



What become of the Changes of the Stuck Guide Wire during Cardiac Percutaneous Coronary Intervention?

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Clinical Course Description

The patient was a 71-year-old man suffered from Complete Total Occlusion (CTO) of Right Coronary Artery (RCA) for years. Because repeated chest tightness bothered him, so he decided to receive coronary intervention (PCI) on 15'-07-10. The PCI was approached via right femoral artery, and the guide wire was put into the left anterior descending artery (LAD) and to take the route of retrograde into the Right Coronary Artery (RCA). The distal guidewire was snared through the RCA ostium from right-armed puncture (Figure 1). Unfortunately, the whole lengths of guidewires (Sion™ & Fielder FC™) were stuck after the distal part of wire was pulled back to the right brachial artery. Then the cardiologist wanted to pull the both sides of guidewire out but the wire was unmovable. After repeated procedures the distal segments of wire were curled. At that moment we both decided not to take any surgical approach because there were no clinical pictures noted and indeed the wire was stuck in spite of open remove.

The patient attacked a shape pain over anterior left chest and he found a piece of wire was protruded outside the skin four days later (15'-07-14). The wire was pulsatile along with the heart beats. We surgeon were asked to remove the wire again, but there was only a short piece could be pulled out and it was resected (Video 1 & Figure 2A). For the guidewire protrusion outside the skin, the cardiologist was afraid of the cardiac penetrating injury with pericardial effusion, so they performed the echocardiographic examination and moderate amount of blood was found. The

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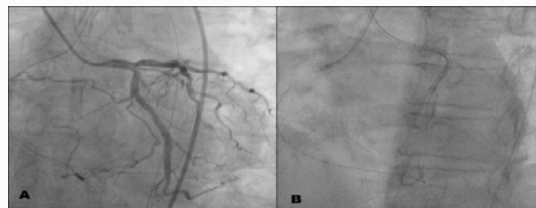


Figure 1: A) The left coronary angiography revealed the guide wire was retrograded into the right coronary artery with the wire extending from ascending-left ostium-LAD-RCA-right ostium-to ascending. **B)** The same picture as Figure 1A without contrast.

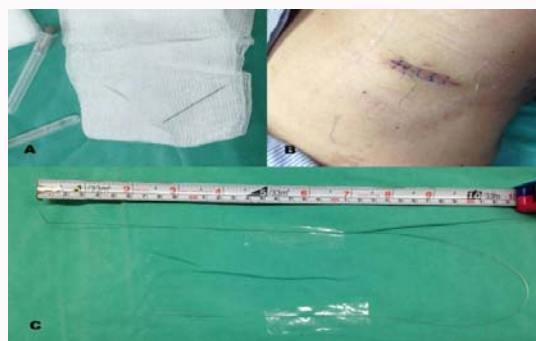
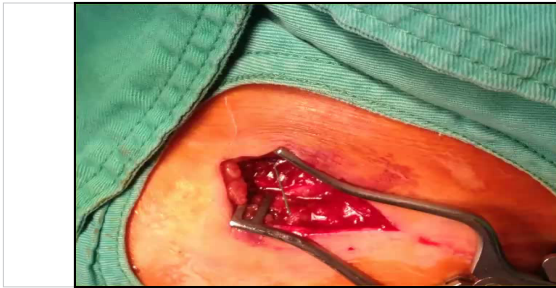


Figure 2: A) The first resected short piece of guide wire. **B)** Re-appearance of a stump of the wire from previous surgical wound on 4 days later. **C)** The long wire directly pulled out bit by bit.



Video 1:



Video 2:

pericardiocentesis was done and totally 430 ml of blood was drained out. Another four days later (15'-07-18) a new piece of wire appeared from the previous operative wound (Figure 2B). We tried to pull the wire out again and luckily a long segment of wire was removed bit by bit (Figure 2C). The followed-up roentgenograms after the two episodes revealed that the whole length of wire was retained from right arm to RCA, intracoronary, ascending aorta, and to the descending aorta in the film of Figure 3A (filmed at 07-16). But the later film demonstrated there still was a residual wire in Figure 3B (filmed at 07-19) retained from aortic root to descending aorta. Few days later the patient discharged without any clinical discomfort.

But the things were not ended. In the following month he felt epigastralgia with general abdominal discomfort, and one episode of tarry stool also noted. The GI man took the gastro-endoscopic examination and a shallow gastric ulcer was told. In this period the patient still felt abdominal irritable, especially when he changed the body positions. He went back to the CV OPD for help on 15'-09-07. The abdominal plain film revealed the retained wire was moved into the abdominal cavity (Figure 3C). The abdominal Computed Tomography (CT) was also arranged. The CT scan revealed the same pictures of foreign body retention (Video 2.1 & Video 2.2). Finally he received diagnostic laparoscopy to survey the possibilities of abdominal organs' injuries by the wire and the most important was to remove the retained wire (Figure 4). But to my surprise, the long guide wire traveling in the abdominal cavity got no further injuries.

Conclusion and Discussion

1. Open surgical remove of the guidewire may be the best choice of treatment in such condition, but we should consider the sites of surgical approach. If we approach the wire from the peripheral

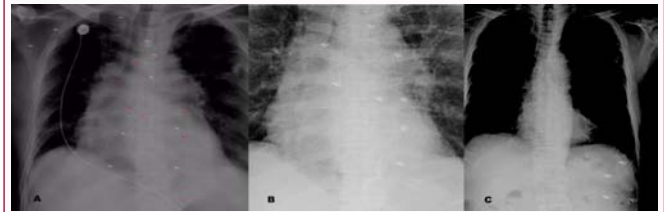


Figure 3: A) X-ray taken on 15'-07-16, white arrows indicate the right half of wire, and the red arrows indicate the left half of wire. B) X-ray taken on 15'-07-19, the white arrows indicate the residual left half part of wire, and the wire had no change of position. C) X-ray taken on 15'-09-07, the residual wire in abdomen was marked by the arrows.

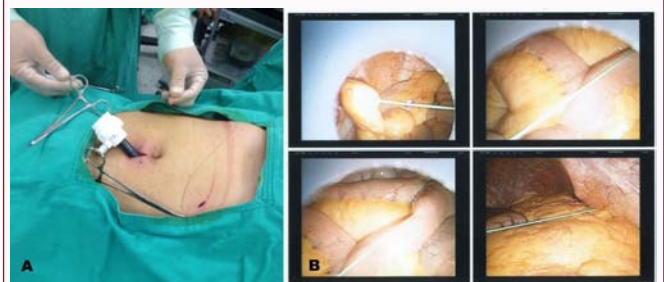
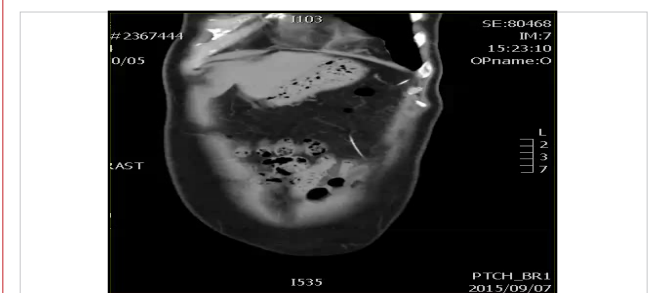


Figure 4: A) Laparoscopy removes of intra-abdominal retained wire. B) Photo pictures taken during laparoscopic examination, wire could be seen.



Video 3:

arteries, the problems of stuck of the wire were persisted in the beginning; if we approached from the more central part, sternotomy and more aggressive procedures such as aortic root manipulation or cardiac apex dissection might be unavoidable.

2. Whether the episodes of UGI bleeding with tarry stool were caused by penetration of GI tract was unprovable, but the penetration of wire from diaphragm into abdomen was confirmed.

3. The fracture site of the guidewire was considered at the region of apex because of constant cardiac contraction, the right half one of wire was protruded out from the left anterior chest wall, and the left half one of wire was penetrated into the abdominal cavity.

4. The rare seen experience gave us another opinion for the treatment of such an awkward condition. So the best practice is not always the most aggressive one.