

The Sting That Silenced the Pulse: Jellyfish Sting Induced Radial Artery Thrombosis

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ABSTRACT

Jellyfish envenomation can cause local inflammatory reactions and, in rare cases, vascular complications that may threaten limb viability. Early recognition of impaired arterial perfusion and prompt management are essential to prevent progression to ischemia and tissue loss. This case report describes suspected radial artery occlusion following a jellyfish sting in a young adult.

A 21-year-old male professional swimmer presented to the emergency department three days after being stung by an unidentified jellyfish while swimming approximately 1 km offshore at Marina Beach. He reported pain, swelling, erythema, cellulitis, and violaceous discoloration involving the left forearm and hand. Initial examination revealed a weak left radial artery pulse, which subsequently became impalpable, accompanied by increasing swelling and delayed capillary refill. Finger movements, sensory function, and systemic examination remained normal, and perfusion through the ulnar artery appeared preserved. Computed tomography angiography demonstrated reduced opacification and poor visualization of the distal radial artery, suggesting focal arterial occlusion. The patient received intravenous heparin and prostaglandin E2 (PGE2), together with antibiotics and other medications. Clinical improvement was reported, with a reduction in erythema and edema and apparent resolution of the suspected vascular complication. However, the manuscript does not provide sufficient follow-up data to establish the extent of arterial recanalization or long-term vascular recovery.

This case highlights a potentially serious vascular complication following jellyfish envenomation and emphasizes the importance of serial neurovascular assessment, appropriate vascular imaging, and timely specialist evaluation when peripheral pulses diminish or disappear. Although the clinical course suggests improvement following treatment, the causal relationship between the sting and arterial occlusion, as well as the specific contribution of individual therapies, cannot be established from a single case. Further documentation of objective vascular outcomes and follow-up is needed to strengthen the clinical conclusions.

Keywords: Jellyfish sting, radial artery thrombosis, acute limb ischemia, vascular insufficiency, heparin

INTRODUCTION

Jellyfish are the most popular marine organisms that are known for causing a

multitude of symptoms ranging from a mild erythema to life endangering complications when it encounters or stings a human being.

Local and systemic complications such as cellulitis and thrombosis are some of the many complications resulting from a jellyfish sting [1].

Radial artery thrombosis is formed by a jellyfish stinging in the forearm. Assessment of radial artery and its examination is based on palpation and noting for the pulse. Radial artery thrombosis leading to its occlusion is determined by feeble or absent pulse on palpation [2]. However, absence of pulse secondary to an occlusion is sometimes not established because of capillary filling [3]. So, absence of pulse is also an indication of a delayed capillary filling denoting an acute infrabrachial disease.

Hence, this vascular insufficiency in the extremities caused by a jellyfish sting is a limb threatening severity. This condition is usually manifested in the form of edema, cyanosis, erythema, peripheral numbness on the third day followed by a sting. Arterial vasospasm and the developing ischemic signs that are potential enough to cause tissue loss are prevented by an early treatment with iloprost [4]. In case of radial artery thrombosis treatment with low molecular weight heparin showed improvement [5].

Acute limb ischemia secondary to radial artery thrombosis is rare yet dangerous enough to cause limb loss [6,7]. The characteristic physical findings include 5Ps- pain, pulselessness, pallor, paraesthesia, and paralysis of the involved limb. In addition to this, imaging tests such as contrast based computed tomography are used for diagnosis [8].

In this case, we report a 21-year-old man presenting to the Emergency Outpatient Department (OPD) with a jellyfish sting in his left forearm on the third day post-sting.

CASE PRESENTATION

A 21-year-old man who is a professional swimmer was presented with complaints of pain, edema, cellulitis, erythema and violaceous discoloration in his left palm in the thenar region and dorsum of left palm and forearm on the 3rd day of after being stung by a jellyfish while swimming 1 km offshore at Marina Beach. However, the species of jellyfish was not identified. Bite marks were visible on the left forearm (*Image 1*). Finger movements appear to be normal. Warmth of the hand is maintained indicating a preserved ulnar artery perfusion.



Image 1: Diffuse erythematous discoloration is seen in the distal forearm and bite marks are visible as multiple small punctate reddish-brown macules.

The patient has no history of hypertension, diabetes mellitus or similar complaints in the past. There was no previous history of hospitalization. There was no history of drug allergies. He was nonalcoholic and not a smoker as well.

On examination, the patient was oriented, conscious and afebrile with a recorded blood pressure of 156/80 mmHg and 100% oxygen saturation. With the progress of time, on examination, the patient's left radial artery pulse was found to be feeble associated with an increased swelling. The next day, the radial artery was pulseless. Hence there is a delay in capillary filling. Examinations of other arteries such as common carotid artery, subclavian artery, brachial artery and ulnar artery showed normal palpation. Sensory and motor system examination were found to be normal.

Systemic examination was also normal. Hence, it was diagnosed to be an acute infrabrachial disease resulting from radial artery thrombosis which settled on administration of heparin.

Laboratory investigations revealed a total leukocyte count of 9,400 cells/cumm with neutrophilia (82%) and relative lymphopenia (15%). Platelet count and red cell indices were within normal limits. Blood glucose was low (62.8 mg/dL), with mild hypoproteinemia (6.0 g/dL) and hypoalbuminemia (3.0 g/dL). Serum sodium was mildly reduced (131 mEq/L) with slightly elevated chloride (110 mEq/L), while renal and liver function parameters were within normal limits. Coagulation profile was essentially normal (PT 12.8 s, INR 1.06, aPTT 38.2 s). (**Table 1**)

Table 1: Baseline laboratory workup

Test	Result	Reference Range
Total WBC Count	9400 cells/cumm	4500–13500 cells/cumm
Neutrophils	82.0%	45–70%
Lymphocytes	15.0%	20–45%
Eosinophils	2.0%	1–10%
Monocytes	1.0%	1–6%
Platelet Count	2.6 lakhs/cumm	1.5–4.5 lakhs/cumm
MCV	87.5 fL	75–95 fL
MCH	28 pg	26–32 pg
MCHC	31.6 g/dL	31–36 g/dL
Blood Sugar	62.8 mg/dL	70–140 mg/dL
Blood Urea	27.7 mg/dL	15–40 mg/dL
Creatinine	0.9 mg/dL	0.7–1.2 mg/dL
Total Bilirubin	0.4 mg/dL	0.2–1.2 mg/dL
Direct Bilirubin	0.2 mg/dL	0–0.4 mg/dL
Total Protein	6.0 g/dL	6.4–8.3 g/dL
Albumin	3.0 g/dL	3.5–5.2 g/dL
Globulin	3.0 g/dL	2.9–3.1 g/dL
AST / SGOT	19.0 U/L	13–45 U/L
ALT / SGPT	22.3 U/L	10–45 U/L
Alkaline Phosphatase (ALP)	82.0 U/L	38–126 U/L
Sodium (Na⁺)	131.0 mEq/L	135–145 mEq/L
Potassium (K⁺)	4.0 mEq/L	3.5–5.2 mEq/L
Chloride (Cl⁻)	110.0 mEq/L	96–106 mEq/L
Prothrombin Time (PT)	12.8 sec	11–15 sec
INR	1.06	—
aPTT / APTT	38.2 sec	30–40 sec

CT angiogram indicating the arterial vasculature of both upper limbs was done (**Image 2**). Visualization of aortic arch, bilateral subclavian artery, axillary artery

along with the brachial arteries coursing along both arms is seen. Distal forearm arterial opacification appears reduced and there is a poor visualization of the distal

radial arterial segment. However ulnar arterial supply appears normal. Overall

appearance suggests focal distal upper limb radial artery occlusion.

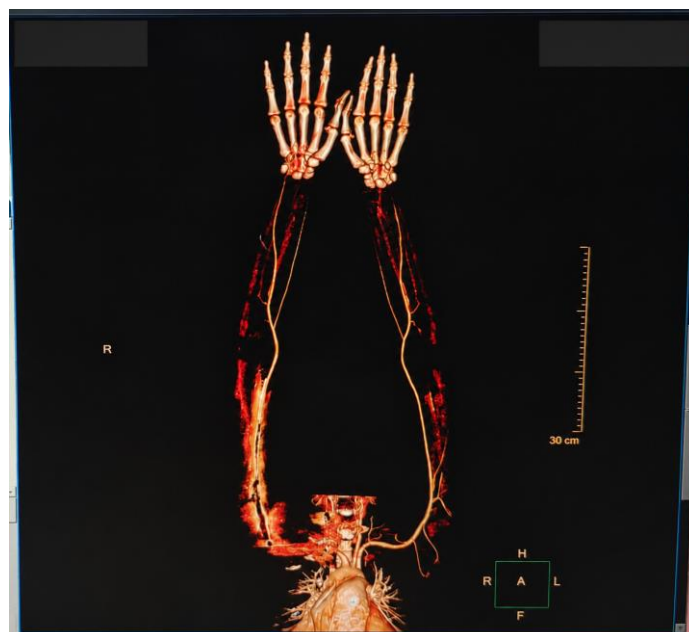


Image 2: Contrast 3D computed tomography angiographic image of upper limbs.

Treatment began with IV infusion of heparin 1000 IU followed by PGE2 infusion of 100ng at 50 ml/hr and a combination of cefoperazone and sulbactam (c Batum) 1.5gm was given by IV. 500 mg of metronidazole was injected and a few other medications such as atorvastatin 10mg,

amlodipine 5mg, diltiazem 30mg, nifedipine 10mg were administered to suppress the rise of other systemic complications. The patient showed improvement (**Image 3**). Edema, erythema and thrombus started settling. Azithromycin 500mg was administered orally and the patient was discharged.



Image 3: Erythematous discoloration has subsided and edema has also settled.

DISCUSSION

Jellyfish stings are presented as one of the most widespread events of marine injury.

The venom released during the sting is highly toxic and it affects various systems of the human body resulting in an intricate

diagnosis. Jellyfish toxins exhibit various toxicological effects, including haemolytic, cardiotoxic, neurotoxic, cytotoxic, and vasoactive activities. Hence, they end up affecting multiple organs [9]. The severity of a disease caused by jellyfish sting depends on its tubule length and its toxicity which is different for different species yet in most cases the species remain undetected [10].

Previous cases of jellyfish sting have been reported wherein the patient had come with similar complaints. A case in 2018 presented with jellyfish sting resulting in left forearm edema, cellulitis, red patch on the dorsum of forearm with no palpable radial or ulnar pulse. Low- molecular-weight heparin was administered which helped in suppressing the condition [11]. Another case in 2020 reported of jellyfish sting in the forearm presented with complaints such as bluish discoloration over the tips of fingers and a weak pulse of radial and ulnar arteries which showed improvement on treatment with iloprost. One week after discharge, his limbs showed normal Doppler ultrasound findings [4].

Cyl Choong reported a patient who came for treatment one week post sting. He was presented with numbness, swelling, cyanosis and there was development of distal gangrene secondary to vascular spasm which called for an emergency surgical fasciotomy. Hence this case highlights the importance of early treatment in case of jellyfish sting [12]. Also, Arthur H Lo reported of an adult patient who had jellyfish sting induced digital vasospasm that was treated with LMW heparin. He mainly highlighted the requirement of immediate treatment in case of jellyfish stings which can otherwise lead to severe disabilities like limb ischemia that might demand amputation [13].

Jellyfish sting can also cause major systemic complications. Sivanasworn NK reported a 32-yr old man stung by jellyfish while walking into the sea who came with complaints of electric current-like pain over both thighs with chest discomfort. The

electrocardiograph showed features of Wolff-Parkinson-White syndrome. The patient showed recovery through symptomatic management and a cardiology follow-up was ensured [14]. Peter J Fenner reported a fatal case of jellyfish sting where a male tourist was stung on the face and chest and came with complaints of muscle cramps, anxiety and hypertension. Development of Irukandji syndrome was noticed and the patient died of intracerebral haemorrhage 30 hours later [15].

Standard diagnostic protocol urges for a skin scraping test which is taken for dermoscopy and histology for the identification of the class and to reveal the nematocysts in the lesion. In case of delayed allergic reactions, Colour Doppler Ultrasonography (CDUS) is performed. It also helps in ruling out the vascular diseases that could cause ischemia. Followed by this treatment begins with stabilization of the patient, preventing further nematocyst discharge, reducing the effects of venom, controlling systemic effects, and preventing complications [1]. However, an individualized treatment protocol for the different class of jellyfish sting induced toxicity is yet to be developed and for now the treatment is based on symptomatic management [16].

This case deals with radial artery thrombosis resulting from a jellyfish sting on the left forearm third day post-sting. The thrombosis is likely secondary to toxin-mediated vascular injury and the class of jellyfish was unknown. This diagnosis was based on the finding of feeble and absent pulse of the radial artery on examination and confirmation was done through computed tomography. Unlike the standard protocol, skin scraping and identification of jellyfish species was not done; rather, immediate treatment began with heparin and PGE2 infusion to assess the symptomatic complications which helped in resolving the edema and the thrombus. Early treatment has debilitated the serious complications which otherwise might have led to amputation.

CONCLUSION

Jellyfish sting can produce toxic effects in the human body in multiple ways. The toxicity differs depending on the class of jellyfish but in most cases the class remains undetected. A similar case was witnessed here where the patient reported to the hospital on the third day post sting with the class of jellyfish unknown. Based on the chief complaints of erythema, swelling and cellulitis along with the identification of feeble pulse on palpation which started reversing on administration of heparin and PGE₂, the diagnosis was ruled out as radial artery thrombosis that was sting induced and the subsequent confirmation was made from contrast CT and vascular surgery.

There is always an immediate need for treatment as jellyfish stings are dangerous enough to cause life threatening problems. This case highlights that though the exact class of the jellyfish was unknown, the immediate symptomatic approach of treatment without prolongation of time helped in evading endangering complications and further development of ischemia and gangrene which otherwise might have led to serious conditions such as amputation

Declaration by Authors

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REFERENCES

1. Cunha SA, Dinis-Oliveira RJ. Raising Awareness on the Clinical and Forensic Aspects of Jellyfish Stings: A Worldwide Increasing Threat. *Int J Environ Res Public Health*. 2022;19(14):8430. doi: 10.3390/ijerph19148430.
2. Sinha SK, Jha MJ, Mishra V, Thakur R, Goel A, Kumar A, Singh AK, Sachan M, Varma CM, Krishna V. Radial Artery Occlusion - Incidence, Predictors and Long-term outcome after TRAnsradial Catheterization: clinico-Doppler ultrasound-based study (RAIL-TRAC study). *Acta Cardiol*. 2017;72(3):318-327. doi: 10.1080/00015385.2017.1305158.
3. Monteerarat Y, Limthongthang R, Laohaprasitiporn P, Vathana T. Reliability of capillary refill time for evaluation of tissue perfusion in simulated vascular occluded limbs. *Eur J Trauma Emerg Surg*. 2022;48(2):1231-1237. doi: 10.1007/s00068-020-01594-9.
4. Kamsani NA, Tan LT, Khalid MM, Ismail AK. Vascular insufficiency in the extremities following jellyfish-sting envenomation in Malaysia. *Toxicon X*. 2026; 29:100239. doi: 10.1016/j.toxcx.2025.100239.
5. Zankl AR, Andrassy M, Volz C, Ivandic B, Krumdsdorf U, Katus HA, Blessing E. Radial artery thrombosis following transradial coronary angiography: incidence and rationale for treatment of symptomatic patients with low-molecular-weight heparins. *Clin Res Cardiol*. 2010;99(12):841-7. doi: 10.1007/s00392-010-0197-8.
6. Chitte SA, Veltri K, Thoma A. Ischemia of the hand secondary to radial artery thrombosis: A report of three cases. *Can J Plast Surg*. 2003 Fall;11(3):145-8. doi: 10.1177/229255030301100308.
7. Türker T, Capdarest-Arest N. Acute hand ischemia after radial artery cannulation resulting in amputation. *Chir Main*. 2014;33(4):299-302. doi: 10.1016/j.main.2014.05.001.
8. Obara H, Matsubara K, Kitagawa Y. Acute Limb Ischemia. *Ann Vasc Dis*. 2018;11(4):443-448. doi: 10.3400/avd.ra.18-00074.
9. Li B, Li Y, Qiu Z, Zhang C, Li Y, Li W, et al. Advances in Jellyfish Sting Mechanisms and Treatment Strategies. *Mar Drugs*. 2025;23(6):231. doi: 10.3390/md23060231.
10. Kitatani R, Yamada M, Kamio M, Nagai H. Length Is Associated with Pain: Jellyfish with Painful Sting Have Longer Nematocyst Tubules than Harmless Jellyfish. *PLoS One*. 2015;10(8):e0135015. doi: 10.1371/journal.pone.0135015.
11. Elkafafi M, Hamed H, Ali Y, Elgohary M. Compartment syndrome following a jellyfish sting: a case report. *J Med Case*

- Rep. 2023;17(1):4. doi: 10.1186/s13256-022-03714-y.
12. Choong C, Chan HZ, Faruk NA, Bea KC, Zulkiflee O. Jellyfish Envenomation Resulting In Vascular Insufficiency And Neurogenic Injury of Upper Limb. Malays Orthop J. 2015;9(3):49-51. doi: 10.5704/MOJ.1511.007.
 13. Lo AH, Chan YC, Law Y, Cheng SW. Successful treatment of jellyfish sting-induced severe digital ischemia with intravenous iloprost infusion. J Vasc Surg Cases. 2016;2(1):31-33. doi: 10.1016/j.jvsc.2016.02.007.
 14. Sivanasworn NK, Anantham G, Jamal SM, Hatta MM, Ismail AK. Managing an Unidentified Jellyfish Sting with Mixed Envenomation Syndrome at a Noncoastal Hospital: Is This a New Form of Jellyfish Envenomation? Wilderness Environ Med. 2023;34(2):225-230. doi: 10.1016/j.wem.2023.01.010.
 15. Fenner PJ, Hadok JC. Fatal envenomation by jellyfish causing Irukandji syndrome. Med J Aust. 2002;177(7):362-3. doi: 10.5694/j.1326-5377.2002.tb04838.x.
 16. Peng X, Liu KT, Chen JB, Yan ZH, Danso B, Wang MK, et al. Jellyfish Stings: A Review of Skin Symptoms, Pathophysiology, and Management. Med Sci Monit. 2024;30: e944265. doi: 10.12659/MSM.944265.
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