J Surg Med. 2020;4(7):616-617.
DOI: 10.28982/josam.707225

Case report
Olgu sunumu

Journal of Surgery and Medicine
e-ISSN: 2602-2079

Management of iatrogenic left main coronary artery dissection in a center without onsite cardiac surgery back up

Açık kalp cerrahi desteği olmayan bir merkezde iatrojenik sol ana koroner arter diseksiyon yönetimi

Çağdaş Kaynak [1]

[1] **Siirt State Hospital, Department of Cardiology, Siirt, Turkey**

ORCID ID of the author(s)
ÇK: 0000-0002-7629-9796

Abstract
Catheter-related iatrogenic left main coronary artery dissection is an extremely rare complication that can cause fatal outcomes if not recognized and treated early. In the current approach, conservative follow-up, bailout stenting with percutaneous intervention and bypass surgery treatment options are available. However, in some centers, coronary angiography and interventional applications are performed without surgical support. Management of such rare but important complications becomes more complex in these centers. In this experience, we wanted to share after her approval, how we managed catheter-induced iatrogenic left main coronary artery dissection in a 72-year-old female patient with bailout stenting and conservative approach in a center without surgical back up.
Keywords: Coronary artery dissection, Stent, Angiography

Öz
Katatere bağlı iatrojenik sol ana koroner arter diseksiyonu son derece nadir görülen ancak erken fark edilip tedavi planlaması yapılmadığında ölümcül sonuçlara sebep olabilen bir komplikasyondur. Güncel yaklaşımda konservatif izlem, perkutan girişimle bailout stentleme, bypass cerrahisi tedavi seçenekleri mevcuttur. Ancak bazı merkezlerde cerrahi destek olmadan koroner anjiografi ve girişimsel uygulamalar yapılmaktadır. Bu gibi nadir ama önemli komplikasyonların yönetimi bu merkezlerde daha karmaşık hale gelmektedir. Bu konuda yaşadığımız bu tecrübede stent implante edebilmek için kateteri derin entübasyon yapmak durumunda kaldığımız 72 yaş bayan hastada katetere bağlı gelişen iatrojenik sol ana koroner arter diseksiyonunu cerrahi destek olmayan merkezde bailout stentleme ve konservatif yaklaşımla nasıl yönettiğimizi kendisinin onayı alındıktan sonra paylaşmak istedik.
Anahtar kelimeler: Koroner arter diseksiyonu, Stent, Anjiografi

Introduction

Catheter-induced iatrogenic left main coronary artery (LMCA) dissection is an exceedingly rare complication (0.071%) that can be fatal if not recognized and treated early [1]. In the current approach, conservative follow-up, percutaneous coronary intervention (PCI), coronary artery bypass grafting (CABG) treatment options are available [2]. However, in some centers, coronary angiography and interventional procedures are performed without surgical support. We herein report how we managed catheter-induced LMCA dissection with both PCI (bailout stenting) and conservative approach in a center without on-site cardiac surgery back up.

Corresponding author / Sorumlu yazar:
Çağdaş Kaynak
Address / Adres: Yeni Mah. Kyk Yurdu Yanı, Siirt Devlet Hastanesi, Kardiyoloji Bölümü, Siirt, Türkiye
E-mail: cagdaskaynak@hotmail.com

Informed Consent: The authors stated that the written consent was obtained from the patients presented with images in the study.
Hasta Onamı: Yazarlar çalışmada görüntüleri ile sunulan hastalardan yazılı onam alındığını ifade etmiştir.

Conflict of Interest: No conflict of interest was declared by the authors.
Çıkar Çatışması: Yazarlar çıkar çatışması bildirmemişlerdir.

Financial Disclosure: The authors declared that this study has received no financial support.
Finansal Destek: Yazarlar bu çalışma için finansal destek almadıklarını beyan etmişlerdir.

Published: 7/30/2020
Yayın Tarihi: 30.07.2020

How to cite / Atıf için: Kaynak Ç. Management of iatrogenic left main coronary artery dissection in a center without onsite cardiac surgery back up. J Surg Med. 2020;4(7):616-617.

Case presentation

A 72-year-old woman with a previous history of hypertension (HT) and atrial fibrillation (AF) was admitted to the emergency department with typical chest pain and was taken for emergency coronary angiography with elevated cardiac biomarkers. Physical examination was unremarkable and transthoracic echocardiogram showed mild anterior hypokinesia with an ejection fraction of 50%. Coronary angiography performed with 6 French catheters in the right femoral pathway revealed a 90% critical stenosis in the left anterior descending artery (LAD) with dense calcific eccentric structures in the proximal-mid region (Figure 1a). The stenosis of the LAD was passed with 0.014-inch soft type floppy wire (BMV, Abbott Vascular, Santa Clara, CA, USA). Subsequently, the lesion was predilated with 1.25×12 mm and 2.0×12 mm compliant balloons at 12 atm. 3.0×18 mm drug eluting stent (Xıence Pro, Abbott Vascular, Santa Clara, CA, USA) was advanced to the lesion with deep intubation of Left Judkins 4.0 catheter (Launcher, Medtronic, Minneapolis MN, USA) because the lesion could not be passed despite repeated attempts (Figure 1b). After the stent passed, it was implanted at 13 atm. Catheter-induced type B dissection (NHLB-I classification) in the LMCA region was observed in the control images (Figure 1c-1d).

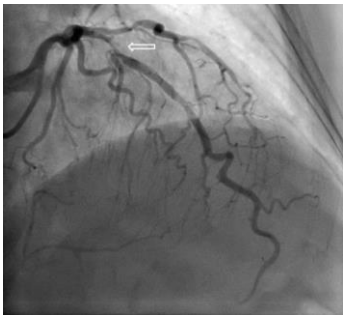

Figure 1a: Calcified lesion in the proximal-mid part of LAD (arrow)

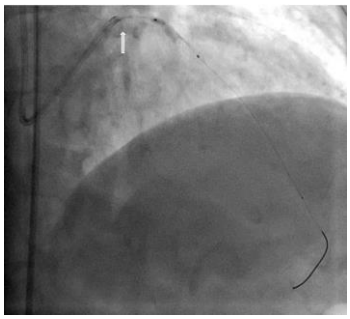

Figure 1b: Deep catheter intubation (arrow) into LMCA

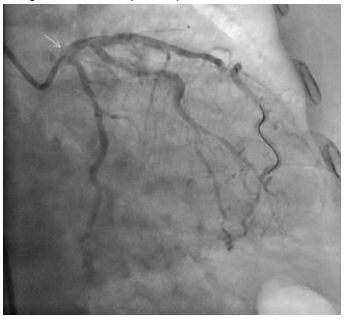

Figure 1c: Dissection of LMCA (arrow) with antegrade extension to LAD

Figure 1d: Dissection line (arrow) extension to LAD

Afterwards, 4.0×9 mm bare metal stent (Ephesos II, Alvimedica**,** Istanbul, Turkey) was implanted at 12 atm (Figure 2a) to the area where the intimal dissection line had begun. In the control pose, the initial dissectıon line at LMCA was closed (Figure 2b). The patient remained hemodynamically stable after the development of main coronary artery dissection and did not have any symptoms. However, there was no surgical back up in our clinic, and in case of deterioration and retrograde progression of dissection, the closest surgical center was 60 km away. Therefore, retrograde progression of dissection was prevented by spot stenting of the intimal flap insertion site instead of conservative follow-up. Due to the presence of stents, conservative follow-up was planned for the minimal dissection line between two stents. The patient was discharged after 3 days of follow-up. Patient's written consent was obtained.

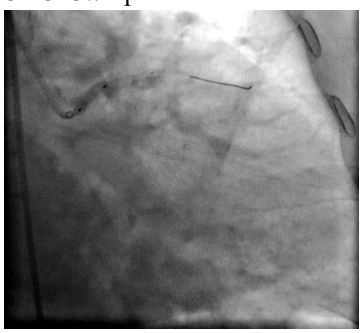

Figure 2a: Urgent stenting of LMCA

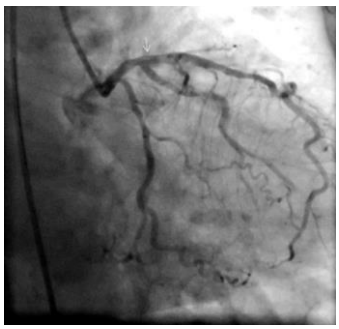

Figure 2b: Starting point of the dissection line is closed and the minimal dissection line (arrow) remains in LAD

Discussion

Especially in cases of very intense intracoronary calcification and severe atherosclerosis, or abnormal anatomic output of LMCA, LMCA dissections may occur due to subintimal passage of rigid and hydrophilic wires used during the procedure, inappropriate small diameter catheter selection, excessive manipulation of catheter, use of left amplatz and extra back up catheters and deep intubation of catheters, rapid and excessive contrast applications and operator-dependent reasons [3-5]. LMCA dissection management depends on the patient's clinical condition, the causative factor, antegrade flow and hemodynamic status and the character of the dissection line progression. In some cases, previously reported in the literature, the conservative approach of 'Watchful waiting' is sufficient when the dissection line is minimal and does not block flow [6,7]. Although bailout stenting is the most logical strategy in cases where dissection is more severe and obstructs flow, cases where stenting failed and the dissection line advanced antegrade or retrograde to the aorta have been reported [8,9]. We believe that we were lucky, because the treatment we performed was sufficient for the patient. Although our patient was clinically stable, the nearest surgical center was 60 km away thus bailout stenting was more reasonable than the conservative approach to prevent further deterioration.

Conclusion

Interventional cardiologists should always consider the physical conditions of the medical center, their own clinical experience and their complication management experience in cases requiring deep catheter intubation and excessive catheter manipulation.

References

1. Cheng CI, Wu CJ, Hsieh YK, Chen YH, Chen CJ, Chen SM, et al. Percutaneous coronary intervention for iatrogenic left main coronary artery dissection. Int J Cardiol. 2008;126:177-82.
2. Eshtehardi P, Adorjan P, Togni M, Tevaearai H, Vogel R, Seiler C, et al. Iatrogenic left main coronary artery dissection: incidence, classification, management, and long-term follow-up. Am Heart J. 2010;159:1147-53.
3. Awadalla H, Sabet S, El Sebaie A, Rosales O, Smalling R. Catheter-induced left main dissection incidence, predisposition and therapeutic strategies experience from two sides of the hemisphere. J Invasive Cardiol. 2005;17:233-6.
4. Onsea K, Kayaert P, Desmet W, Dubois CL. Iatrogenic left main coronary artery dissection. Neth Heart J. 2011;19:192-5.
5. Yıldırım O, Gul M, Inci S, Aktaş H, Dogan P, Bozkır A, et al. A catastrophic nightmare of the interventional cardiologist: Iatrogenic left main artery dissection and longitudinal stent deformation. Intractable Rare Dis Res. 2018;7:209-12.
6. Alfonso F, Almería C, Fernández-Ortíz A, Segovia J, Ferreirós J, Goicolea J, et al. Aortic dissection occurring during coronary angioplasty: angiographic and transesophageal echocardiographic findings. Cathet Cardiovasc Diagn. 1997;42:412-15.
7. Celik M, Yuksel UC, Yalcinkaya E, Gokoglan Y, Iyisoy A. Conservative treatment of iatrogenic left main coronary artery dissection: report of two cases. Cardiovasc Diagn Ther. 2013;3:244-6.
8. Awadalla H, Salloum JG, Smalling RW, Sdringola S. Catheter-Induced Dissection of the Left Main Coronary Artery With and Without Extension to the Aortic Root: A Report of Two Cases and a Review of the Literature. J Interv Cardiol. 2004;17:253-7.
9. Baysal SS, Özbek K, Cirit A. Iatrogenic Left Main Coronary Artery Dissection–A Disastrous Complication. J Cardiol Forecast. 2018;1:1002.

This paper has been checked for language accuracy by JOSAM editors.
The National Library of Medicine (NLM) citation style guide has been used in this paper.