knowledge, ours is the first case report of *M. bovis* presenting with endobronchial obstruction without parenchymal compromise in an otherwise healthy patient. We aim to highlight the diagnostic challenges of this rare case: extremely low incidence of the disease, nonspecific presentation, absent risk factors and high rate of short term complications despite treatment.