Q fever Infective Endocarditis: Case Report
G.El Ouazzani, S.Rrahali, A.Ghalem, N. El Ouafi and N.Ismaili

Department of cardiology, Mohammed VI University Hospital, University mohammed first of Oujda, 60049 Oujda, Morocco.

ABSTRACT
Infectious endocarditis with Q fever is a rare and not very specific infection; Its diagnosis is difficult since it is usually a negative blood culture endocarditis. From a patient who was hospitalized in the cardiology department at the Mohamed IV University Hospital Center in Oujda; We describe the clinical and paraclinical presentation of this type of endocarditis while analyzing its lesional features; Therapeutic and evolutionary

© 2017 Elixir All rights reserved.

Introduction
Q fever Infectious endocarditis (IE), a zoonosis caused by Coxiella burnetii, is a rare and non-specific infection. Coxiella burnetii is an obligatory intracellular bacteria whose growth is relatively slow; It requires cultivating on specialized media. Diagnosis is usually made by serological tests and / or polymerase chain reaction (PCR) [1, 2].

We describe the case of a 56-year-old patient with a mitral stenosis, who was admitted for prolonged fever, in which work-up led to the diagnosis of Q fever IE [3].

Case report :
A 56 years-old male presented to our hospital with prolonged fever, nocturnal paroxysmal dyspnea , and poor general condition. Upon presentation, vitals were as follows: oral temperature of 37.5°C, blood pressure of 120/75 mmHg, heart rate of 80 beats/min , and respiratory rate of 20 breaths/min, with an oxygen saturation of 98 % on room air. The patient was alert and oriented. Physical examination revealed mitral valve rumble and left arm tremor. No signs of heart failure were found. Electrocardiogram was normal.

On admission, the patient’s hemoglobin, white blood cell count, and platelet count were 8.6 g/dL, 9420/mm3, and 240,000/mm3, respectively. The mean corpuscular volume (MCV) and hemoglobin concentration (MCHC) were 86 fL and 31 g/dL respectively. Serum level of ferritin was 1150ng / mL, of C-reactive protein was 92 mg/l, and of erythrocyte sedimentation rate was 36 mm at 1 hour. Cytobacteriological examination of urine (CBEU) showed microscopical hematuria. Serial blood cultures were negative. Serum electrolytes, renal function, and liver function tests were unremarkable.

Transthoracic echocardiography (TTE) displayed thickened mitral valves, a moderate mitral stenosis, and a vegetation measuring 12 x 22 mm attached to the posterior mitral leaflet. Abdominal ultrasonography showed homogeneous splenomegaly along with renal and splenic infarctions. Cerebral computed tomography scan delineated two middle cerebral artery ischemic strokes.

Broad-spectrum antibiotic therapy with ampicillin, cloxacillin, and gentamicin was initiated. Given the absence of improvement of the inflammatory syndrome and the destruction of the mitral valve becoming regurgitant, endocarditis with atypical germs was strongly suspected. Serological tests for challenging microorganisms were performed, including Coxiella burnetii, Legionella pneumophila, Mycoplasma pneumoniae, Bartonella henselae, Bartonella quintana, Aspergillus spp., Brucella spp. They were positive for Coxiella burnetii. We talked back to the patient who revealed he had been living with two cats.

The patient was referred to surgery given the embolic complications and mitral valve destruction. He was put on Doxycycline and Hydroxychloroquine for 18 months with a favorable course.

Discussion:
Blood culture–negative IE accounts for 10% of all IE. Except for prior antibiotic administration, they are most often due to fungi or fastidious bacteria, notably obligatory intracellular bacteria such as Coxiella burnetii for which serology and genome amplification techniques are available [1].

Q fever, a zoonosis caused by Coxiella burnetii, is an ubiquitous infection. However, some regions seem to have a preponderance for the disease, such as the Basque area of Spain and the south of France [4]. Domestic ruminants (cattle, goats, and sheep), cats and dogs are the main reservoirs. Humans are infected by inhalation of aerosols from contaminated soil or animal waste [5, 6].

Clinical presentation of Q fever IE, which accounts for approximately 3% of IE, is insidious and atypical [7,8]. As a result, there is often a significant diagnosis delay with an average from the onset of symptoms to diagnosis of 7 months [9].

The majority of cases have congestive heart failure due to valvular dysfunction [10]. Unlike other cases of endocarditis, fever is absent in a significant proportion and is frequently intermittent or low-grade [11]. Although embolic events have been reported in one-third of cases, they are limited to advanced disease processes [12].
Immune complex glomerulonephritis is common and usually manifests as microscopic hematuria [13]. A purpuric eruption can also be seen in a minority of patients [9]. The presence of hepatomegaly and splenomegaly are suggestive of the disease [14]. Numerous hematological abnormalities can be seen in up to 50 % of Q-fever IE, the most frequent being anemia and the least frequent being leukocytosis, leukopenia, and thrombocytopenia [4, 9].

While TTE reveals abnormalities in only 12% of cases, due to the –usually- small size and nodular shape of the vegetation, transesophageal echocardiography is more sensitive [9,14,15].

From a microbiological standpoint, the diagnosis of Q fever IE is hampered by the inability to cultivate Coxiella burnetii, an obligatory intracellular bacterium, using usual media. Therefore, diagnosis is generally established by serological tests, which reveals elevated IgG level at 1: 800 (specificity: 99.6%) [16, 17, 18]. In fact, the Duke criteria were modified to include this serological threshold as a major criterion for the diagnosis of endocarditis [19]. Immunohistology and polymerase chain reaction (PCR) are last resort options used to search for Coxiella burnetii in blood cultures and surgical material; however, PCR has a sensitivity of only 75% [20].

The optimal treatment for Q fever IE is not completely defined. In vitro studies using cell cultures have shown that doxycycline, chloramphenicol, rifampicin, and quinolones are active against Coxiella burnetii [21, 22]. These antibiotics are bactericidal or simply bacteriostatic depending on the cellular culture model used. In the model developed by Raoult et al., doxycycline in combination with chloroquine exhibited bactericidal activity [22]. This combined therapy using two active antibiotics against Coxiella burnetii in vitro appears to be successful. The combination of fluoroquinolone with doxycycline or rifampicin was successful in controlling the infection, although relapse rates were 50% when antibiotics were discontinued despite prolonged therapy (three years) [23, 24]. A comparison between the association of doxycycline/chloroquine and doxycycline/ ofloxacin has shown that the group with doxycycline/chloroquine combination experienced much less relapse, further no relapse was seen after 18 months of treatment.

Conclusion:
Q-fever IE is a rare and severe condition whose diagnosis remains difficult and is based mainly on serological tests. When managing prolonged fever, the Clinician must consider the diagnosis if there is a history of contact with cats, dogs, and domestic ruminant. Given the destructive and mutilating character of Coxiella burnetii, surgery is often required.

References:
1. Mohammed Chakour, Jérôme Maslin, Mariama Chadli, Jean-Jacques Chomel, Elisabeth Nicand. Endocardite infectieuse à hémocultures négatives (L’etiologie virale comme diagnostic d’exclusion) - 27/11/08 REVUE FRANÇAISE DES LABORATOIRES