

Usefulness of ¹⁸F-fluorodeoxyglucose positron emission tomography/computed tomography angiography in a patient with blood culture-negative prosthetic valve endocarditis complicated with perivalvular abscess: a case report

Shiro Miura, Masanao Naya, Takehiro Yamashita, and Youhei Ohkawa

論文紹介

- 大動脈弁狭窄症に対するカテーテルによる弁置換術も含めた弁置換手術数は年々増加の一途とたどっています。
- このような人工弁置換術を受けた方は、心臓の弁および心内膜に傷が付きやすく、感染性心内膜炎（心臓内膜の感染症）にかかりやすい傾向にあり、一度発症しますと、血液を病原菌が回り、全身の塞栓症、弁不全を起こし致死的になる場合があります。しかしながら、その確定診断は容易ではなく、経食道エコー検査を用いた観察でも人工弁の影響で制限を受け、感染した弁や心内膜の感染巣を正確に同定できないこともあります。
- 本論文は、弁置換後12年たって生じた大動脈弁感染及び弁輪周囲膿瘍に対して、心臓FDG-PET及び冠動脈CTを駆使して、正確な診断を行い、迅速に外科手術を行い、適切に治療し得た患者さんのご報告です。
- 今後、心臓PETは感染性心内膜炎の診断において重要な役割を担っていくことが海外のガイドラインからも容易に推測でき、当院では数年前からこの検査を用いた診断検査を積極的に行っています。

論文

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CASE REPORT
Cardiac imaging

Usefulness of ¹⁸F-fluorodeoxyglucose positron emission tomography/computed tomography angiography in a patient with blood culture-negative prosthetic valve endocarditis complicated with perivalvular abscess: a case report

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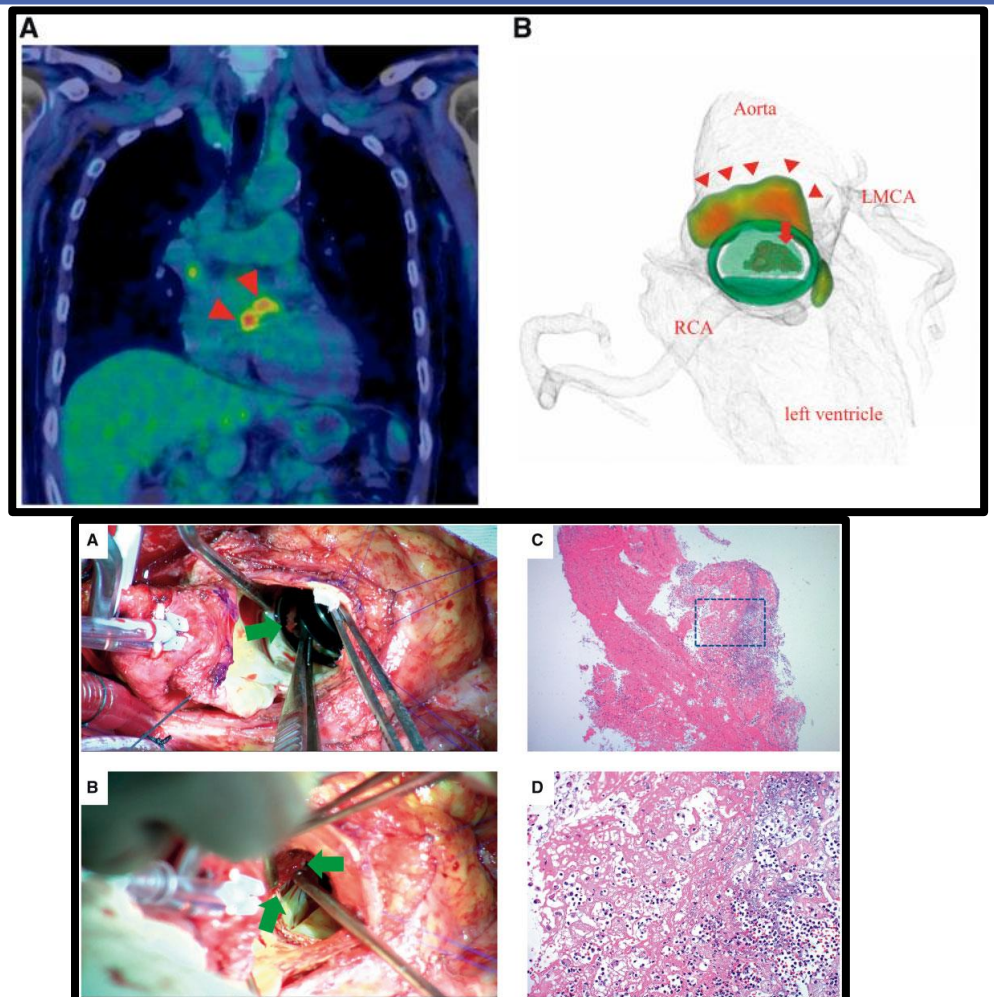
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Background Prosthetic valve endocarditis (PVE) is a life-threatening systemic infection involving a high mortality rate and severe complications, including perivalvular abscess. Early diagnosis and detection of PVE continue to be challenging in clinical settings.

Case summary A 64-year-old man with a history of mechanical aortic valve implantation 12 years prior was referred to our hospital with a major complaint of high fever and was admitted. Although results of three blood culture tests at admission were negative, transthoracic echocardiography, and transesophageal echocardiography (TOE) were performed to exclude the possibility of PVE; both, however, were inconclusive. Subsequently, ¹⁸F-fluorodeoxyglucose positron emission tomography/computed tomography (¹⁸F-FDG PET/CT) was performed; revealing intense hyper-metabolism above the aortic valve prosthesis with a greater intensity at the posterior end, confirming a diagnosis of aortic PVE complicated with perivalvular abscess.

Discussion Considering the intermediate suspicion of PVE despite negative TOE and negative blood culture tests, ¹⁸F-FDG PET/CT can play a central role in diagnosing PVE. However, this new imaging modality often fails to differentiate thrombi, soft atherosclerotic plaques, or foreign body reactions on the surface of prosthetic valves. In this report, we have successfully enhanced the diagnostic accuracy of ¹⁸F-FDG PET/CT by focusing on perivalvular involvement, which could be a key finding because intense ¹⁸F-FDG uptake surrounding the aortic annulus was consistent with the thickened area within the aortic annular region observed in the TOE examinations.

Keywords Case report • Endocarditis • Perivalvular abscess • Positron emission tomography



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