# Images in cardiovascular medicine. An unusual cause of hand cellulitis

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# An Unusual Cause of Hand Cellulitis

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In August 2005, a 64-year-old white man presented with swelling of his left hand. There was no history of local trauma, local wound, fever, or systemic symptoms. He was first diagnosed as having cellulitis of the hand and was empirically treated with intravenous ceftriaxone for 3 days. Despite this treatment, the local status worsened, and the patient was transferred to our institution. He was also known to have mild hypertension, hypercholesterolemia, moderate dilated cardiopathy, and moderate aortic regurgitation. On admission, he complained of increasing pain and swelling of the left hand (Figure). Blood laboratory work showed normocytic normochromic anemia with no leucocytosis and no band forms. Blood chemistry was normal except for a modest increase of the C-reactive protein (43 mg/L). The left hand was red, swollen, and painful, which was clinically compatible with cellulitis. However, there was a pulsating mass on the palmar side of the hand.

Ultrasonography showed a 14×8-mm area of decreased echogenicity with arterial flow on Doppler examination. Anatomic details were further delineated by arteriography, which showed a false aneurysm arising from the superficial palmar arch. Clinical presentation, ultrasonography, and angiography suggested a mycotic aneurysm. In the presence of aortic regurgitation, endocarditis was suspected and was actively searched for. Transthoracic echocardiography confirmed the known aortic regurgitation but revealed no vegetations. The patient refused transesophageal cardiac ultrasound. Blood cultures revealed the presence of a penicillin-multisensitive $\alpha$-hemolytic streptococcus (streptococcus parasanguinis). A 4-week treatment of intravenous penicillin was initiated, with progressive improvement of local symptoms. The mycotic aneurysm was surgically removed. Histological analysis of the aneurysm revealed the presence of many Gram-positive bacteria, thereby confirming the diagnosis. Under antibiotic therapy, blood cultures normalized, and cardiac function and aortic valvular regurgitation remained stable.

Koch reported the first case of an infected aneurysm of the superior mesenteric artery in 1851. Later, Osler used the term "mycotic aneurysm" when reporting thoracic aneurysm associated with infective endocarditis in 1885. The term mycotic aneurysm now is used in a broader sense, describing all infected aneurysms that may result from various causes such as penetrating wounds, infected anastomotic aneurysms, contiguous extravascular infections, infected preexisting aneurysms, and embolic mycotic aneurysms. The ascending aorta, intracranial, and abdominal arteries are the most commonly involved sites. However, almost every artery may be concerned.[1] Mycotic aneurysms are relatively rare in the upper extremity. According to the literature, 3% to 15% of patients with infective endocarditis develop mycotic aneurysm.[2,3] On such occasions, the arterial structure is seeded by septic emboli and is progressively destroyed with subsequent formation of mycotic (false) aneurysms. The most common Gram-positive pathogens cultured from mycotic aneurysms include the *Staphylococcus aureus* and *Streptococcus* species. The Gram-negative microorganism that is commonly found in mycotic aneurysms is the *Salmonella* species, but *Escherichia Coli* and *Pseudomonas aeruginosa* also have been reported. Less common causes of mycotic aneurysms may be fungi (*Aspergillus*, *Candida*) in immunocompromised patients. Because the infection weakens the arterial wall, the natural history of mycotic aneurysm is to enlarge and rupture regardless of whether the infection is cleared. Therefore, surgery is indicated, and the procedure of choice, when possible, is the excision of the aneurysm.

In conclusion, we report a well-documented case of mycotic false aneurysm of the superficial palmar arch presenting as hand cellulitis and leading to the diagnosis of hitherto undiagnosed endocarditis. Mycotic aneurysm in this location is very rare and has been previously reported in only 2 patients.[4,5] Because mycotic aneurysm may affect almost every arterial vessel of the body, it may easily masquerade as some other severe infection. Therefore, in absence of overt endocarditis, the diagnosis may be very puzzling, as shown by this case report.

## Disclosures

None.

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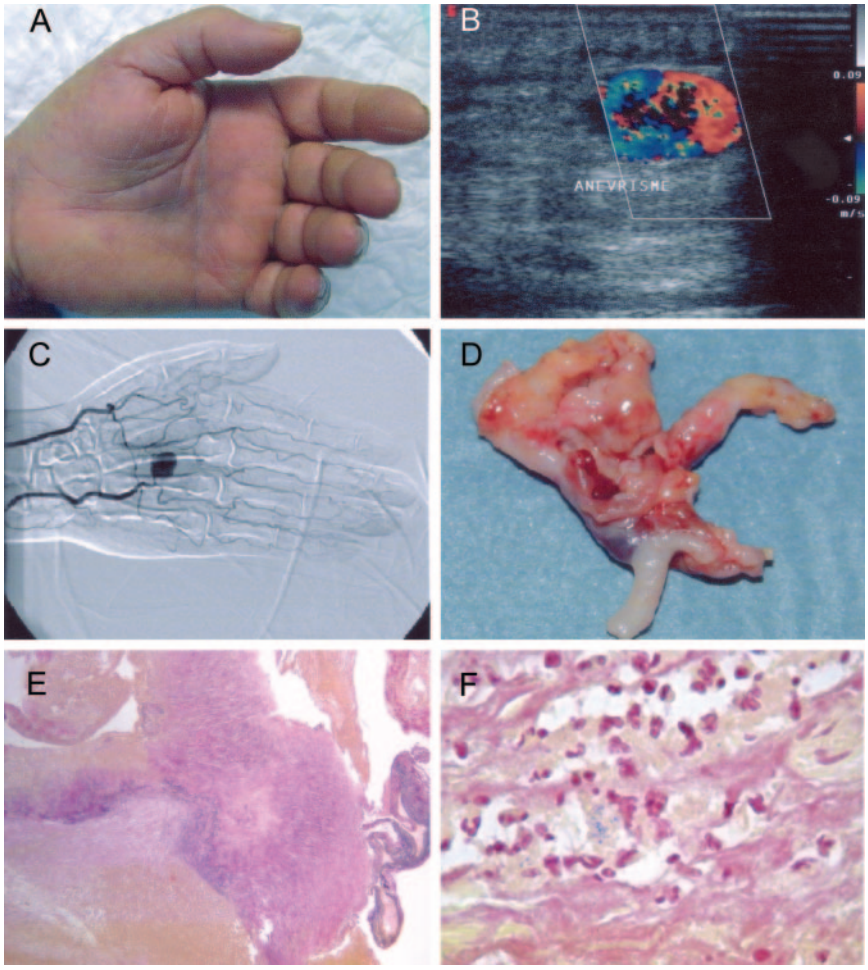


A, Clinical presentation of the hand on admission. B, Doppler ultrasonography showing the mycotic aneurysm with arterial flow. C, Confirmation of the lesion by arteriography. D, View of the mycotic aneurysm after surgical removal. E, Histological view showing the destruction of the arterial wall. Miller stain, 25×. F, Gram stain (400×) showing Gram-positive cocci.