

## Aneurysms, Vascular Grafts, and Q Fever

Wegdam-Blans MC, Vainas T, van Sambeek MR, et al. Vascular complications of Q-fever infections. *Eur J Vasc Endovasc Surg* 2011;42:384-92.

In the wake of a marked increase in the number of cases of Q fever after outbreaks on dairy goat farms in the Netherlands during 2007-2009, Wegdam-Blans et al now present 4 new cases of vascular infection from that country and review an additional 54 patients from the literature. The 58 patients, 49 of whom were men, ranged in age from 30 to 83 years (mean, 64 years). Infection involved synthetic vascular grafts in 25 and a homograft in 1 patient; the remainder affected aortic aneurysms. The abdominal aorta was involved in 32 (55%), the thoracic aorta in 6, and the thoraco-abdominal aorta in 1, whereas splenic femoral, popliteal, and subclavian arteries were each affected once. Forty patients (69%) presented with fever and 43 (74%) with abdominal or lumbar pain (10 patients had spondylitis), whereas 25 (43%) reported weight loss. Seventeen patients had vascular complications at presentation: vascular rupture (9), aorto-enteric fistula (4), and thromboembolism (4). Seven patients had para-aortic abscesses. The majority did not have evidence suggestive of endocarditis, and only 2 had a definitive diagnosis of this complication.

The diagnosis was made serologically in 45 patients, whereas in the remainder, it was made by culture or polymerase chain reaction. Eighteen patients were treated with doxycycline alone, and 22 received this tetracycline together with hydroxychloroquine; most of the remainder received a fluoroquinolone with or without rifampin. Most patients received antibiotic therapy for at least 18 months. Forty of the 50 patients for whom the information was available were treated surgically, generally by resection of the offending vascular segment with either anatomic or extra-

anatomic grafting. Fourteen patients (24%) died, including 7 who underwent vascular surgery and 7 (70%) who had nonsurgical management; none of the 10 whose management was not specified died.

The Dutch outbreak of Q fever, which began in 2007 and has caused symptomatic infection in >4000 patients, has provided an opportunity to explore a number of aspects of the disease. A recent case-control study from the Netherlands found that a history of valvular surgery, the presence of a vascular prosthesis, an aneurysm, renal insufficiency, and older age were independent risk factors for the development of proven chronic Q fever [1]. The most frequently identified endovascular infection due to *C. burnetii* is endocarditis, but extracardiac vascular infections have also been previously identified. In 1998, Fournier et al described 7 new patients with *Coxiella burnetii* infection of aneurysms or vascular grafts and reviewed the available literature [2]. They systematically examined aneurysms or grafts removed from 163 patients undergoing surgery and discovered *C. burnetii* in 2, both of whom proved to have serological titers consistent with chronic Q fever. Both patients had nonspecific systemic symptoms that included fever. A 2007 review of 10 new cases, together with 30 from the literature, reported that 82.5% of patients were febrile, and half reported weight loss [3]. Approximately half the cases involved aneurysms, and half involved vascular grafts. The mortality rate was 25%, often as the result of vascular rupture.

A Dutch consensus statement addressing chronic Q fever has been published [4].

Raoult et al, however, have challenged the overall concept of chronic Q fever and suggest instead the use of criteria for just 2 relevant diagnoses: Q fever endocarditis and vascular infection [5]. A juxtaposition of these articles shows ongoing confusion regarding the issue of persisting infection with this obligate intracellular pathogen as well as the need for the clinician to maintain alertness to its presence. Fournier et al suggested that "*C. burnetii* serology be routinely carried out in cases of unexplained febrile illness, pain, or weight loss in patients with a history of underlying vascular disease." Positron emission tomographic scanning has been used to identify cases of involvement of vascular structures [6].

## References

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