A 60-year-old female was referred to our hospital about novel ECG change without chest pain. Coronary angiography revealed total occlusion in proximal left anterior descending (LAD) and black blood magnetic resonance (BB MR) imaging revealed high intensity plaque (HIP) in the occluded area. In order to perform optimal crossover stent implantation from left main trunk to LAD, PCI was performed with direct coronary atherectomy (DCA). A histopathological examination revealed the resected specimen obtained from DCA contained some atherosclerotic plaque with fresh thrombus. Recently, HIP of BB MR imaging is used to predict distal embolism and possible to identify intravascular plaque characteristics, but it has not been well known with regard to actual histology of HIP. In this case, we could clarify the histology of HIP of BB MR imaging by performing DCA to such lesion and revealed HIP lesion contained some atherosclerotic plaque and thrombus. BB MR imaging may be useful for planning potential interventional strategy. We reported this case with some consideration.