

Non- Traumatic Non- Embolic Acute Thrombosis of Radial Artery (Buerger's Disease)

Apart from the traumatic thrombosis of the radial artery which nowadays are very common, one can hardly find in the medical literature a paper concerning the non-traumatic non-embolic thrombosis of the artery. Hereafter, you might read one of the rarest uprising of the radial artery. Herein will be no evidence of a trauma nor a hard-manual work that could be the origin of the concerned pathology. A long- lasting exposure to the cold in a heavy smoker is the only incriminated factor that was quite evident in this case.

A 44- year old male patient presented to the clinic with a painful left forearm. The pain was acute, severe, and was dated just to the precedent white night. Neither fever nor general fatigue could be reported. The patient loudly accused the cold for his sufferance.

On the physical examination of the left forearm, it looked a little bit edematous, rigid, and particularly tender on the middle third. Tinel's sign was positive over the course of median nerve. The radial pulse was absent. No impact of the pathology on the fingers and wrist's movements. Just the flexion of fingers against resistance was painful.

Echo-Doppler confirmed the absence of blood flow in the two distal thirds of the left radial artery. In contrast, the flow of blood in the palmar arterial arcades was normal. Multi-slices CTscan was totally consistent with, *figure (1)*.



Figure (1)

Multi-Slices CT scan of the left forearm.

Radial artery is occluded for 14 cm of its length; just 5 cm after its origin from the brachial artery.

The distal part of the artery is free revealing the patency and efficacy of the arterial arcades between it and the ulnar artery.

Surgical resection of the thrombosed segment of the artery was my decision in order to reach the following targets:

- 1- A surgical specimen for the pathological study and to make the definitive diagnosis.
- 2- Sympathectomy in order to free off the distal distributions of the radial artery from the persistent sympathetic stimulations induced by the primary and/or the secondary arterial inflammation.
- 3- Fasciectomy to open the anterior compartment of the left forearm in order to protect the median nerve that seemed bothered by the elevated internal pressure.

The surgical time run out with no specific difficulties and the surgical findings were as expected pre-operatively, *figure (2)*. Two per-operative findings I have to declare. Firstly, all the small branches of the thrombosed artery, the perforating branch included, were also thrombosed. Secondly, the presence of some foci of bleeding alongside the thrombosed segment. 14- cm segment of the radial artery is resected without arterial reconstruction. The capillary refilling time in fingers was less than 6 seconds which made any effort to reconstruct the resected artery superfluous.



Figure (2)

per- operative findings

14-cm segment of the radial artery was completely thrombosed.

The distal segment of the artery was clear of thrombus. All the small branches, the perforating one included, were thrombosed. Finally, I have to reveal the presence of some bleeding foci distributed alongside the thrombosed segment.

The pathological study of the resected arterial specimen showed no evidence of fibrinoid necrosis, giant cells, eosinophilic infiltrate, granuloma, or atheroma. The conclusion was arethritis and periarteritis, non specific with large luminal thrombosis. The pathological changes are consistent with Buerger's disease, *figure (3)*.

Discussion

Buerger's disease is a rare disease of the arteries and veins. It affects the median and small arteries in the upper and lower extremities. Buerger's disease usually first shows in the hands and feet and may eventually affect larger areas of the arms and legs. Tobacco smoking has the essential role in the pathology.



Figure (3)
The pathological conclusion of the resected specimen.

The initial symptoms of Buerger’s Disease often include claudication in the feet and/or hands, or pain in these areas at rest. Other signs and symptoms of this disease may include numbness and/or tingling in the limbs and Raynaud’s phenomenon. Skin ulceration and gangrene of the digits are common in Buerger’s disease.

Angiogram of the affected limb is essential to make the diagnosis of Buerger’s disease. In the proper clinical setting, certain angiographic findings are diagnostic of Berger’s disease. These findings include a “corkscrew” appearance of arteries that result from vascular damage, particularly the arteries in the region of wrists and ankles. Angiograms may also show occlusions and stenoses in multiple areas of both the arms and legs.

A part of this pathology, our patient is quite healthy. He has never complained from claudication in his legs and/or hands, pain at rest in these areas, nor from Raynaud’s phenomenon. Neither personal history of skin ulcerations nor a history of gangrene of digits has been reported. Exceptionally, Buerger’s disease affected the radial artery while the smallest arteries in the hand of the same extremity are normal. A CT scan multislice of the affected arm doesn’t show the “corkscrew” appearance, essential radiological sign of chronic vascular occlusion. No other radiological findings are present in the CT scan multislices. These all remarks make the difference in our case.

.....
In another context, one could read:

- [**The Neural Conduction \(Innovated Conception\)**](#)
- [**Neural Conduction in Neural Fiber \(PowerPoint Presentation\)**](#)
- [**The Sensory Receptors, The Genius of Creation and the Beauty of Creature \(Innovated Conception\)**](#)
- [**The Neural Conduction in the Synapses \(Innovated Conception\)**](#)
- [**The Neural Conduction in Synapses \(PowerPoint Presentation\)**](#)
- [**The Node of Ranvier, the Equalizer \(Innovated Conception\)**](#)
- [**The Node of Ranvier, the Equalizer \(PowerPoint Presentation\)**](#)

- [The Philosophy of Pain, Pain Comes First \(Innovated Conception\)](#)
- [The Philosophy of Form, \(Innovated Conception\)](#)
- [The Spinal Injury, the Pathology of the Spinal Shock, the Pathology of the Hyperreflexia \(Innovated Conception\)](#)
- [The Nerve Conduction Study, The Wrong Hypothesis is the Origin of the Misinterpretations \(Innovated Conception\)](#)
- [The Wallerian Degeneration, Attacks the Motor Axons of Peripheral Nerve, while Conserves its Sensory Axons\(Innovated Conception\)](#)

18/2/2013