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Successful Treatment of Left Atrial Auricular Abscess

Mural endocarditis causing myocardial abscess without valvular involvement is very rare. We report an unusual case of left atrial auricular abscess which was successfully treated by surgical resection, treatment with antibiotics, and mediastinal irrigation. A 9-yr-old female patient with previous history of urinary tract infection was admitted because of persistent fever. Echocardiography and magnetic resonance imaging revealed massive pericardial effusion and a mass lesion at the left upper cardiac border. Pericardiocentesis isolated *Staphylococcus aureus* on culture. The patient underwent mass removal under cardiopulmonary bypass. The mass was located in the left atrial auricle with fibropurulent abscess formation inside. Postoperative mediastinal irrigation was performed using povidone iodine solution. Pathological examination of the mass showed organized thrombi with chronic fibrosing mural endocarditis.

Key Words : *Abscess; Endocarditis, Bacterial; Staphylococcus aureus; Pericardiocentesis*

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INTRODUCTION

Most intracardiac abscesses are related to valvular infective endocarditis. Nonvalvular mural endocarditis is exceedingly rare, and usually associated with underlying disease processes, such as thromboplebitis, bronchiectasis, and paralysis agitans (1). We present the first case of left atrial auricular abscess, possibly caused by staphylococcal septicemia in a patient without severe underlying diseases other than a preceding urinary tract infection.

CASE REPORT

A 9-yr-old female patient was admitted to our hospital because of persistent and fluctuating fever. Three weeks prior to the admission, she was hospitalized at another institution with the diagnosis of urinary tract infection, which was treated with intravenous antibiotics. Thereafter her general condition progressively declined. On arrival, her body temperature was 38.5℃. Her breath sounds were clear and her heart sound was regular without murmur but remote.

On routine laboratory examination, her white blood cell count was 14,750/μL, and C-reactive protein was 22.9 mg/L. The chest roentgenogram and the electrocardiogram revealed moderate cardiomegaly and sinus tachycardia. On the echocardiogram, a mass lesion was detected at the left upper cardiac border and a massive pericardial effusion was detected. Pericardiocentesis was performed and methicillin-sensitive *Staphylococcus aureus* was isolated on culture. Intravenous antibiotics treatment was implemented with teicoplanin and ceftriaxone. Magnetic resonance imaging (MRI) was performed to assess the nature and exact location of the mass, which was found to be ovoid and cystic. It was located at the left upper cardiac border and inferior to the left main pulmonary artery. However, it was not possible to determine whether the mass was intracardiac or extracardiac (Fig. 1). Our diagnostic impression was an abscess-forming mass of unknown etiology, possibly caused by previous bacteremia. The patient was underwent operation under a median sternotomy. A thickened pericardium was opened. Loose adhesion, loculated pericardial effusion, and organized fibro-purulent debris were found in the pericardial cavity. On exploration, a mass was found within the left upper pericardial space, but it was not possible to determine whether it was intracardiac or extracardiac. This forced us to remove the mass under cardiopulmonary bypass with right atrial to aortic bypass. The mass was located in the left atrial auricle with fibropurulent abscess formation inside.

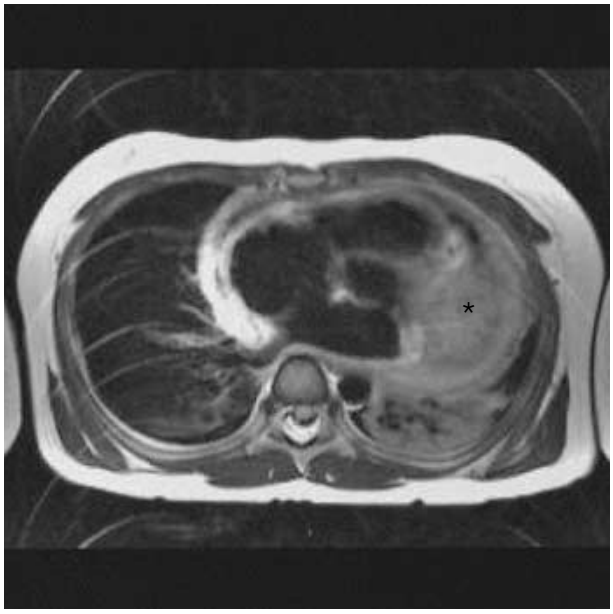

Fig. 1. Preoperative magnetic resonance imaging showing an ovoid, cystic mass at the left upper cardiac border (*).

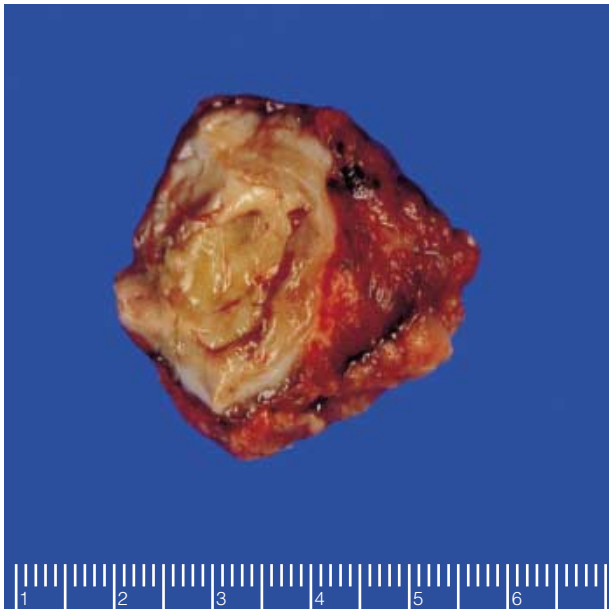

Fig. 2. Resected mass with fibropurulent abscess formation inside, and hemorrhages on the surface.

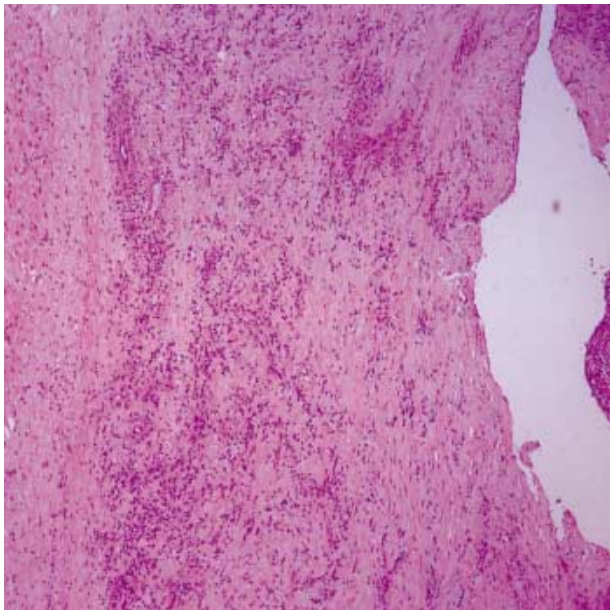

Fig. 3. Photomicrograph showing fibrinous epicarditis with granulation tissue formation and organized thrombi with chronic fibrosing mural endocarditis (Hematoxylin-eosin stain, ×40).

Hemorrhages and myxoid changes were also noticed on the surface of the mass (Fig. 2). We could rule out the possibility of secondary abscess formation due to pericarditis, because the mass was easily dissected from surrounding pericardium, and the epicardium around the mass seemed to be grossly intact. After anterior pericardiectomy, chest tubes were placed to irrigate the mediastinum and the pericardial cavity. Irrigation was performed using 0.5% povidone iodine solution.

On the 7th postoperative day, the white blood cell count and the C-reactive protein had normalized. Computerized tomography on the 10th postoperative day showed no residual mass, and fever subsided on the 16th postoperative day. At this stage, cultures of the mass, pericardium, pericardial fluid, and postoperative irrigation fluids were all negative for microorganisms. All chest tubes were removed on the 16th postoperative day. Histopathologic diagnosis of the resected mass was fibrinous epicarditis with granulation tissue formation and organized thrombi with chronic fibrosing mural endocarditis (Fig. 3). The patient's postoperative course was uneventful, and she was discharged on the 21st postoperative day without complications. An echocardiogram performed 24 months after the operation revealed no intrapericardial mass.

DISCUSSION

Mural endocarditis causing myocardial abscess without valvular involvement is very rare (1-3). The predilected site is the valve ring area at the semilunar valve or at the atrioventricular junction, which is attributed to the fact that this area is fibrous and relatively avascular (4). Previously reported cases of lone mural endocarditis were almost totally associated with septic foci, such as decubitus ulcer, infected burns, thrombophlebitis, and bronchiectasis among severely ill patients (1-3, 5). In the present case, the abscess was located at the left atrial auricle, and to our knowledge, this is the first report on left atrial auricular abscess. Infected intracardiac thrombus can occur in association with indwelling

intracardiac catheters for total parenteral nutrition or intravenous antibiotics administration, and usually develops in right atrium (6). Our patient had no history of having an indwelling intracardiac catheter. Furthermore, she had no intracardiac anomalies which predispose abscess formation associated with infective endocarditis. Preceding bacteremia associated with urinary tract infection may result in endocarditis and thrombus formation in left atrial auricle, epicarditis, and pericardial effusion. The most common microorganisms associated with myocardial abscess are *Staphylococcus aureus, Streptococcus pneumoniae, Escherichia coli,* Kelbsiella, *Streptococcus viridans,* and Salmonella species (4). In our case, no microorganisms were isolated from the resected specimen, which was possibly due to the preoperative use of sensitive antibiotics. However, the preceeding urinary tract infection was the most likely the focus and the *Staphylococcus aureus* isolated from the pericardial fluid was the pathogen which were responsible for this pathologic process.

Echocardiography is known as the most accurate diagnostic tool for investigating the location and the nature of intracariac mass. However, in the present case it was not feasible to determine whether the mass was inside or outside the pericardial space, because it was located in the left upper cardiac border. MRI also failed to determine the exact location of the mass. Other differential diagnoses were herniated left atrial auricle due to pericardial defect and cardiac tumor of left atrial origin.

In our case, the abscess cavity was well encapsulated and confined to the left atrial auricle and formed a thick septum by organized thrombotic debris between the left atrial sinus and the auricle. Because of this, we were able to easily excise the mass successfully, and postoperative mediastinitis or generalized sepsis did not develop.

We report here upon the successful treatment of an intracardiac abscess with an unusual location after adequate perioperative antibiotic treatment, complete surgical resection, and postoperative mediastinal irrigation.

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