dial infarction. Furthermore, to our knowledge, the case reported here is the first description of a patient with an infected atrial thrombus. Since the frequency of mitral stenosis with thrombus is high, one might wonder why infection of an atrial thrombus is seemingly rare. The patient in our case was healthy before admission and not immunocompromised. In 8 of the 10 prior cases, organisms were found in cultures from the blood or thrombus. Interestingly, seven of these eight cases were, like the present case, due to Gram-negative bacilli (Salmonella, E. coli, Pseudomonas, Proteus, and Klebsiella). Since these organisms are rather unusual among cases of native valve infective endocarditis, the pathophysiology of infected thrombus seems to be different from that of native valve infective endocarditis.

TEE was very helpful in the diagnosis of the present case. TEE showed a thrombus with the unique appearance of a membrane separating it from the cavity of the left atrium. This observation of the thrombus was similar to the description by Schofield et al.

Infection of cardiac mural thrombus has a high mortality because of the difficulty of diagnosis. The patients in 6 of the previously reported 10 cases died without accurate diagnosis of the infected thrombus.

Thrombus is generally hypovascular tissue, so ingress of antibiotics and immune system antibodies via vasculature is thought to be poor. Thus, prompt surgical resection of the infected thrombus should be performed, followed by prolonged administration of antibiotics.

In conclusion, we present here the first case describing an infection of an atrial thrombus treated successfully with surgical resection. Such infection should be considered as a possible complication of intracardiac thrombus when bacteremia is present.

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Echocardiographic Follow-up of Chlamydia psittaci Myocarditis*

Arend F. L. Schinkel, MD; Jeroen J. Bax, MD, PhD; Ernst E. van der Wall, MD, PhD, and Ge J. P. M. Jonkers, MD

Chlamydia psittaci myocarditis has frequently reported. A case of serologically confirmed C psittaci myocarditis with dilated left ventricle and severely impaired left ventricular function is described. Serial echocardiograms demonstrated complete recovery after treatment. An early diagnosis has important prognostic implications.

(CHEST 2000; 117:1203–1205)

Key words: Chlamydia psittaci; echocardiography; myocarditis

Abbreviations: ACE = angiotensin-converting enzyme; LV = left ventricle; LVEF = left ventricular ejection fraction; NYHA = New York Heart Association

Psittacosis is a systemic infection caused by the obligate intracellular bacterium Chlamydia psittaci. Psittacosis is common in apparently healthy birds and domestic animals, and it is generally transmitted to man by aspiration of bird-contaminated particles. In man, psittacosis usually presents as a respiratory infection giving rise to atypical pneumonia; however, rarely, severe extrapulmonary manifestations may occur. A few cases of cardiac involvement of psittacosis including myocarditis, pericarditis, and endocarditis have been reported.

We describe a 38-year-old man suffering from serologically confirmed psittacosis. He presented with atypical pneumonia and myocarditis with a strongly dilated left ventricle (LV), and severely decreased left ventricular ejection fraction (LVEF). Serial echocardiograms demonstrated complete recovery of LV function and normalization of LV dimensions after antibiotic therapy in combination with angiotensin-converting enzyme (ACE) inhibition, diuretics, and digoxin over a follow-up period of 1 year.

CASE REPORT

A 38-year-old man was admitted to the hospital due to nonproductive cough, dyspnea on exertion, and increasing fatigue.

*From the University Hospital Leiden (Mr. Schinkel, and Drs. Bax and van der Wall), and Rijnland Hospital Leiderdorp (Dr. Jonkers), The Netherlands.
Manuscript received May 18, 1999; revision accepted October 4, 1999.
Correspondence to: Jeroen J. Bax, MD, PhD, Department of Cardiology, University Hospital Leiden, Rijnburgerweg 10, 2333 AA, Leiden, The Netherlands; e-mail: Bax@cardio.azl.nl
with a duration of 3 months. Accompanying symptoms were hemoptysis and fever. The patient was treated by the general practitioner with antibiotics (amoxicillin). The patient was born in Surinam and lived in The Netherlands since 1970. He denied recent foreign travel. There was no history of exposure to birds or other animals. There was no history of cardiac disease.

On admission, the BP was 145/105 mm Hg, heart rate was 110 beats/min, and temperature was 38.8°C. There were no signs of right-sided heart failure. The heart sounds were normal, and no murmurs and no pericardial friction rubs were heard. Pulmonary auscultation demonstrated normal vesicular breath sounds with mid-inspiratory crackles and plural friction rubs over both lungs, particularly over the left lung.

Laboratory tests demonstrated a normal erythrocyte sedimentation rate and normal hemoglobin level. The WBC count was elevated to 10.2 × 10³/μL, with 7% band neutrophils. Plasma creatinine concentration was 2.0 mg/dL, urea nitrogen level was 22 mg/dL, sodium level was 128 mEq/L, and potassium measured was 4.4 mEq/L. The results of liver function tests and urinalysis were normal. An arterial blood sample revealed mild hyperglycemia (10.2 mg/dL), and creatinine concentration was 2.0 mg/dL, urea nitrogen level was 103/71 mg/dL, and sodium level was 135/98 mEq/L.

Follow-up echocardiography at 1 month, however, revealed slight improvement in LVEF (29%), persistent wall motion abnormalities, and unchanged dilatation of the left atrium and ventricle (Table 1). Treatment with diuretics, doxycycline, and ACE inhibitors was initiated with moderate improvement of symptoms. The patient demonstrated dyspnea on minimal effort (New York Heart Association [NYHA] class 3–4). The repeated chest radiograph showed a considerable increase of the consolidations in both lungs and unchanged cardiomegaly. A high-resolution CT scan demonstrated extensive diffuse increase of density, multiple confluent areas of pulmonary infiltration in both lungs, and cardiomegaly. Treatment with diuretics, doxycycline, and ACE inhibitors was initiated with moderate improvement of symptoms. The patient was now in NYHA class 2–3.

Findings in the Present Case

This report describes a patient with a serologically confirmed C psittaci infection. While involvement of the lungs in this infection is common, involvement of the heart is uncommon. In the literature, C psittaci endocarditis and a few cases of C psittaci myocarditis have been described, but the exact prevalence is unknown. A recent review of 135 cases of psittacosis revealed no case of C psittaci myocarditis. Moreover, no report has documented complete recovery of LV function and normalization of LV dimensions in C psittaci myocarditis by serial echocardiograms. The echocardiographic findings in our patient are in line with those described by Pinamonti et al in myocarditis of various origins: the clinical presentation was congestive heart failure in most patients (63%), and LV dysfunction was common (69%), although in only a few cases it was associated with severe LV dilatation. Ventricular wall motion abnormalities were common (64%), while ventricular hypertrophy and right ventricular dilatation were infrequent findings.

The presentation of our patient had some features in common with previous reports of C psittaci myocarditis: a history of cough, progressive dyspnea, fever, a chest roentgenogram that demonstrated cardiomegaly, and an abnormal ECG. A history of recent avian exposure was absent, as seen in 15 to 25% of patients with psittacosis.

### Table 1—Echocardiographic Findings*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Normal Range†</th>
<th>Admission</th>
<th>1-mo Follow-up</th>
<th>1-yr Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>RVD, cm</td>
<td>0.7–2.3</td>
<td>2.4</td>
<td>2.4</td>
<td>2.2</td>
</tr>
<tr>
<td>LAD, cm</td>
<td>1.9–4.0</td>
<td>4.5</td>
<td>4.3</td>
<td>3.2</td>
</tr>
<tr>
<td>LVEDD, cm</td>
<td>7.6</td>
<td>7.3</td>
<td>7.3</td>
<td>5.6</td>
</tr>
<tr>
<td>LVEDV, cm</td>
<td>6.5</td>
<td>6.3</td>
<td>6.3</td>
<td>3.5</td>
</tr>
<tr>
<td>LVESD, cm</td>
<td>0.6–1.1</td>
<td>1.1</td>
<td>1.1</td>
<td>0.9</td>
</tr>
<tr>
<td>LVPWT, cm</td>
<td>3.0–1.3</td>
<td>3.5</td>
<td>3.3</td>
<td>3.4</td>
</tr>
<tr>
<td>FS, %</td>
<td>28–44</td>
<td>14</td>
<td>16</td>
<td>38</td>
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<tr>
<td>LVEDV, mL</td>
<td>269</td>
<td>282</td>
<td>252</td>
<td>152</td>
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<tr>
<td>LVESV, mL</td>
<td>205</td>
<td>201</td>
<td>201</td>
<td>52</td>
</tr>
<tr>
<td>SV, mL</td>
<td>65</td>
<td>80</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>LVEF, %</td>
<td>24</td>
<td>29</td>
<td>29</td>
<td>66</td>
</tr>
</tbody>
</table>

*RVD = right ventricular diameter; LAD = left atrial diameter; LVEDD = left ventricular end-diastolic diameter; LVESD = left ventricular end-systolic diameter; LVPWT = left ventricular posterior wall thickness; IVSWT = interventricular septum wall thickness; ARD = aortic root dimension; FS = fractional shortening; LVEDV = left ventricular end-diastolic volume; LVESV = left ventricular end-systolic volume; and SV = stroke volume.
†Normal values from Feigenboum H.
Limitations of the Current Case

In the present case, endomyocardial biopsy was not performed. Endomyocardial biopsy is often regarded as a method to confirm the diagnosis of myocarditis. However, the clinical importance of endomyocardial biopsy in the diagnostic evaluation of myocarditis is controversial. A borderline or negative endomyocardial biopsy does not exclude myocarditis. As demonstrated by Chow et al., the sensitivity of biopsy in the diagnosis of myocarditis is relatively low; with 4 to 5 samples/patient, the chance of a successful diagnosis is near 50%. Moreover, it is advised by Davies and Ward® not to perform cardiac biopsy for the sole purpose of making a tissue diagnosis of myocarditis.

Treatment

Management of C. psittaci myocarditis includes effective antibiotic therapy as well as support of cardiac performance. The antibiotic treatment of choice for infection with C. psittaci is tetracycline, usually given in the form of doxycycline, 100 mg bid orally.¹² Congestive heart failure is treated with diuretics, digoxin, and ACE inhibitors. Adequate oxygenation and restricted physical activity is recommended. Because conduction abnormalities can occur in myocarditis, patients should be observed closely. On this treatment complete resolution to normal LV function and dimensions was seen in the present case; LVEF was 24% on admission and improved to 66% after treatment. This improvement/normalization of LVEF has important clinical implications, since severely depressed LVEF is related to poor outcome, whereas normal LVEF carries a good long-term prognosis.¹⁰

The role of immunosuppressive therapy in myocarditis is controversial, and the clinical benefit is unproven.¹¹ However, Diaz and Collazos⁵ suggested an autoimmune pathogenesis and therefore used immunosuppressive therapy in a case of postinfectious or recurrent C. psittaci myocarditis with nonfulminant presentation. In the current case, fulminant presentation with heart failure (NYHA class 3–4) suggested directly affected myocardial tissue. Hence, no immunosuppressive therapy was started.

Conclusion

C. psittaci myocarditis is probably a rare disease, but the exact prevalence remains obscure. Chlamydial infection should be considered in cases of idiopathic dilated cardiomyopathy, myocarditis, pericarditis, and endocarditis of unknown origin. An early diagnosis has important therapeutic and prognostic implications.

References


Acute Airway Obstruction Secondary to Bilateral Broncholithiasis*

Nicole C. Hodgson, MD, and Richard I. Inculet, MD, FCCP

We report a case of acute airway obstruction secondary to bilateral broncholithiasis. Successful management was achieved with rigid bronchoscopy. (CHEST 2000; 117:1205–1207)

Key words: acute airway obstruction; broncholithiasis

Broncholithiasis, the “spitting of stones,” was initially described by Aristotle in 300 BC.¹ It is defined as an uncommon condition in which a calcified mass is found within or eroding into the lumen of a bronchus. The most frequent cause of broncholithiasis is calcification of lymph nodes secondary to tuberculosis or histoplasmosis.² Massive hemoptysis due to broncholithiasis has been reported.³ We report a case of sudden respiratory failure as a result of bilateral obstructing broncholithiasis.

Case Report

An 80-year-old woman presented initially with a history of nonproductive cough and symptoms clinically consistent with asthma of approximately 28 months’ duration. Her pulmonary function test revealed a FEV1 of 1.03 L (62%); FVC, 1.81 (85%); *From the Division of Thoracic Surgery, University of Western Ontario, London, Ontario, Canada. Manuscript received April 8, 1999; revision accepted October 25, 1999. Correspondence to: Richard I. Inculet, MD, FCCP, Associate Professor of Surgery, Division of Thoracic Surgery, University of Western Ontario, Suite N346, 375 South St, London, Ontario N6A 4G5, Canada; e-mail: rinculet@lhsc.on.ca