Unexpected intravascular retention of coil device

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Introduction

During endovascular treatment of aneurysm, thromboembolic events in the parent artery may occur due to coil stretching, undesirable detachment, or coil migration. These unpredictable surgical complications can seriously affect prognosis. Herein, we report a case in which part of the coil device remained intracranial artery after coil detachment and was treated.

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Materials & Methods

A 59-year-old man visited the hospital with severe headache. Brain Computed tomography(CT) showed subarachnoid hemorrhage(Fig 1). In cerebral angiography, left distal anterior cerebral artery (ACA) aneurysm was confirmed(Fig 2).

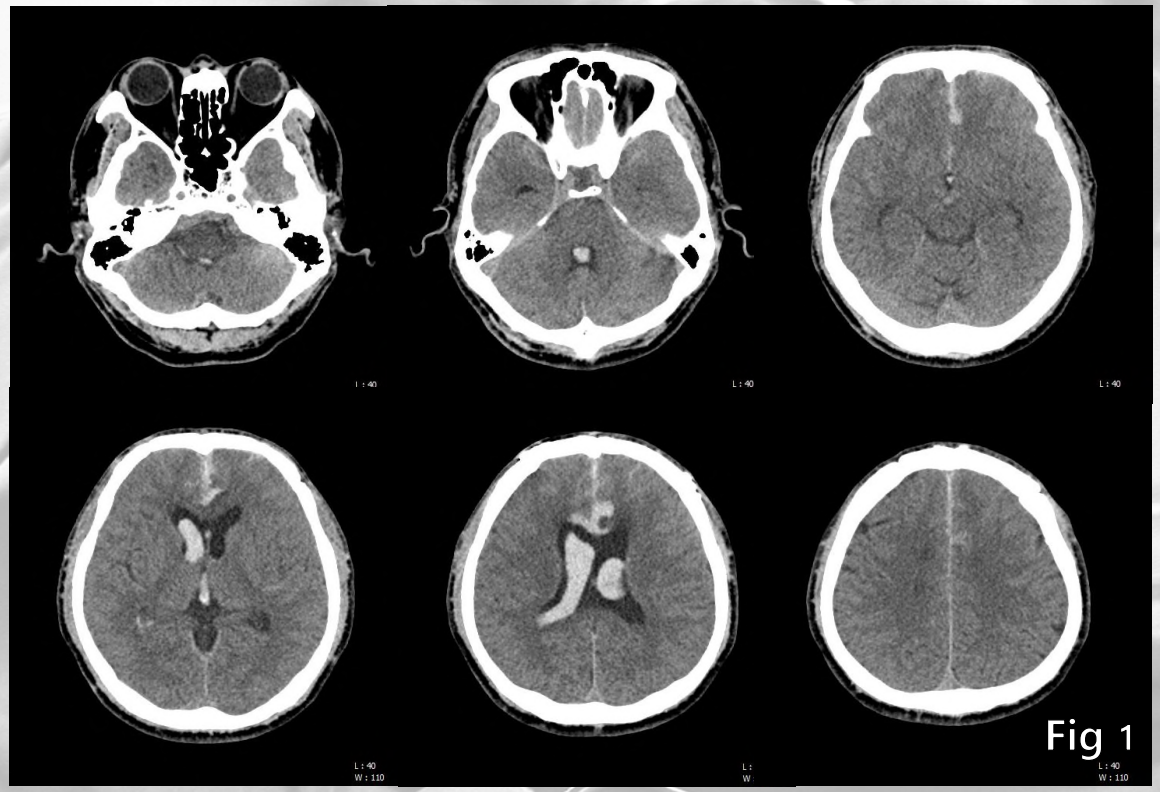

Fig 1

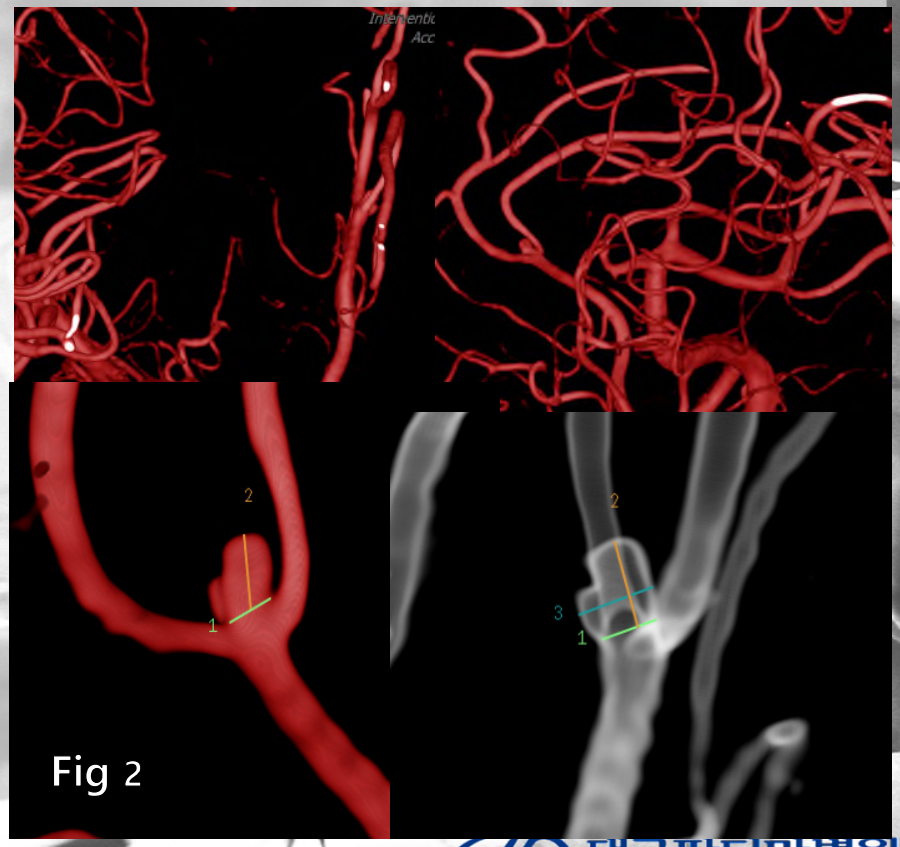

Fig 2

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Materials & Methods

Coil embolization was performed using axium coil (EV3, medtronics) and stent (Neuroform Atlas, stryker)(fig. 3). There was no specific problem during procedure, but kickback of the mircocatheter tip toward the parent artery was observed after the detachment of the last coil, pulling was impossible to remove coil wire(fig. 4). When pulling force was applied, the stent came out together proximal, and it was confirmed that the marker of the coil wire was pushed up to distal direction beyond the stent(fig. 5).

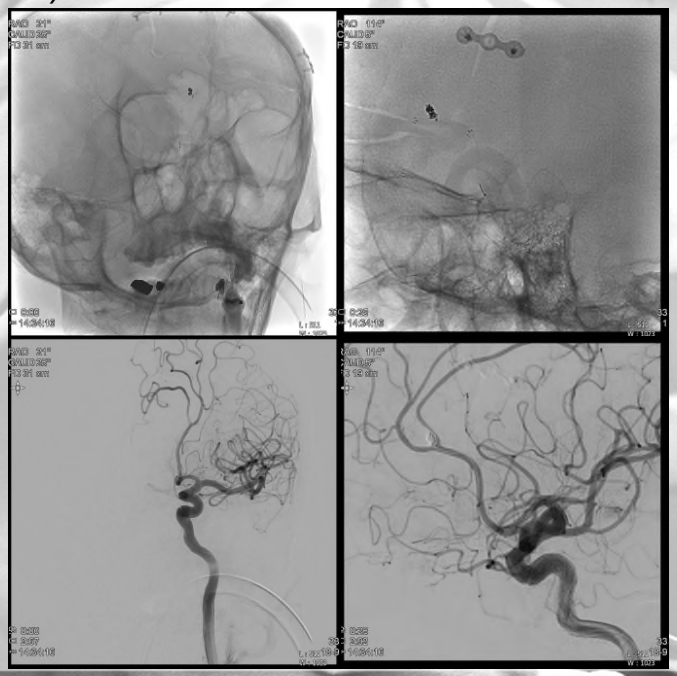

Fig 3

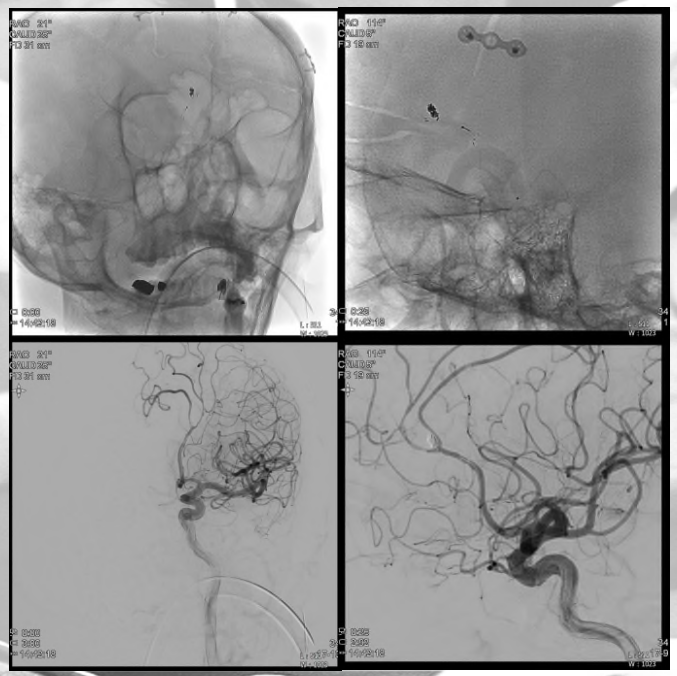

Fig 4

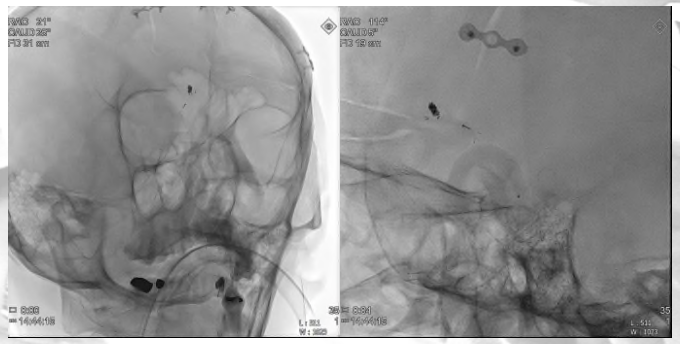

Fig 5

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Result

It was judged to situation in which a part of the coil was stretched without coil detachment and was caught between the stent with coil wire. So external torque force was applied to remove even a part of the coil wire. After that, the coil wire could be pulled out, but only part of coil wire was removed. The marker of the coil wire still remained in the distal ACA and remained stuck between the stents along with the coil stretching part, and the distal ACA flow was weakened by thrombus formation(Fig. 6), so a longer size stent was added from the proximal area than the residual material observed on angiography(fig. 7).

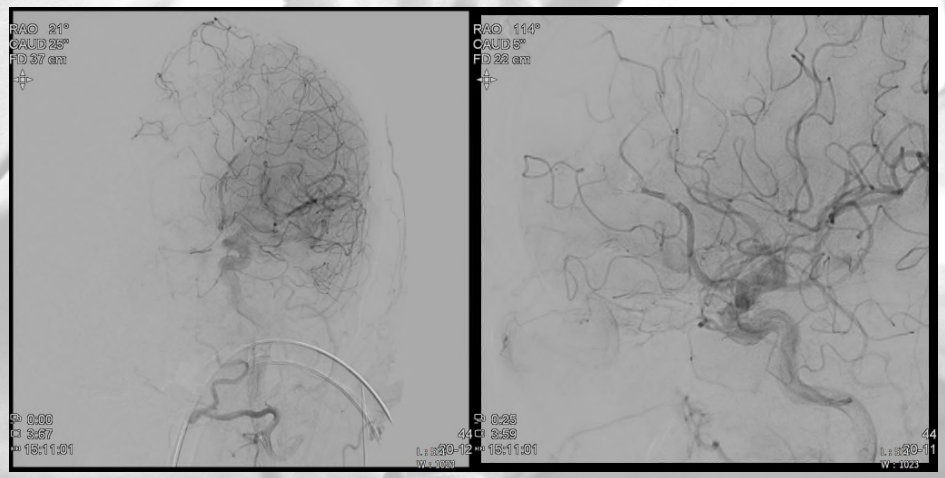

Fig 6

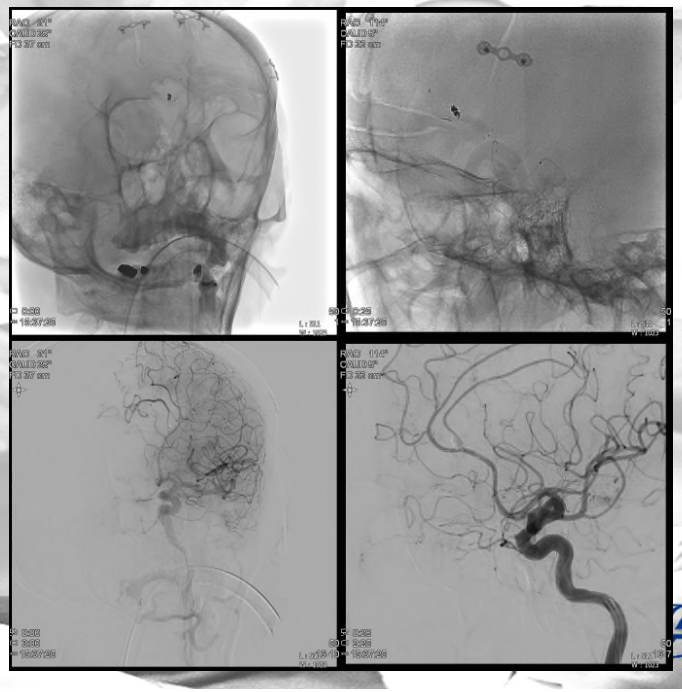

Fig 7

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Result

The remaining coil wire was confirmed from the distal ACA to the lower part of the carotid bulb through the internal carotid artery, and it was determined that prevention of thromboembolic event due to unstable movement was necessary(Fig. 8). After performing an additional stent (PROTEGE RX, medtronics) of the internal–common carotid artery for sufficient residural wire covering, there was no movement of the remaining coil wire, and arterial flow was well observed on last angiography(Fig. 9). The patient recovered without any neurologic deficient, and there was no thrombus in intracranial artery in the angiography performed the next day(Fig. 10).

whith arrow = tip of coil wire
black arrow = coil wire

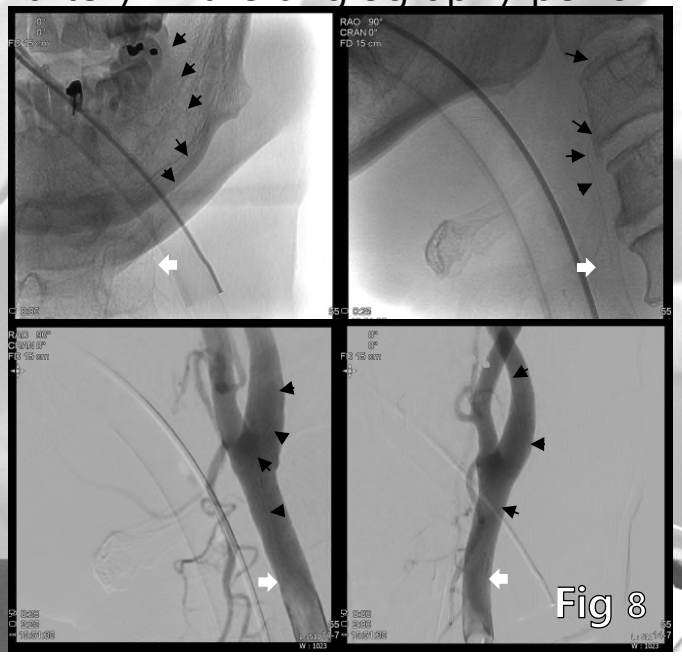


Fig 8

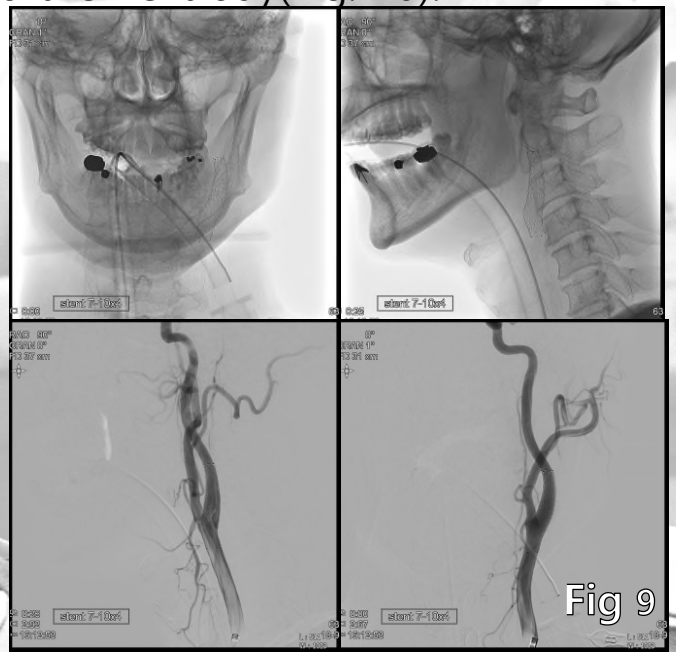
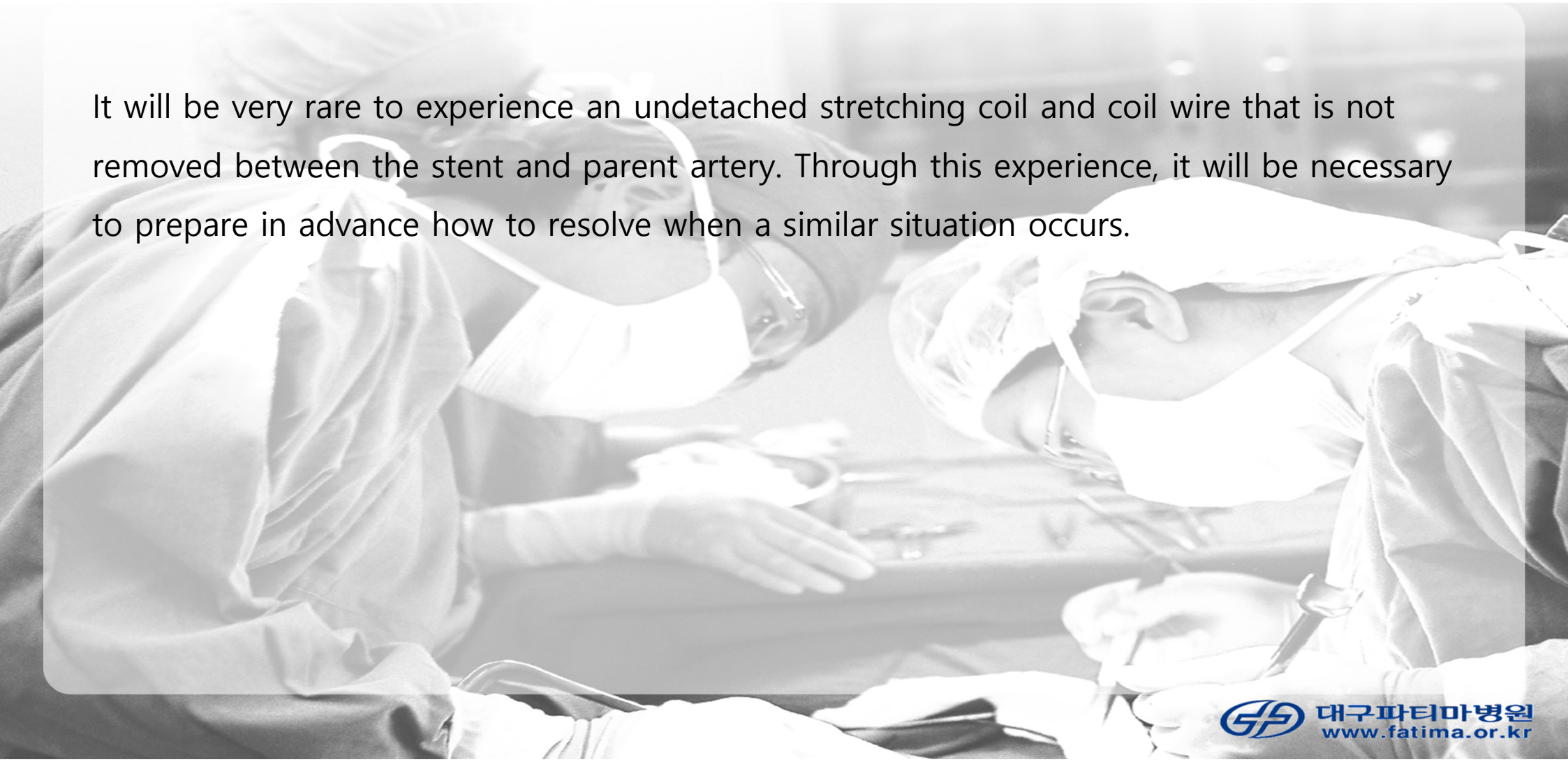


Fig 9

Fig 10

Conclusion

It will be very rare to experience an undetached stretching coil and coil wire that is not removed between the stent and parent artery. Through this experience, it will be necessary to prepare in advance how to resolve when a similar situation occurs.



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