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Coronary plaque erosion causing STEMI

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Coronary Plaque Erosion Causing STEMI

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A 35-year-old man with no known comorbid conditions was hospitalized due to anterior STEMI. Coronary angiogram identified TIMI grade III flow with moderate stenosis and haziness in the left anterior descending artery (LAD) (Fig. 1a, b). On intravascular optical coherence tomography (OCT), the overlying thrombus covered the surface of the culprit lesion but no significant residual stenosis was observed (Fig. 1c, d, e). The lesion was left as such on glycoprotein IIb/IIIa (GPIIb/IIIa) inhibitor (Tirofiban) for 24 h and repeat OCT identified an intact fibrous cap with an adjacent focal signal-rich region, suggesting a lipidic plaque with infiltration of macrophages. After 24 h, the thrombus was cleared and the vessel lumen showed an MLA of 6.1 mm2 (Fig. 2). This was consistent with the findings of plaque erosion as the potential cause of STEMI. Therefore, the stent was not implanted. He remained uneventful after commencing on dual antiplatelet therapy with aspirin and ticagrelor.

Various studies have proposed the intravascular imaging-based (OCT in this case) diagnosis of plaque erosion in vivo in a subset of acute coronary syndrome (ACS) patients.[1,2] In this case, all the OCT-driven criteria of plaque erosion were fulfilled alongside the features of the culprit lesion vessel. Intravascular imaging techniques can help identify such patients who could benefit from a deferred stent strategy, stabilized only on antiplatelet drugs as in our case.

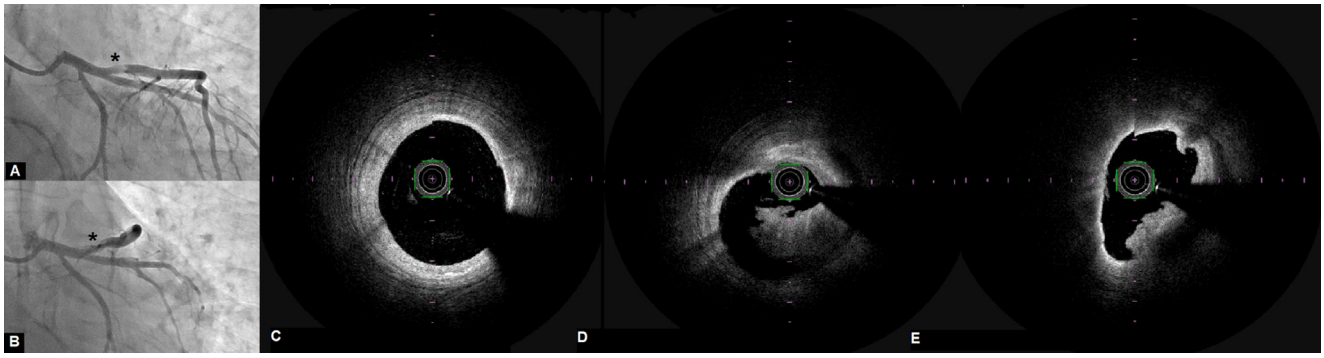

*Fig. 1. (A, B) coronary angiography. * Severe stenosis with luminal haziness was observed in the middle segment of LAD. (C) Cross-sectional OCT image of distal LAD. (D) Thrombus (white asterisk) overlying the culprit lesion was located. PPCI was deferred and patient was left on GPIIb/IIIa for 24-h. (E) Presence of the thrombus obscured visualization of rupture and plaque surface was invisible. LAD = left anterior descending artery, OCT = optical coherence tomography.*

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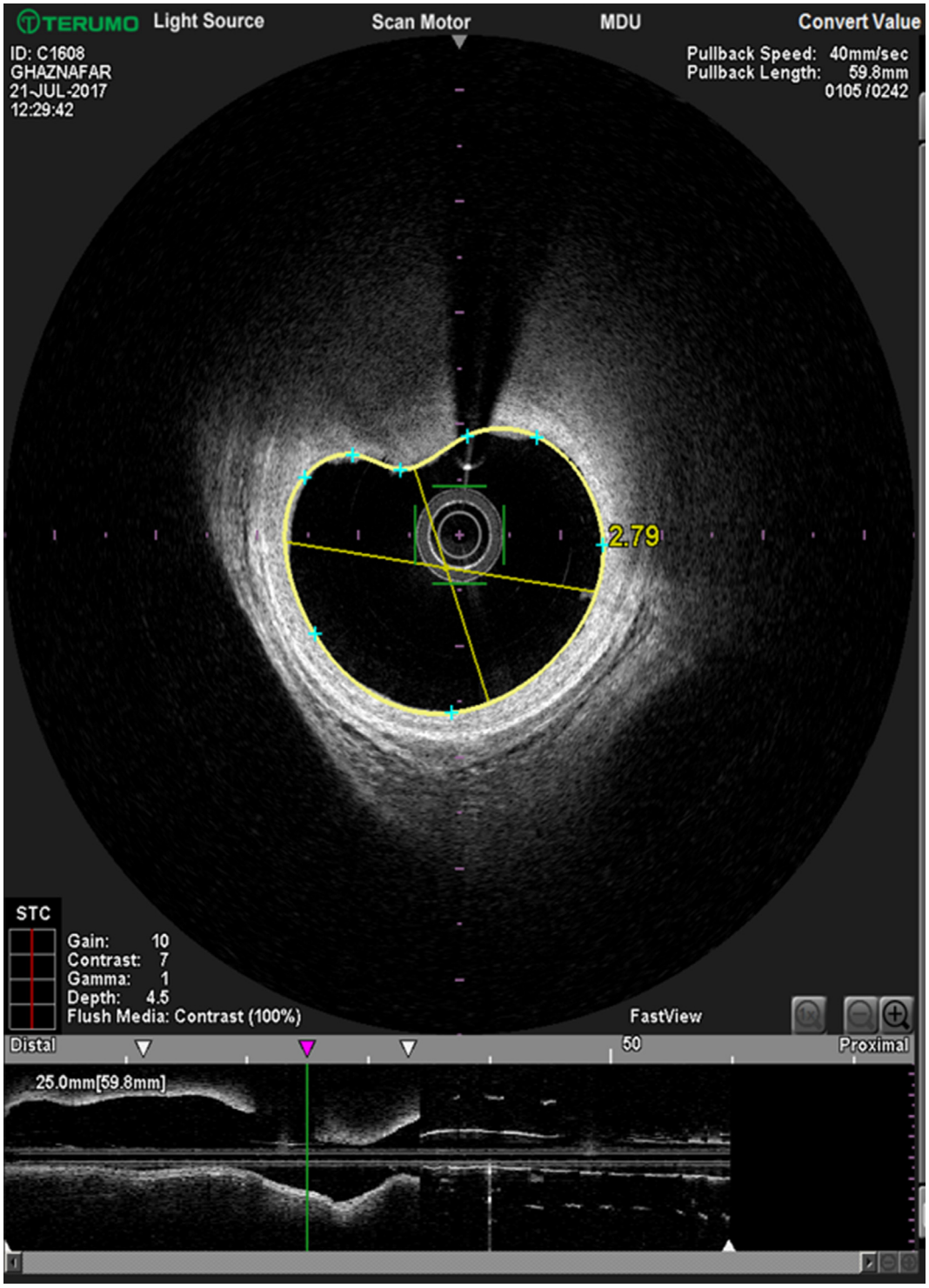

Fig. 2. Cross-sectional and longitudinal OCT images after 24-h of Tirofiban infusion. Apparent resolution of thrombus causes visualization of lipidic plaque with an intact fibrous cap. OCT = optical coherence tomography.

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Ethical statement

All the procedures carried out on human participants are according to the World Medical Declaration of Helsinki and written, informed consent was taken from the participant for using anonymized information regarding his procedure and disease.

Author contribution

JM: concept, original draft, critical review; MU: original draft; HSK: supervision; AJ: supervision.

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