Heart Block Complicating Acute Bacterial Endocarditis*

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A patient with high grade second degree heart block secondary to Streptococcus faecalis endocarditis is described. Histologic sectioning of the heart demonstrated acute inflammation and areas of necrosis of the atrioventricular conduction tissue.

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Heart block is an uncommon complication of bacterial endocarditis. The pathologic findings should show destructive changes in the area of the A-V junction or the His bundle. Recently, Meshel et al have reported a case of Streptococcus viridans endocarditis with complete heart block with histologic sections of the heart showing myocardial abscesses destroying His bundle fibers. We report a case of Streptococcus faecalis endocarditis and second degree heart block in which the area of the A-V junction was involved by acute inflammatory changes and areas of necrosis.

Case Report

An 82-year-old diabetic woman presented with polyuria and polydipsia. History and review of systems were unremarkable with no precipitating factor immediately evident. The patient denied prior cardiac disease symptoms or knowledge of a murmur. Pertinent physical findings revealed blood pressure 140/60, pulse 60/min and regular, respiratory rate of 30/min, and temperature 101°F. The patient was mildly dehydrated. Areas of fresh hemorrhage were seen in both fundi. Auscultation of the lungs revealed fine bibasilar rales. Examination of the heart revealed a grade 3 systolic ejection murmur heard at the aortic area, a grade 3 pansystolic murmur at the apex and a grade 2 early diastolic murmur heard at the fourth left sternal space. Positive results of laboratory studies revealed blood sugar 480 mg percent, white cell count 15,000/mm³, urinalysis which showed 4 plus sugar with trace acetone. The admission electrocardiogram demonstrated a Wenkebach phenomenon which progressed within a few hours to a high grade second degree heart block with an A-V junctional escape rhythm and occasional capture (Fig 1). Ampicillin and oxacillin sodium (Prostaphlin) were started initially and subsequently changed to penicillin and methicillin when four separate blood cultures produced a gram positive coccus sensitive to penicillin. The organism was later identified as Streptococcus faecalis. The temperature lysed quickly, falling to 98.6°F by day 4 and repeat blood cultures showed no growth.

The cardiac status continued to fluctuate. Within 12 hours after admission, the diastolic murmur was no longer audible. A temporary pacemaker was inserted and shortly thereafter

![Figure 1](image-url)

**Figure 1.** Lead II of admission electrocardiogram showing Wenkebach phenomenon in (A) and four hours later high grade second degree heart block with an A-V junctional escape rhythm and occasional capture (B and C).
the patient developed atrial fibrillation with a ventricular rate of 60. On day 2 the patient developed severe shortness of breath and rales were heard throughout the basal lung fields. On day 4 the diastolic murmur again became audible and the patient once again became tachyypneic and unresponsive with a nonpalpable blood pressure and a pulse dropping from 82 to non-palpable. Electrocardiogram revealed a lack of any intrinsic pacing mechanism. Attempts at resuscitation were unsuccessful.

Examination of the heart demonstrated the following: the mitral valve showed an orifice narrowed by a large polypoid vegetation. There was a large abscess in the interatrial septum involving the tricuspid valve. Several vegetations were attached to this area. The tricuspid and mitral valves showed no preexisting disease. The posterior cusp of the aortic valve revealed a perforation and vegetations were present at the base of this cusp. Sections through the septum endocardium showed an abscess. The myocardium was moderately hypertrophied and showed no grossly visible changes. The coronary ostia were normal. There was no evidence of thrombi or emboli in the coronary arteries which were patent. Culture of the valvular vegetations yielded overwhelming growth of *Streptococcus faecalis*. The A-V bundle revealed acute inflammation with invasion by polymorphonuclear infiltrates and areas of necrosis (Fig 2A and 2B).

**COMMENT**

Several recent articles describe cases of myocardial abscesses in endocarditis; *Staphylococcus aureus* was the most common offending organism. Sanson et al reported 14 cases of *Staphylococcus aureus* myocardial abscesses, 13 cases of *E. coli* myocardial abscesses and four myocardial abscesses with other organisms. Lerner and Weinstein reported four of five patients with myocardial abscesses and endocarditis had *Staphylococcus aureus* as the pathogen.

Heart block is an unusual complication of bacterial endocarditis. The few reported cases of high grade block in conjunction with bacterial endocarditis have been associated with a fatal outcome. Meschel et al recently reported the first case of complete heart block in subacute bacterial endocarditis with an abscess in the conducting system due to *Streptococcus viridans*.

Zettner and Irmer reported a case of complete heart block with an abscess of the interatrial septum. No organism was cultured. Pearce and Guze reported three cases with myocardial abscess and high degree AV block with no bacterial confirmation.

In addition to myocardial abscess and heart block, our patient had perforation of the aortic valve. Lerner and Weinstein reported 8 of 25 patients with bacterial endocarditis at autopsy had perforation of the aortic valve. *Staphylococcus aureus* was the most common offending organism. Robinson and Ruedy reported a series of autopsied cases of endocarditis from 1950-1960 in which there were 68 cases of culture-proved bacterial endocarditis and 29 showed evidence of valvular perforation. *Streptococcus faecalis* caused perforation in 11 cases followed by *Streptococcus viridans* in eight cases and *Staph aureus* in five instances.

The recently reported case by Meschel et al and our case should alert clinicians to the possibility of heart block complicating bacterial endocarditis.
A NEW INSTRUMENT FOR PLEURAL BIOPSY

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The Ballestero needle features an oval shaft with eccentric stylette, allowing rotation of the cutting tip after pleural penetration. On withdrawal, the misaligned tip produces easily palpable hooking on the pleura.

*Spanish patent granted. American patent is pending.

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MATERIAL AND METHODS

The principal innovation is the flattened shaft of the needle. This allows eccentric placement of the stylette carrying the point of the needle (No. 1, Fig 1). The outer end of stylette (No. 3) is fixed to the outer hub (No. 8) by a set screw (No. 6). The main shaft of needle (No. 2) is welded to the inner hub (No. 9). Approximating the two hubs, therefore, opens the jaws of the instrument, as in Figure 2.

REFERENCES


A New Reliable Instrument for Pleural Biopsy

tip is held against the pleura; the shaft-cutting jaw is rotated to alignment; the jaws are closed and the instrument is withdrawn.

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