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Background: IVUS is an established method leading to optimal results during elective PCI. However, it is unknown whether IVUS is also useful in an emergency case of ACS. We report a case of AMI with LMT lesion diagnosed by IVUS, which was very effective to determine an appropriate strategy of treatment. Case: The patient was 49-years-old male with severe chest pain and ST elevation in V1-V4 associated with reciprocal changes. Emergent CAG was performed, which revealed LMT lesion (TIMI II) suggesting thrombus formation in the distal LMT. After crossing guide wires to LAD and LCX, we performed repeated thrombectomy under IABP support, but failed in recanalizing LMT lesion. With IVUS usage, we finally diagnosed the lesion was not consisted with thrombus but fibrous plaque. Hence, we performed POBA and successfully implanted Zotarolimus eluting stent from LMT to LAD with KBT. At last we could rescue the patient with AMI in LMT lesion (max CK > 20000 IU/L) by IVUS guided emergency PCI. Conclusions: IVUS is an established method for coronary lesion assessment. It may be useful even in emergency PCI for AMI patient with severe condition associated with difficulties in determining an appropriate strategy of treatment.