

# Angiocoronary Ambiguity in a 43-Year-Old Patient with Ambulatory Necrosis: Determining Role of Endocoronary Imaging

Kaziga Wiyauou Dieu-Donne<sup>1,2</sup>, Irakoze Jean Bertrand<sup>1</sup>, Sodou Laou-Abalo<sup>3</sup>, Afassinou Yaovi Mignazonzon<sup>2,4</sup>, Pessinaba Soulemane<sup>2,5</sup>, Pio Machihude<sup>2,6</sup>, Diallo Nouhoum<sup>1</sup>, Keita Alfousseyni<sup>1</sup>, Ehinou Ekua Christine<sup>1</sup>, Chanseau Sylvain<sup>1</sup>

<sup>1</sup>Cardiology Department, Montluçon Hospital Center, Montluçon, France

<sup>2</sup>Docta lafiè Hospital, Lomé, Togo

<sup>3</sup>Cardiology Department, Beauvais Hospital Center, Beauvais, France

<sup>4</sup>Cardiology Department, Sylvanus Olympio Teaching Hospital, Lomé, Togo

<sup>5</sup>Cardiology Department, Campus Teaching Hospital, Lomé, Togo

<sup>6</sup>Cardiology Department, Kara Teaching Hospital, Kara, Togo

Email: wiyaukaz@gmail.com

**How to cite this paper:** Dieu-Donne, K.W., Bertrand, I.J., Laou-Abalo, S., Mignazonzon, A.Y., Soulemane, P., Machihude, P., Nouhoum, D., Alfousseyni, K., Christine, E.E. and Sylvain, C. (2025) Angiocoronary Ambiguity in a 43-Year-Old Patient with Ambulatory Necrosis: Determining Role of Endocoronary Imaging. *World Journal of Cardiovascular Diseases*, 15, 469-475.

<https://doi.org/10.4236/wjcd.2025.1510041>

**Received:** August 21, 2025

**Accepted:** October 18, 2025

**Published:** October 21, 2025

Copyright © 2025 by author(s) and Scientific Research Publishing Inc. This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>



Open Access

## Abstract

**Background:** Atherosclerosis is a dynamic process that begins early in childhood, with a slow progression that makes acute coronary syndrome an unusual entity in young people. Undetected ambulatory necrosis in young subjects may lead to an inappropriate decision in coronary angiography management. The aim of our case report is to highlight the importance of endo-coronary imaging in the management of coronary artery disease. **Case Presentation:** We report on the case of a young patient of 43 years old scheduled for a diagnostic coronary angiography due to a modified electrocardiogram. As the coronary appearance was in favor of spontaneous dissection of the left anterior descending artery, endocoronary imaging by optical coherence tomography was performed, highlighting an appearance of LOTUS ROOT. This has made it possible to adapt the therapeutic care. **Conclusion:** This case highlights the importance of endocoronary imaging in the management of ambiguity in angiocoronary imaging.

## Keywords

Lotus Root, Optical Coherence Tomography, Angioplasty

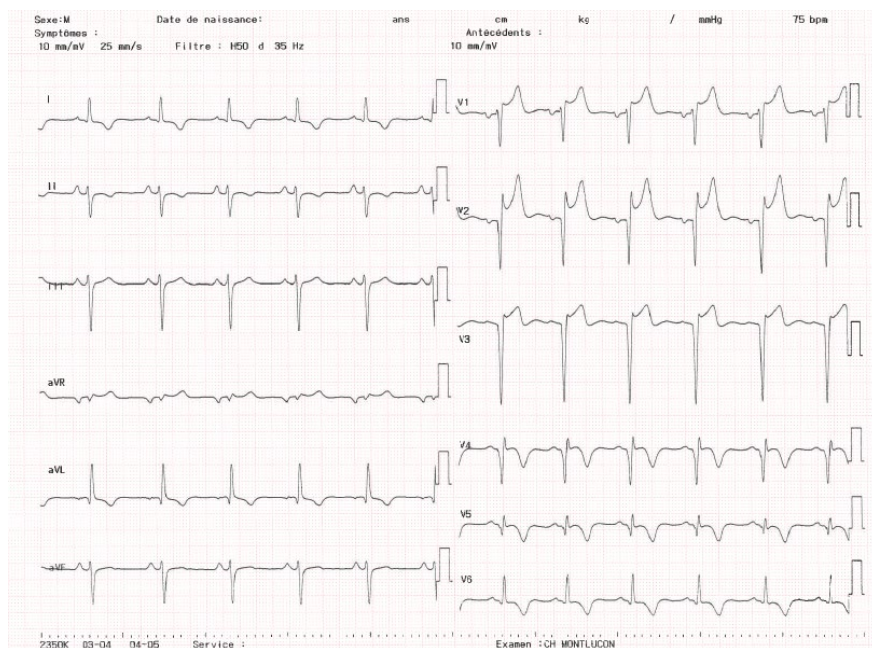
## 1. Introduction

The presence of several lumens inside a coronary artery is the consequence of a

recanalization of this artery or neovascularization of a thrombus [1] [2]. This aspect has a lotus root-like appearance and is diagnosed through endocoronary imaging. Several studies carried out using Optical Coherence Tomography (OCT) to understand this specific aspect are in favor of spontaneous recanalization of an intracoronary thrombus [2]-[5]. Given the absence of angiocoronarographic presumption, endocoronary imaging should be used in cases of suspicious images of incomprehensible mechanisms. Several authors have proposed drug-eluting stenting for this condition, with good results.

## 2. Clinical Case

We report the case of a young 43-year-old patient referred by his attending cardiologist for diagnostic coronary angiography in view of electrocardiographic abnormalities such as Q waves from V2 to V5, ST segment elevation from V1 to V3, and apicolateral subepicardial ischemia (**Figure 1**). His only cardiovascular risk factor was active smoking. Seven months previously, he had presented with anginal chest pain for which he had not sought medical attention.

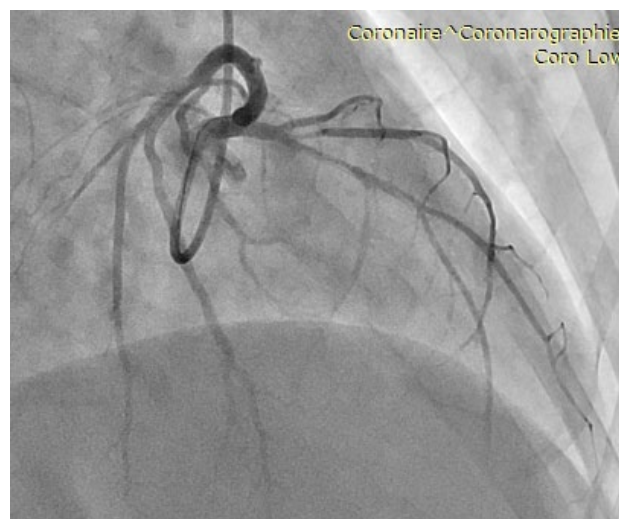


**Figure 1.** Electrocardiogram showing repolarization disorders.

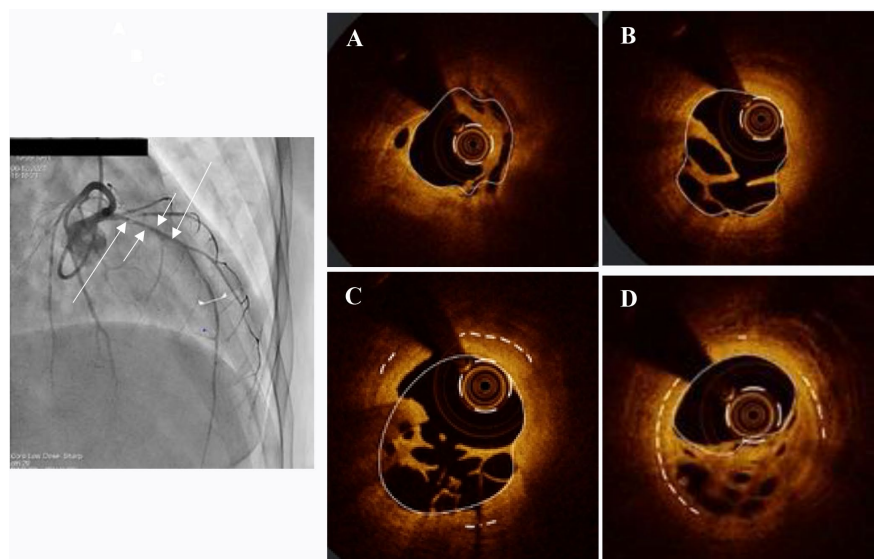
Upon admission, the patient's only complaint was exertional dyspnea. The clinical examination did not reveal any signs of left or right congestion, and the hemodynamic status was satisfactory. Biologically, renal function was normal with a creatinine clearance according to CKD-EPI of 105 and troponins of 31.5 pg/ml (normal = 0.0 - 14.0 pg/ml). LDL cholesterol was 0.59 g/l and triglycerides were 0.63 g/l. Hemoglobin level was 14.2 g/dl.

Coronary angiography performed via the right radial approach (6F) revealed a "phasme" appearance on the Left Anterior Descending artery (LAD) (**Figure 2**),

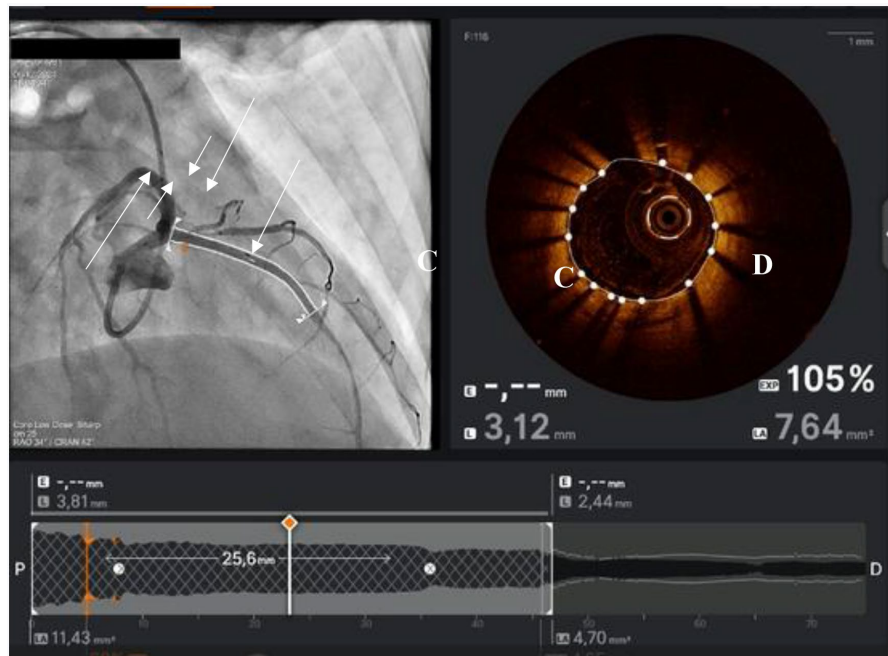
suggesting spontaneous coronary dissection. Using a LAUNCHER EBU 3.5 6F 100 cm guiding catheter and a SION Blue 0.014 J 190 cm guidewire, endocoronary imaging by OCT was performed in front of this “phasme” appearance. The OCT revealed several long intracoronary lumens running the length of the LAD, giving a “lotus root” appearance (**Figure 3**). The lesion was pre-dilated with a non-compliant PIPIT 2.5 × 30 mm balloon and then treated with an everolimus-coated active stent (XIENCE Skypoint 2.5 × 48 mm). OCT-guided optimization was performed with a PIPIT 3.75 × 8 mm non-compliant balloon in the proximal part of the stent, followed by a PIPIT 3.0 × 20 mm non-compliant balloon in the middle part of the stent. The distal part of the stent had not been optimized because the size of the chosen stent matched the size of the distal part of the lesion. The final result was good (**Figure 4**).



**Figure 2.** “Phasme” appearance on the LAD.



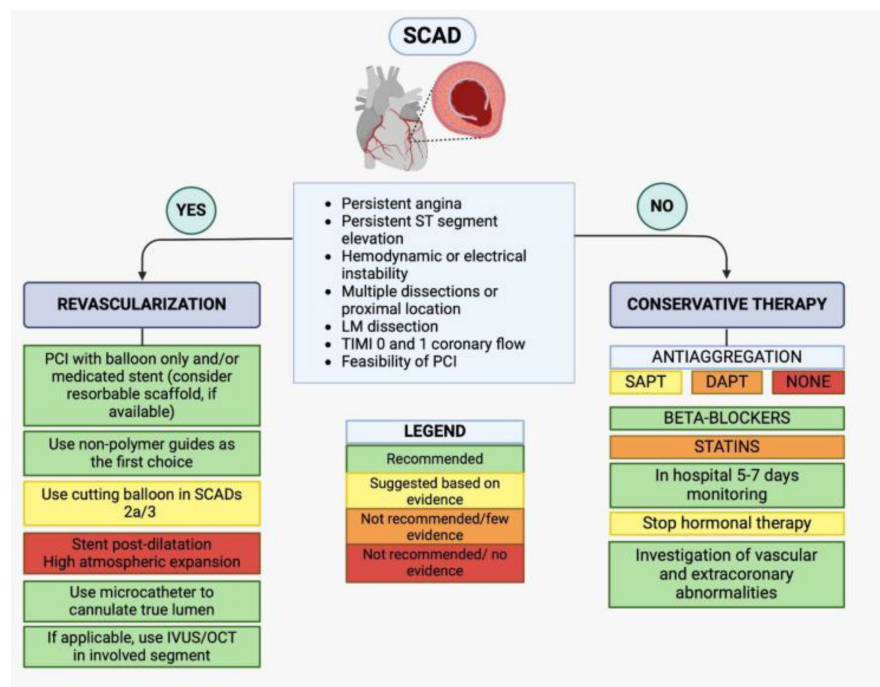
**Figure 3.** “Lotus root” appearance on the LAD.



**Figure 4.** Final result after stenting.

### 3. Discussion

The intracoronary lotus root-like appearance is characterized by the presence of multiple lumens separated from each other by partitions, communicating with each other and converging into a single lumen proximally and distally [2] [6]. Its diagnosis is based on endocoronary imaging.



**Figure 5.** Therapeutic algorithm for SCAD management. [8]

In our case, seven months prior to the coronary angiography, the patient presented with angina-like chest pain which he had neglected. A posteriori, we can conclude that this pain was related to an occlusion of the LAD. By unknown mechanisms, recanalization of the occluded LAD had occurred, resulting in the genesis of multiple intracoronary lumens. Although rare, it's important not to overlook the fact that coronary occlusion can occur in young people, leading to acute coronary syndromes, especially if the latter are smokers, have dyslipidemia or have inherited coronary artery disease [7]. In our case, the initial therapeutic approach of the interventional cardiologist, given our patient's age, the correct hemodynamic state and TIMI 3 flow on coronary angiography would be medical treatment, which is the treatment for spontaneous coronary dissections. Management of spontaneous coronary dissections is essentially conservative, except in rare cases where revascularization treatment is indicated [8]. (Figure 5)

However, OCT endocoronary imaging revealed a "lotus root" appearance, which was treated with a Drug Eluting STENT (DES). In the literature, several authors have proposed various treatments for this lotus root aspect, namely either treatment with DES, treatment with drug-coated balloons, or treatment with bioabsorbable stents or stent grafts [9]-[11]. This technique, decisive for the management of our patient, has once again demonstrated its added value in ambiguous cases, as shown by several authors [12]-[14]. This highlights the importance of endocoronary imaging in the management of coronary patients in general, young patients in particular. In addition to helping diagnose the "lotus root" appearance, OCT imaging enabled us to guide angioplasty by choosing the right stent length, the right stent size, the right balloon size for stent staged optimization and, finally, to verify correct stent deployment and apposition.

The particularity of this case lies in the therapeutic attitude of the angioplastician, who had initially opted for conservative treatment. The added value of Endo coronary imaging and the unusual appearance of the LOTUS ROOT changed management. In the absence of cardiovascular imaging, conservative treatment would have been performed, which would have altered the patient's prognosis.

One question that remains unanswered is why some people develop these neo vessels after coronary artery occlusion and others do not. Further studies are needed to identify the various factors that can be used as therapeutic means in the management of coronary pathologies

#### 4. Conclusion

This clinical case highlights the importance of endocoronary imaging in the management of coronary artery disease. It is always useful to use the various means available to improve patient management. As atherosclerosis is a dynamic phenomenon, the wrong therapeutic decision will have consequences in the short to medium term.

#### Take Home Messages

This case highlights the importance of endocoronary imaging in the management

of ambiguity in angiocoronary imaging.

## Consent

The authors confirm that oral consent for submission and publication of this case report including images and associated text has been obtained from the patient.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

## References

- [1] Friedman, M. (1967) The Coronary Canalized Thrombus: Provenance, Structure, Function and Relationship to Death Due to Coronary Artery Disease. *British Journal of Experimental Pathology*, **48**, 556-567.
- [2] Takagi, W., Okada, T., Nosaka, K., Miyoshi, T. and Doi, M. (2022) Lotus Root-Like Appearance in the Left Anterior Descending Artery Treated with a Drug-Coated Balloon Angioplasty. *Clinical Case Reports*, **10**, e6028. <https://doi.org/10.1002/ccr3.6028>
- [3] Cho, J., Raffel, O.C., Stone, J.R., Kim, C. and Jang, I. (2010) Spontaneous Recanalization of a Coronary Artery after Thrombotic Occlusion. *Journal of the American College of Cardiology*, **55**, 1274. <https://doi.org/10.1016/j.jacc.2008.11.071>
- [4] Kadowaki, H., Taguchi, E., Kotono, Y., Suzuyama, H., Yoshida, M., Miyamoto, S., *et al.* (2014) A Lotus Root-Like Appearance in Both the Left Anterior Descending and Right Coronary Arteries. *Heart and Vessels*, **31**, 124-128. <https://doi.org/10.1007/s00380-014-0567-7>
- [5] Kang, S., Nakano, M., Virmani, R., Song, H., Ahn, J., Kim, W., *et al.* (2012) OCT Findings in Patients with Recanalization of Organized Thrombi in Coronary Arteries. *JACC: Cardiovascular Imaging*, **5**, 725-732. <https://doi.org/10.1016/j.jcmg.2012.03.012>
- [6] Yang, D.H., Kang, S., Kim, Y., Kang, J., Ahn, J., Park, D., *et al.* (2016) Recanalization of Organized Thrombi Demonstrated by Coronary CT Angiography Compared with Oct. *JACC: Cardiovascular Imaging*, **9**, 887-890. <https://doi.org/10.1016/j.jcmg.2015.09.023>
- [7] Collet, J.P., Ripoll, L., Choussat, R., Lison, L. and Montalescot, G. (2000) La maladie athéromatose coronaire du sujet jeune: État des lieux. *Sang Thrombose Vaisseaux*, **12**, 218-225.
- [8] Morena, A., Giacobbe, F., De Filippo, O., Angelini, F., Bruno, F., Siliano, S., *et al.* (2024) Advances in the Management of Spontaneous Coronary Artery Dissection (SCAD): A Comprehensive Review. *Reviews in Cardiovascular Medicine*, **25**, Article 345. <https://doi.org/10.31083/j.rcm2509345>
- [9] Quevedo, F., Farjat-Pastos, J., Bertrand, O., Poulin, A., Déry, J.P., Garcia-Labbé, D., *et al.* (2025) Honeycomb or Lotus Root-like Intracoronary Pattern: Insights from Optical Coherence Tomography of a Recanalized Thrombus. *Catheterization and Cardiovascular Interventions*. <https://doi.org/10.1002/ccd.70089>
- [10] Xu, T., Shrestha, R., Pan, T., Huang, X., Xu, H., Zhang, J., *et al.* (2020) Anatomical Features and Clinical Outcome of a Honeycomb-Like Structure in the Coronary Artery: Reports from 16 Consecutive Patients. *Coronary Artery Disease*, **31**, 222-229. <https://doi.org/10.1097/mca.0000000000000822>
- [11] Yoshioka, G., Nishihira, K., Shibata, Y. and Node, K. (2020) First Report of Lotus

Root-Like Appearance at the Site of Coronary Spasm in a Patient with Acute Coronary Syndrome. *European Heart Journal—Case Reports*, **4**, 1-2.

<https://doi.org/10.1093/ehjcr/ytaa187>

- [12] Saw, J., Mancini, G.B.J., Humphries, K., Fung, A., Boone, R., Starovoytov, A., *et al.* (2015) Angiographic Appearance of Spontaneous Coronary Artery Dissection with Intramural Hematoma Proven on Intracoronary Imaging. *Catheterization and Cardiovascular Interventions*, **87**, E54-E61. <https://doi.org/10.1002/ccd.26022>
- [13] Malclès, G., Souteyrand, G. and Motreff, P. (2016) Hématome et dissection coronaire spontanés, enseignements récents: De la suspicion diagnostique au devenir après traitement. *Annales de Cardiologie et d'Angéiologie*, **65**, 451-456. <https://doi.org/10.1016/j.ancard.2016.10.003>
- [14] Alfonso, F., Paulo, M., Gonzalo, N., Dutary, J., Jimenez-Quevedo, P., Lennie, V., *et al.* (2012) Diagnosis of Spontaneous Coronary Artery Dissection by Optical Coherence Tomography. *Journal of the American College of Cardiology*, **59**, 1073-1079. <https://doi.org/10.1016/j.jacc.2011.08.082>

## Abbreviations

DES	Drug Eluting Stent
EBU	Extra Backup
LAD	Left Anterior Descending artery
OCT	Optical Coherence Tomography
SCAD	Spontaneous Coronary Artery Dissection

## Appendix

Vidéo 1:

<https://docs.google.com/videos/d/1jIrbwrEfEGADKDTSQLcHbSQ1X0lAhKebp7RlukezQhw/edit?usp=sharing>

Vidéo 2:

[https://docs.google.com/videos/d/1VZ3ZA3N\\_EuY4x94EVXn4Bj5WJJOOfsDV7DOVWLnFr4/edit?usp=sharing](https://docs.google.com/videos/d/1VZ3ZA3N_EuY4x94EVXn4Bj5WJJOOfsDV7DOVWLnFr4/edit?usp=sharing)

Vidéo 3:

<https://docs.google.com/videos/d/1LWAO903HuCBVGHGsuKULHgIG3y5NezpOFSNs42Y0P44/edit?usp=sharing>