

# Percutaneous interventional removal of the broken catheter during angiography

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## ABSTRACT

Catheter breakage during coronary angiography is very rare complication. Generally, this broken catheter piece can be removed with a snareloop, but sometimes in cases where the broken piece is large in diameter, it may not be caught with a snareloop. In this case, the catheter piece that could not be caught with a snare loop was removed by catching it with a manual snare using a 0.014 inch guide wire.

**Keywords:** Coronary angiography, complication, breakage of catheter

## INTRODUCTION

Coronary artery disease is the most common cause of death all over the world. Diagnosis is often made by coronary angiography and provides important information for planning treatment. breakage of the catheters used during angiography is a rare complication. The broken catheter piece must be removed percutaneously or surgically. Percutaneous removal is the preferred method because it is less traumatic. If the broken catheter piece cannot be removed from the artery being attempted, it can be captured and removed by the snareloop by placing a sheath on another artery. If it cannot be caught with a Snareloop, the 0.014 inch guide wire can be turned into a larger snare and removed.<sup>1-3</sup>

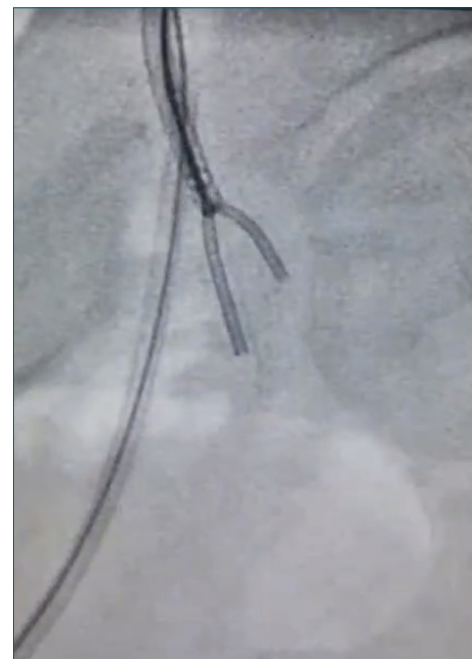
In this article, a case of removing the broken catheter tip during coronary angiography by placing a sheath on another artery and using a 0.014 inch wire as a snare is presented.

## CASE

A 71-year-old male patient underwent coronary angiography due to exertional chest pain that had been present for the last 1 month. Angiography was performed by placing a 6F femoral sheath into the left femoral artery. In coronary angiography, the left system was first imaged using the left Judkins 4 catheter. Then, the right coronary artery was visualized using the right Judkins 4 catheter. No serious stenosis was detected in the coronary arteries.

While the right Judkins catheter was being removed from the sheath, it was noticed that the tip of the catheter was stuck on the edge of the sheath and trying to remove the catheter, it was observed that the tip of the catheter broke off at the femoral artery at the end of the sheath. In order to remove the broken end of the catheter, a snare loop was sent into the sheath to catch the piece, but it could not be caught. Since the fragment could not

be captured from this side, a new sheath was placed on the right femoral artery and the right catheter was passed from the right femoral to the left femoral artery as a crossover. The broken piece was tried to be caught again with a snareloop, but it could not be caught again after repeated attempts. Thereupon, a 0.014 inch floppy wire was turned into a large lasso into the right Judkins catheter and sent to the femoral artery (**Figure 1**). In this way, the broken piece was caught and put into the sheath and taken out.



**Figure 1.** View of the patient's broken catheter tip caught with a snare under fluoroscopy

## DISCUSSION

Clinically significant complications are encountered at a rate of 0.3-1% in coronary angiography.<sup>1</sup> Some of these complications include broken guide wires, stuck balloons or wires, and stripped stents.<sup>2,3</sup> However, intravascular catheter breakage is a very rare complication.<sup>4</sup> Catheter reuse, vessel tortuosity, aggressive manipulation of the catheter by the operator, and removal of the catheter without a guidewire may result in catheter breakage. If the broken catheter tip remains in the intravascular space, it must be removed percutaneously or surgically, as it will cause dissection, thrombosis or limb loss.<sup>5</sup> The snareloop method has been used for a long time for percutaneous removal of intravascular foreign bodies. If the foreign body in the intravascular space is large in diameter, curved, or does not have a large intravascular space, these foreign bodies may not be caught with the snareloop.<sup>6</sup> In such cases, 0.014 inch wires used during interventional procedures and larger tipped snares can be made manually and foreign objects can be captured with the help of a catheter. Thus, in this case, the foreign object that the snareloop could not catch was easily caught with the help of a catheter by manually creating a larger diameter snare. The broken catheter tip in the left femoral artery could be removed percutaneously without the need for surgery.

## CONCLUSION

As the frequency of coronary angiography increases, the incidence of complications also increases. In this context, it is important that special cases are performed by experienced operators and that a guide wire is used when removing the catheter.

## ETHICAL DECLARATIONS

### Informed Consent

All patients signed and free and informed consent form.

### Referee Evaluation Process

Externally peer-reviewed.

### Conflict of Interest Statement

The authors have no conflicts of interest to declare.

### Financial Disclosure

The authors declared that this study has received no financial support.

### Author Contributions

All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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