

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 \(1\)](#).

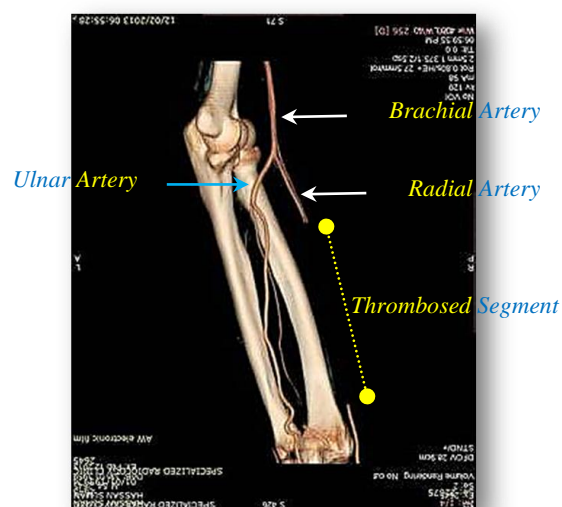


Figure (1)

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.



14 cm- Thrombosed Segment of Radial Artery

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 arteritis and periarteritis, non specific with large luminal thrombosis. The pathological changes are consistent with Buerger's disease; [Figure \(3\)](#).

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الدكتور شريف السالم
اختصاصي بالتشريح المرضي
حاز على شهادة الامتياز الخاصة من جامعة باريس
استاذ في العلوم الطبية - استاذ مؤخر من الخدمات الفرنسية
عضو الاكاديمية الدولية للبيثولوجيا
استاذ في كلية الطب بجامعة دمشق

تقرير تشريح مرضي
PATHOLOGY REPORT

13-03058 : الرقم	Years 44 : العمر	
07-Mar-13 : التاريخ	Male : الجنس	MANSOUR Ammar : الطبيب
المسبح:	radial artery : العضو	CONSULTATION : العينة

GROSS DESCRIPTION
Received for confirmation:
Four paraffin cassette labeled 5124 (Segment of artery after acute thrombosis)

MICROSCOPIC EXAMINATION
Multiple segments of muscular artery. The lumen is occupied by a recent thrombus with no evidence of revascularization. Sections show ulcerated intima. In one section, the intima is conserved with intact external and internal elastic lamina. subendothelial connective tissue is edematous.
The muscularis shows scattered lymphocytes and PMN neutrophils.
There is NO EVIDENCE OF FIBRINOID NECROSIS OR GRANULOMA.
The adventitia is edematous, slightly thickened with mild to moderate inflammatory infiltrate composed of lymphocytes + neovascularization.
Vasovasorum and periaarterial fat are congestive with prominent endothelial cells

CONCLUSION
Arteritis and periarteritis, non specific with large luminal thrombosis
No evidence of Fibrinoid necrosis, giant cells, eosinophilic infiltrate, granuloma or atheroma
Changes are consistent with:
BUERGER DISEASE

Dr. Charif SALEM, Pathologist
المركز الوطني للأبحاث
Dr. Charif SALEM

[Figure \(3\)](#)

[The Pathology Report](#)

The pathological study of the resected arterial specimen showed no evidence of fibrinoid necrosis, giant cells, eosinophilic infiltrate, granuloma, nor atheroma. The conclusion was arteritis and periarteritis, non-specific with large luminal thrombosis. The pathological changes are consistent with Buerger's disease

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 attacks the hands and feet at first, and may eventually affect larger areas of the arms and legs. Tobacco smoking has the essential role in the pathology.









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 Buerger'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.





















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-  [Upper Motor Neuron Lesions, Pathophysiology of Symptomatology](#)
-  [Neural Conduction, Action Pressure Waves \(Innovated\)](#)
-  [Neural Conduction, Action Potentials \(Innovated\)](#)
-  [Neural Conduction, Action Electrical Currents \(Innovated\)](#)
-  [The Function of Action Potentials \(Innovated\)](#)
-  [The Three Phases of Neural Conduction \(Innovated\)](#)
-  [Neural Conduction in the Synapse \(Innovated\)](#)

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-  [*Hyperreflexia, Innovated Pathophysiology*](#)
-  [*Clonus, 1st Hypothesis of Pathophysiology*](#)
-  [*Clonus, 2nd Hypothesis of Pathophysiology*](#)
-  [*Clonus, Two Hypotheses of Pathophysiology*](#)
-  [*Hyperreflexia \(1\), Pathophysiology of Hyperactivity*](#)
-  [*Hyperreflexia \(2\), Pathophysiology of bilateral Responses*](#)
-  [*Hyperreflexia \(3\), Pathophysiology of Extended Hyperreflex*](#)
-  [*Hyperreflexia \(4\), Pathophysiology of Multi-Response Hyperreflex*](#)
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-  [*This Woman Can Give Birth to Male Children More Than to Female Children*](#)
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Nerve



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