Postoperative Mediastinitis Due to Finegoldia magna with Negative Blood Cultures

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We report a case of Finegoldia magna (formerly known as Peptostreptococcus magnus) mediastinitis following coronary artery bypass in a 50-year-old patient. Even if staphylococci remain the main causative organism of postoperative mediastinitis, the responsibility of anaerobic bacteria must be considered in cases of fever and sternal drainage with negative blood cultures.

CASE REPORT

A 50-year-old man was admitted to the cardiothoracic surgery department to undergo coronary bypass surgery. His medical history was notable for high blood pressure, dyslipidemia, and myocardial infarction 2 years earlier, treated by percutaneous angioplasty of the right coronary artery. He also had undergone two surgical interventions on both maxillary sinuses in the past 20 years for recurrent sinusitis. Because of persisting chest pain episodes 1 year after the myocardial infarction, a cardiac catheterization was performed, which disclosed double-vessel coronary atherosclerosis. The patient underwent a double internal mammary-coronary artery bypass on 15 October 2008. The prophylactic antibiotherapy protocol included intranasal application of mupirocin before and 4 days after the intervention and intravenous cefamandole during surgery. Neither intraoperative nor immediate postoperative complications were noted. Three days after surgery, the patient was febrile at 38.9°C, in association with dehydration and instability of the sternum, moderate pain, and local erythema. There was no sign of necrosis of the skin. His leukocyte count was 12,000/mm³. Three blood samples, respiratory, and urine samples were drawn, and all aerobic and anaerobic cultures were negative after 24 h (BacT/Alert with FAN medium containing charcoal; Biomérieux, Lyon, France). Purulent wound discharge appeared the day after, for which Gram stain and cultures were also negative after 24 h. Because of persistent fever and abundant exudates draining from the median sternotomy incision, a deep sternal puncture was performed. Cultures of the mediastinal fluid were all negative except for a single enriched liquid medium, which grew Streptococcus oralis. The patient was placed under intravenous antibiotherapy by amoxicillin (amoxicilline), vancomycin, and gentamicin on 21 October and underwent extensive sternal and mediastinal debridement with placement of eight mediastinal drainage tubes on the same day. Blood cultures, all performed before administration of antibiotics, remained negative. However, all intraoperative cultures of mediastinal material grew within 48 h, and Peptostreptococcus sp. 16S RNA gene amplification and sequencing were carried out as described previously (11), leading to the identification of Finegoldia magna (formerly Peptostreptococcus magnus). The strain was susceptible to metronidazole and amoxicillin and resistant to clindamycin and erythromycin. Vancomycin and gentamicin were discontinued, and metronidazole was added to the amoxicillin. Apyrexia was obtained 2 days after surgery, and the patient completed a 6-week course of amoxicillin and metronidazole. On the last visit, 90 days after the first surgery, the patient was afebrile with satisfactory sternal closure.

Finegoldia magna is a gram-positive anaerobic coccus, part of the normal flora of the human mucocutaneous surfaces. It is frequently isolated in infections of soft tissues and the peritoneal cavity, and a few cases of endocarditis and pericarditis have also been reported (2, 9, 12, 17). Poststernotomy mediastinitis due to F. magna is far more uncommon. To our knowledge, only five cases formally due to F. magna have been reported to date (Table 1) (4–8, 15). As shown in the table, anaerobic mediastinitis following cardiothoracic surgery is often polymicrobial (Table). However, in our case the association with Streptococcus oralis was not considered significant, since the S. oralis strain had been cultured in only one specimen in enriched medium and was not recovered in intraoperative cultures. Since anaerobes are often isolated in deep wound infections, it is surprising that anaerobic mediastinitis has been reported infrequently. Considering the increased isolation of anaerobic bacteria observed discussed elsewhere (10), one can hypothesize that this is due to

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TABLE 1. Reported cases of anaerobic poststernotomy wound infection

<table>
<thead>
<tr>
<th>Age / Gender</th>
<th>Type of surgery</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male 65</td>
<td>Coronary bypass</td>
<td>1976 (1)</td>
</tr>
<tr>
<td>Female 48</td>
<td>Coronary bypass</td>
<td>1985 (2)</td>
</tr>
<tr>
<td>Male 44</td>
<td>Coronary bypass</td>
<td>1988 (1)</td>
</tr>
<tr>
<td>Male 65</td>
<td>Coronary bypass</td>
<td>1996 (1)</td>
</tr>
<tr>
<td>Male 65</td>
<td>Coronary bypass</td>
<td>1998 (1)</td>
</tr>
<tr>
<td>Male 65</td>
<td>Coronary bypass</td>
<td>2000 (1)</td>
</tr>
<tr>
<td>Male 65</td>
<td>Coronary bypass</td>
<td>2002 (1)</td>
</tr>
<tr>
<td>Male 65</td>
<td>Coronary bypass</td>
<td>2004 (1)</td>
</tr>
<tr>
<td>Male 65</td>
<td>Coronary bypass</td>
<td>2006 (1)</td>
</tr>
<tr>
<td>Male 65</td>
<td>Coronary bypass</td>
<td>2008 (1)</td>
</tr>
</tbody>
</table>

No funding was obtained for this study.

Clinical examination and imaging techniques have shown low sensitivity and specificity in the detection of poststernotomy mediastinitis. Since clinical examination and imaging techniques have shown low sensitivity and specificity in the detection of poststernotomy mediastinitis, a diagnostic test that is both cheap and easy to use, which is also sensitive and specific, would be highly desirable. This is especially true for cases where the patient is critically ill and the treating physician is faced with a high index of suspicion for mediastinal infection.

Antimicrobial therapy

Antimicrobial therapy should be initiated as soon as possible after the diagnosis of poststernotomy mediastinitis is made. In patients with negative blood cultures, treatment should be directed at the most likely pathogens based on the patient's clinical presentation and underlying medical conditions. In patients with positive blood cultures, the treatment should be directed at the specific pathogen identified.

Outcome

The outcome of treatment for poststernotomy mediastinitis depends on a variety of factors, including the timely and appropriate initiation of antimicrobial therapy, the presence of concomitant conditions such as diabetes, and the duration and severity of the underlying condition.

Discussion

Poststernotomy mediastinitis is a serious and potentially lifethreatening complication of cardiac surgery. Early diagnosis and prompt treatment are crucial to prevent mortality and morbidity associated with this complication.

Conclusion

In conclusion, poststernotomy mediastinitis remains a significant complication of cardiac surgery. Improved diagnostic tools and prompt intervention are crucial to achieving positive outcomes for these patients.
REFERENCES


