**Group B Streptococcus Endocarditis With Left Ventricle–Right Atrium (Gerbode’s) Defect**

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We report an unusual case of a 61-year-old woman with group B Streptococcus-positive infective endocarditis and a left ventricular–right atrium or Gerbode’s defect. We discuss the issues surrounding such an infection and the implications of such a rare cardiac defect in our case report.


Group B *Streptococcus* is an uncommon and aggressive form of infective endocarditis. Left ventricular–right atrium defect is also an unusual intracardiac abnormality that can be acquired as a complication of infective endocarditis, but these are rare and there are only a few cases described in recent literature [1, 2]. Surgical management is the main treatment modality to correct the potential serious complications of this form of infective endocarditis (IE) [3].

A 61-year-old hospital nurse was initially admitted to the hospital with a 3-mm right renal calculus without urinary obstruction. Her condition was managed conservatively with intravenous gentamicin, and she was subsequently discharged. She presented again 1 week later with rigors, nausea, and vomiting. On physical examination, she was pyrexic at 38°C. There was evidence of a grade 2 systolic murmur and mild pedal edema, but no peripheral stigmata of infective endocarditis. Her urine dipstick confirmed a urinary tract infection, and repeated samples of blood cultures consistently grew nonhemolytic group B *Streptococcus*. Ultrasound scan revealed normal kidneys, liver, and biliary systems. Relevant medical history included hypertension, hypercholesterolemia, and hypothyroidism. She also related a history of murmur as a child, which was never formally investigated.

Her transesophageal echocardiogram confirmed a large echogenic mobile structure on the noncoronary cusp of the aortic valve protruding into the left ventricular outflow tract measuring 1.1 × 2.9 cm with evidence of moderate to severe aortic regurgitation. Another mobile lesion measuring 1.5 × 1.1 cm was seen attached to the septal leaflet of the tricuspid valve with evidence of mild tricuspid regurgitation. Her blood results showed raised inflammatory markers indicative of an infective process. Under advice from the microbiology department, treatment was commenced using intravenous benzylpenicillin for a total of 6 weeks and intravenous gentamicin for 2 weeks. She had her operation soon after echocardiogram was performed, confirming the diagnosis of IE; this was approximately 2 weeks into her presentation as initial diagnosis did not indicate IE but urosepsis.

Intraoperatively, the right and noncoronary cusps of the aortic valve were completely eroded by the large vegetations leaving a defect in the subaortic intraventricular septum in the perimembranous region (Fig 1). The tricuspid valve leaflets were normal, but there was large vegetation attached to the annulus at the base of the septal leaflet (Fig 2). Extensive debridement of the tricuspid annulus and removal of the mass revealed a defect extending from the right atrium to the left ventricle in the subaortic region on the aortic side (Fig 3). The defect was closed with autologous pericardial patch on the tricuspid valve annulus and aortic root defect. No felts or pledgers were used. A 19-mm Trifecta tissue valve was used to replace the affected aortic valve.

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gleagues [7]

ventricle from the right atrium. The defect can be classi-

membranous ventricular septum separating the left

defect) portions [2, 8]. In our case report, the patient

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brinolysin production by the bacteria [5]. There

Valvular lesions are often large possibly because of the

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infective endocarditis [2]. Another possibility is the presence of a

cases is reported to be approximately 2% to 3% [3].

increase in surgical intervention, the mortality rate

is a reported 50% incidence of embolic phenomenon

with a high overall mortality rate of between 34% and

45% [3, 4]; this increases to approximately 90% in pro-

thetic valves [4]. Cardiac surgery is often required

because of rapid destruction of valves [3]. Despite the

in surgical intervention, the mortality rate

remains high (34%) [6].

A left ventricle-right atrium (LV-RA) defect is a rare

intra cardiac abnormality caused by the deficiency of the

membranous ventricular septum separating the left

ventricle from the right atrium. The defect can be classi-

fied broadly as congenital or acquired. Gerbode and col-

leagues [7] first described this defect with a case series of

successful surgical closure and anatomical variations in

1958. Because of the septal leaflet of the tricuspid valve

being more apical in position than the anterior leaflet of

the mitral valve, it is further classified into supravalvular

(atrioven tricular) and infravalvular (ventricular septal

defect) portions [2, 8]. In our case report, the patient

demonstrated a typical supravalvular form of this defect.

There are only a few case reports of acquired LV-RA

defects following bacterial endocarditis and valve

replacements [1, 2]. Bacterial infection in the affected

subannular region of the tricuspid valve can cause a

perforation involving the high membranous septum,

creating a LV-RA communication and sparing the

tricuspid valve [1, 2]. These defects are not always visible

on the echocardiogram, but the presence of root abscess

with vegetation on the interatrial septum on the right side

or an unusually dilated right atrium might raise the sus-
picion to such a defect [1]. Because this patient has a

history of childhood murmur, it may be possible that

she could have had a congenital perimembranous

ventricular septal defect that has spontaneously closed,

but this has still predisposed her to infective

derocartiditis [2]. Another possibility is the presence of a

small LV-RA defect that produced only a small shunt

that was not clinically detectable, but this would be rare

and unlikely given that such defects would usually have

shown some degree of cardiovascular compromise [7, 8].

Spontaneous closures of supraventricular defects do

not usually occur and are also more likely to be acquired

than congenital [2]. Given the intraoperative findings

and complexity of the infection with such a virulent

bacteria, we can only speculate to the exact mechanism

behind her defect.

The management of such a patient would involve a

multidisciplinary approach of the heart team to ensure

that the patient has the best possible outcome. Surgical

intervention would be advocated in such cases to prevent

complications associated with the infection. As these

lesions are located within close proximity to the cardiac

conduction pathways, cardiac surgery will carry a risk of

postoperative conduction abnormalities, as demonstrated

in our case, which might require the insertion of a per-

manent pacemaker [1].

Fig 3. Mass removed from the right atrium revealed a defect between

the right atrium and left ventricle.

Postoperatively, the patient developed complete heart

block requiring permanent pacemaker insertion. Micro-

scopy of the excised tissue confirmed the presence of

gram-positive cocci. Intravenous antibiotics were

continued postoperatively. Transesophageal echocardi-

gram before discharge showed a normal functioning

prosthetic aortic valve and good biventricular function.

Comment

Group B Streptococcus (Streptococcus agalactiae) is a β-he-

molytic gram-positive bacteria that is known to colonize

the female genital tract. It is an uncommon cause of IE

among nonpregnant adults [4]. The incidence among IE

cases is reported to be approximately 2% to 3% [3].

Acquired left ventricular-right atrial communication: Gerbode-ty


Gallagher PG, Watanakunakorn C. Group B streptococcal

defect resulting from infective endocarditis. Eur J


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Dolphin A, Cruickshank R. Penicillin therapy in acute bacte-
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