

## Successful Retrieval of an Embolized JR Catheter Tip from Diseased Left Main

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In developing countries reuse of resterilized catheters is very common due to limited resources and this increases the chances of catheter breakage and embolization. This can endanger the patient's life and cause panic in operating room. We are reporting this case of Judkins Right catheter tip breakage and embolization into diseased left main and its successful retrieval by entrapment with simple balloon technique.

A 59 years old male with a past history of anterior wall myocardial infarction and ischemic stroke presented with complaints of breathlessness and angina of NYHA class III since 1 month. His resting ECG was showing changes of old anterior wall Myocardial infarction (AWMI) and 2D echocardiogram was showing severe hypokinesia of anterior and anteroseptal segments and severe left ventricular dysfunction. Patient was taken for diagnostic coronary angiography.

A 6F Judkin's left (JL) 4.0 catheter (Newtech, New Delhi, India) was used to cannulate left coronary artery and angiogram done which was showing distal left main 90% stenosis, proximal left anterior descending artery 90% stenosis and mid left circumflex artery 90% stenosis. A reused sterilized 6F Judkin's right (JR) 3.5 diagnostic catheter (Newtech, New Delhi, India) was used to cannulate right coronary artery. During the first shoot it was noticed that soft radio-opaque rubber tip of JR had been fractured and embolized into left main artery and proximal right coronary artery was showing 100% stenosis (**Fig. 1a**). The diagnostic JR catheter without tip was removed. Then a selective

angiogram of left coronary artery had done with 6F extra back up (EBU) 3.5 (Medtronic, Minneapolis, MN USA) which showed embolized JR tip in distal left main stem at its bifurcation. As there was already a 90% stenosis in distal left main the tip didn't embolized further into the branches. A Cougar XT 0.014" J-tip wire (Medtronic, Minneapolis, MN USA) was used to cross the lumen of the embolized tip. Then over wire, Sprinter Legend 2x20 mm balloon (Medtronic, Minneapolis, MN USA) was positioned inside the lumen of the embolized tip and inflated at 7 atm pressure to catch the tip (**Fig. 1b**). After catching, the tip with whole catheter system was removed through the femoral sheath (**Fig. 2a,b,c**). Later the patient was sent for coronary artery bypass surgery as patient was having severe triple vessel disease. Post procedure hospital stay was uneventful.

The incidence of broken retained equipment during PTCA is 0.1-0.8%<sup>1</sup>. This includes twisted or dehisced catheter tips, broken guidewire, entrapped balloons and undeployed stents. Most of these occur due to excessive manipulation and traction forces during various stages of the PTCA procedure.

Fracture of coronary catheters and catheter tip dislocation and embolisation is extremely uncommon and only few case reports exist<sup>2,3</sup>. The factors contributing to fracture of catheters include excessive torquing, forceful withdrawal of catheter which is entrapped in arterial spasm, inappropriate handling of catheters, reuse, manufacturing flaws, inadvertent passage of large catheter through smaller sized access site sheaths, polymeraging or a combination of factors could lead to fracture of diagnostic angiography catheter tip<sup>4</sup>. In our case Glutaraldehyde sterilized reused catheter could be the cause of distal tip fracture.

The embolized tip can totally obstruct normal or diseased artery and can cause acute myocardial ischemia and dangerous arrhythmias. It can be a

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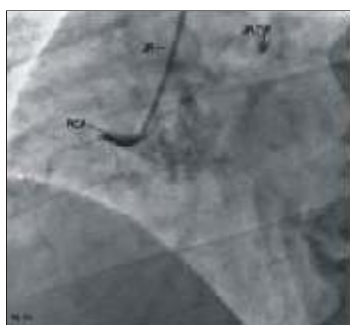
nidus for thrombus formation so its urgent retrieval is must. Retrieval methods described are emergency CABG, the snare technique, wire bridging technique, basket catheter, filter devices and simple balloon technique<sup>5</sup>. In our case we used simple wire and balloon technique to retrieve the embolized tip.

Catheter fracture and tip dislocation and embolization are rare complications and mostly occur due to reused catheters. Such events can cause serious complication and panic in operating room. This can be prevented by minimizing or avoiding using reused catheters. If such event occurs, simple balloon technique as described above can be tried in emergency apart from other options.

**Conflicts of interest :** None reported by authors

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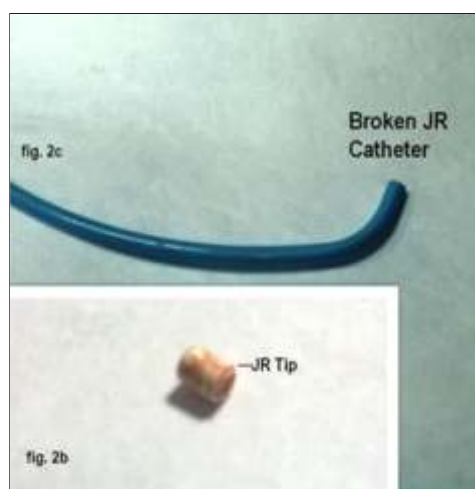
**Fig. 1a :** LAO view showing selective RCA Catheterization with JR3.5 catheter. Catheter tip Appears fractured & embolized



**Fig. 1b :** LA caudal view showing catheterization left coronary with EBU 3.5 catheter Balloon (2x20 mm) passed over the wire (0.014”) into the lumen of JR Tip & then inflated at 7 atm pressure to catch the JR Tip



**Fig. 2a :** Entire catheter system (EBU, balloon, wire, JR tip) is removed. Embolized JR tip seen around balloon



**Fig. 2b :** Embolized JR catheter tip after removal.

**Fig. 2c :** Fractured JR catheter