

1129 **Successful Aspiration of a Massive Coronary Thrombus Using an 8-Fr Aspiration Catheter: A Case Report
With In Vitro Experiments**

Shin Sakai¹

Hideto Sangen¹, Ryosuke Saito², Akira Shibata², Kousei Tanaka¹, Hiroto Kokubun³, Yusuke Otsuka⁴, Yusuke
Hosokawa⁴, Kunio Tanaka¹, Kuniya Asai²

1 Cardiology, Hakujikai Memorial General Hospital, Japan

2 Cardiology, Nippon Medical School Hospital, Japan

3 Cardiology, Shizuoka Medical Center, Japan

4 Cardiology, Nippon Medical School Musashi-kosugi Hospital, Japan

Case :

A 35-year-old man with dyslipidemia underwent emergency coronary angiography (CAG) for acute inferior myocardial infarction. CAG revealed occlusion of #3 of the right coronary artery by a massive thrombus with positive remodeling, and primary percutaneous coronary intervention (PCI) was performed. A 7-Fr system was introduced via the left radial artery. Initial aspiration using a 7-Fr aspiration catheter failed to retrieve the thrombus. Subsequent aspiration using a 5-Fr ST01 catheter retrieved only a small amount of red thrombus, and coronary flow remained TIMI grade 2. Therefore, the system was changed to an 8-Fr system via his right femoral artery. Aspiration using an 8-Fr aspiration catheter successfully retrieved a large amount of red thrombus and restored TIMI grade 3 flow. Medical therapy with anticoagulant and antiplatelet agents was continued. Follow-up CAG on hospital day 11 confirmed a reduction in thrombus burden, and the patient was discharged on hospital day 15.

Discussion:

Although the efficacy of thrombus aspiration has not been firmly established by current evidence, it can be highly effective in selected clinical cases. Because the benefit of thrombus aspiration depends on successful thrombus retrieval, aspiration performance, which is influenced by catheter characteristics such as inner lumen diameter and tip geometry, is an important consideration. At our institution, when thrombus retrieval with a 7-Fr aspiration catheter is unsuccessful, we perform aspiration using an ST01 catheter, a technique we refer to as mother-in-child thrombectomy (MCT). Although we have successfully retrieved large thrombi using this technique in other cases, MCT failed in the present case. We therefore changed to an 8-Fr aspiration catheter, which enabled successful retrieval of the large thrombus.

When thrombus aspiration fails in thrombotic lesions, alternative bailout strategies, such as balloon dilatation or stent implantation, may be considered. However, these approaches carry a risk of distal embolization. Therefore, the use of a larger aspiration catheter should be considered according to the clinical situation, while carefully balancing the potential benefits against the risks of procedural complications. Appropriate catheter selection may maximize the effectiveness of thrombus aspiration. As comparative data on aspiration catheters remain limited, we also present the results of our in vitro experiments to provide mechanistic insights into the efficacy of thrombus aspiration.