



Case Report

Entrapped hydrophilic coat of short guide wire- A potential rare complication of vascular access site.

R.M.S.P. Karunaratne¹, S.R. Jayawickreme¹, G. Mayurathan¹, N.M.T.C. Jayasekara¹, B.M. Dayananda¹, T. Jeyakanth¹, S.K.G.P.H.K. Sooriyagoda¹, M. Amarasinghe¹, I.S. Wickramatunga³, A.H.M.T.B. Abeysinghe⁴

¹. Teaching Hospital Kandy

Corresponding author: R.M.S.P. Karunaratne E-mail: shanike@gmail.com

Abstract

Construction and design of angiographic guide wires are technologically advancing in a rapid manner by which percutaneous interventions are safer. Complications associated with such device failure are rare and most of these are related to fracture entrapment of distal part of the guide wire. Entrapment and fracture of such interventional and therapeutic devices within the coronary circulatory system is a rare but increasingly recognized clinical problem [1]. We could only find one reported case of isolated hydrophilic coat entrapments in the distal vascular system [2]. We describe a case where hydrophilic coating of an introducer short guide wire was peeled off during the introduction through the radial puncture site resulting in distal radial flow obstruction and affective ulna flow dependent circulation in the hand. A surgical retrieval of the entrapped foreign hydrophilic coat particles established the natural radial flow without further complications on follow up. We hypothesized that this rare complication would have occurred due to re using a hydrophilic coated short guide wire for a second time following chemical sterilization process due to poor resource setting and high patient demand, where the guide wire could lose its original properties to cause such a complication. Hence, reuse of hydrophilic guide wires needs to be actively discouraged from our routine practice due to this potential risk at vascular access site.

Case report

A 40 year-old male with a history of hypercholesterolemia and smoking was referred to undergo a stand by coronary angiogram following a recent acute coronary syndrome (ACS) episode.

Vascular access was planned through the right radial artery approach using 6 French (Fr) sheath. A standard Terumo needle was used for arterial puncture and a hydrophilic short guide wire (Terumo) was advanced through the lumen of the radial artery following confirming the continuous gush of blood on withdrawal of the plastic puncture needle. The 6F radial introducer sheath was planned to be advanced through proximal end of the hydrophilic short guide wire.

On attempting to advance the sheath it was noted that the outer hydrophilic coating of the guide wire was peeling off the sheath in a circumferential manner on pushing the introducer (Figure 01). At this time similar damage to the distal portion of the guide wire was suspected. It was planned to stop the sheath insertion and to screen the hand for possible hydrophilic coating entrapment at or near the radial puncture site.

The Cine radiography showed a plug of radio opaque material at distal radius which was well above the bony plane suggesting that it may be either intra luminal or subcutaneous foreign body entrapment of consisting the hydrophilic coating (Figure 02).

The patients on site oxygen saturation monitoring showed that he had an ulnar flow dependent circulation to radial side of the hand and fingers.

Procedure was abandoned, and the distal tip of the guide wire was slowly withdrawn into the sheath while both the sheath and guide wire were withdrawn gradually out from radial artery.

Further analysis of the removed guide wire confirmed the peeled off segment of the distal tip of the guide wire in a circumferential manner leaving the metal tip exposed (Figure 03). Doppler study of the radial and ulnar arteries confirmed the blocked radial artery with minimal blood flow distal to this foreign body entrapment and a good ulnar collateral circulation rescuing this distally impaired radial flow.

The decision was made to retrieve the lost fragment by local surgical approach under local anesthesia. Two cylindrical shaped, floppy, foreign materials which had showed radio opaqueness on cine screening confirming the peeled off hydrophilic coating of the guide wire was retrieved. Further hospitalization was uncomplicated. He had post op good distal radial flow on clinical and Doppler assessments.



The patient subsequently underwent left radial angiography and PCI to RCA. He was discharged on the 5th day after the procedure and reviewed after 4 weeks of surgery without any symptoms or further complications at vascular access sites.



Figure 1- Peeled of hydrophilic radial short guide wire during retrieval after radial sheath insertion



Figure 2- Radio opaque entrapped hydrophilic coat at the radial access site at radial vascular plane



Figure 3- Surgically retrieved hydrophilic coat materials of the guide wire

Discussion

Entrapment and fracture of interventional and therapeutic devices within the coronary circulatory system is a rare but increasingly recognized clinical problem ⁽¹⁾. Entrapment of hydrophilic guide wire or part of broken guide wire has been noted as a rare complication. We could only find one reported case of isolated hydrophilic coat entrapments in the distal vascular system ⁽²⁾.

Hydrophilic coat entrapment of a short guide wire at radial artery access sites has not been documented so far. This case further highlights the risk of potential complications in poor resource and high patient demand centers where the hydrophilic wires have been potentially reused with a chemical sterilization which could cause loss of its original properties.

Conclusion

This case further highlights a potential complication when the hydrophilic wires have been reused with chemical sterilization, which may lose its original properties and thus this practice is actively discouraged.

The inability to bear the cost burden for new angiographic devices on these patients specially in a developing country with poor resource setting, has to be weighed against the potential complications as highlighted in our case.

Consent

Informed written consent was obtained from the patient for publication of this case report and any accompanying images.

Conflicting interest : None

References

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