

IMAGES IN INTERVENTION

# Catastrophic Consequence of Gauze During Percutaneous Coronary Intervention



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**I**atrogenic foreign material contamination such as retention of gauze is a well-recognized but undesirable complication during surgical procedures (1). In percutaneous interventional procedures, hydrophilic polymer emboli have been reported (2). However, to our knowledge, migration of gauze and its potential consequences has never been reported during a percutaneous coronary intervention (PCI) procedure despite the fact that gauze is frequently used during this procedure. Here, we present 2 recent cases of coronary stenting complicated by migration of gauze.

Case 1 was a 76-year-old man with a history of coronary artery disease status post-coronary artery bypass grafting and remote stent implantation in the left anterior descending artery and the right coronary artery. He came to the hospital with chest pain. Another stent was placed (Promus Element 3 × 24 mm, Boston Scientific, Marlborough, Massachusetts) extending from the left main coronary artery into the ramus intermedius coronary artery, but he continued to have chest pain and had a witnessed arrest 5 days later. Autopsy revealed proximal left anterior descending artery thrombus with evidence of gauze in the lumen and surrounding inflammation as the likely cause (Figures 1A to 1E).

Case 2 was a 58-year-old woman with a history of coronary artery disease and remote stent implantation

who died of a motor vehicle accident. At autopsy the presence of gauze was appreciated within the stented neointima in the circumflex artery treated with 2 everolimus-eluting stents (Xience, 3 × 18 mm and 3 × 18 mm, Abbot Vascular, Santa Clara, California). The gauze was accompanied by severe inflammation with giant cells (Figures 1F to 1J).

These 2 cases illustrate that introduction of gauze during PCI is possible and is potentially harmful even in a small amount. Gauze creates a foreign body reaction that results in local inflammation and some rare cases thrombosis or neointimal thickening. The longitudinal length of gauze in these cases was estimated as <3 to 6 mm because it was seen in only 1 or 2 consecutive sections (3 mm away each other). To the naked eye, these tiny fibers are barely visible, and thus the true incidence of gauze migration-induced complications are not known. These case examples suggest alternative materials to gauze should be considered for PCI procedures.

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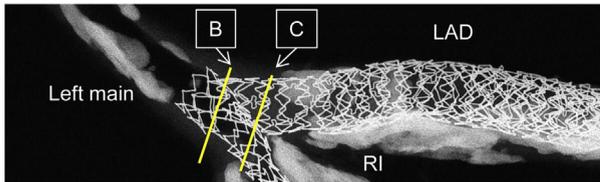
From the <sup>a</sup>Department of Cardiovascular Pathology, CVPath Institute, Gaithersburg, Maryland; and the <sup>b</sup>Department of Medicine, University of Maryland School of Medicine, Baltimore, Maryland. The CVPath Institute has received research grants from 480 Biomedical, Abbott Vascular, Arterial Remodeling Technologies, BioSensors International, Biotronik, Boston Scientific, Celonova, Claret Medical, Cook Medical, Cordis, Edwards Lifesciences, Medtronic, MicroPort, MicroVention, Celonova, OrbusNeich, ReCore, SINO Medical Technology, Spectranetics, Surmodics, Terumo Corporation, W.L. Gore, and Xeltis. Dr. Mori has received honoraria from Abbott Vascular Japan, Goodman, and Terumo Corporation. Dr. Virmani has received honoraria from 480 Biomedical, Abbott Vascular, Boston Scientific, Cook Medical, Lutonix, Medtronic, Terumo Corporation, and W.L. Gore; and has served as a consultant for 480 Biomedical, Abbott Vascular, Medtronic, and W.L. Gore. Dr. Finn has sponsored research agreements with Boston Scientific and Medtronic; and is an advisory board member to Medtronic. All other authors have reported that they have no relationships relevant to the contents of this paper to disclose.

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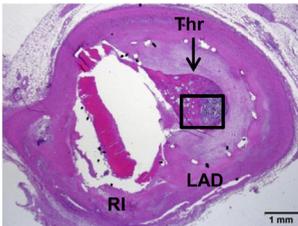
**FIGURE 1** Catastrophic Consequence of Gauze During Percutaneous Coronary Intervention

**Case 1**

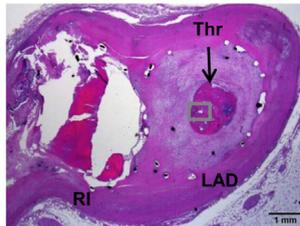
**A Radiograph**



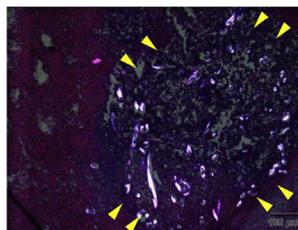
**B**



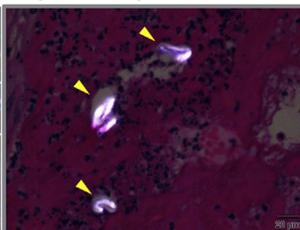
**C**



**D (Polarize)**

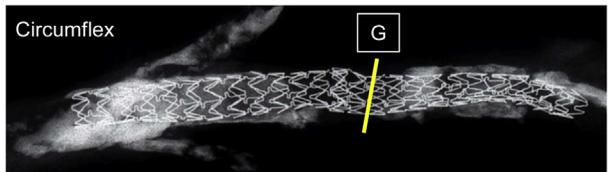


**E (Polarize)**

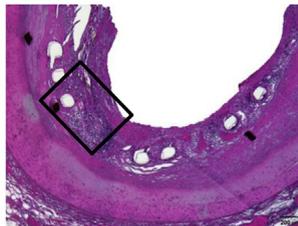


**Case 2**

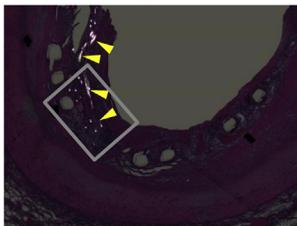
**F Radiograph**



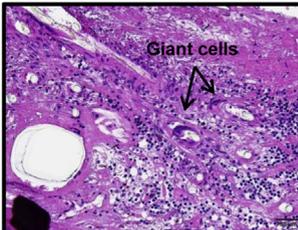
**G**



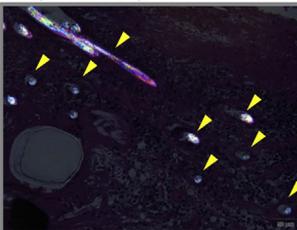
**H (Polarize)**



**I**



**J (Polarize)**



**(A to E)** Case 1. **(A)** Radiograph of the left main coronary artery to the left anterior descending artery (LAD) including bifurcation with the ramus intermedius coronary artery (RI). **(B, C)** Cross sections taken from bifurcation (**yellow lines in A**). In both sections, the takeoff of LAD at the bifurcation is occluded by a thrombus (Thr). **Boxed areas in B and C** are magnified under polarized light **(D, E)** and show presence of polarizable material most consistent with gauze (**yellow arrowheads**). **(F to J)** Case 2. **(F)** Radiograph of the stented left circumflex artery (**yellow line indicates the site of sectioning**). **(G)** Section view; the **boxed area** highlights the region where a large amount of polarizable material along with chronic inflammation and giant cells (**black arrows**) are observed **(I)** and are shown under polarized light in **H and J (yellow arrowheads)**. All the sections are stained with hematoxylin and eosin.

**REFERENCES**

1. Kaplan M, İyiköşker H. A new complication of retained surgical gauze: development of malignant fibrous histiocytoma-report of a case with a literature review. *World J Surg Oncol* 2012;10:139.
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**KEY WORDS** gauze, inflammation, migration, PCI, thrombosis