Bacterial Endocarditis

By Albert Dorfman, M.D.

Department of Pediatrics, University of Chicago

DR. DORFMAN: The patient to be presented is a 9-year-old white female who was first admitted to Bobs Roberts Hospital on October 7, 1954. During a large part of her illness she was on the service of Dr. Klara J. Prec.

Her past history, family history, birth history and early development are not pertinent to the present complaint. The present illness is related to a disease that had its onset with fever and sore throat at the age of 4 years. Despite therapy with unidentified antibiotics, only poor recovery occurred. It was recognized a week later that she had anemia and an elevated erythrocyte sedimentation rate.

The patient was hospitalized in another hospital with a diagnosis of acute rheumatic fever. At this time she was treated with antibiotics and acetylsalicylic acid and after 4 weeks was discharged to her home.

After 1 week at home, her parents felt she was not doing well and the patient was admitted to La Rabida Jackson Park Sanitarium at that time. At the time of this admission in 1951, the pulse rate was elevated and a grade 3 systolic murmur was heard over most of the precordium. The heart was markedly enlarged as measured by roentgenogram. A throat culture was positive for beta-hemolytic streptococcus.

During the following 4 months she remained at La Rabida. The streptococcal infection was eradicated. She was treated intermittently with salicylates and had a steady, progressive improvement, so that at the end of this time she was discharged with no evidence of active rheumatic fever, but evidence of mitral insufficiency was present.

During the following 3 years she was seen at regular intervals and showed no evidence of rheumatic recurrence. Sulfadiazine was administered as a prophylactic regularly.

In January 1954, when seen on a routine visit, she was found to have tonsillitis; throat culture was positive for beta-hemolytic streptococcus.

Her local physician was notified and she was treated for this infection, presumably with three injections of penicillin. She appeared to recover from this infection but during the next several months there were several episodes of tonsillitis, treated by her physician with penicillin. During this entire period her parents thought she was listless and sometimes had a low grade fever.

In June, 1954, not only did she have an episode of tonsillitis, but it was noted for the first time that her temperature continued to be elevated for several days. She also complained of pains in various joints. In July she was admitted to another hospital with a diagnosis of recurrent acute rheumatic fever.

She was treated for a period of 4½ weeks with cortisone without evidence of adequate response, and was transferred to La Rabida on September 17, 1954.

At this time she was a pale, chronically ill child with an elevated temperature and a tachycardia of 120. The sedimentation rate was markedly elevated and the leukocyte count was in the normal range. There was a grade 3 systolic murmur at the apex and several observers heard a diastolic murmur at the apex.

Therapy with parental penicillin was given for several days after admission and then prophylactic use of sulfadiazine was instituted. In addition, salicylates were administered in moderate dosage.

By October 5 it was recognized that she was not doing well as she still appeared chronically ill, continued to have a tachycardia, the hemoglobin was 9 gm, and the sedimentation rate was markedly elevated. For these reasons therapy with cortisone was instituted.

On October 7, after she had received eight...
doses of cortisone, a sudden change in the clinical condition occurred. Early that morning she complained of extreme pain in the left upper quadrant, the temperature rose, and she vomited several times and remained nauseated. The leukocyte count was 14,000/mm³ and the hemoglobin was 7.5 gm.

Examination at this time revealed marked tenderness and some rigidity over the left side of the abdomen, somewhat more striking in the upper part. No distinct mass was palpated.

Because of these complaints a tentative diagnosis of an acute condition in the abdomen was made, the exact nature of which was not clear, and she was transferred to Bob Roberts Hospital.

Later that day there were striking changes in her condition. The acute tenderness complained of earlier in the day had disappeared; there was still some rigidity on the left side of the abdomen, but she no longer appeared acutely ill. For this reason surgical exploration was postponed.

By the following morning, however, the hemoglobin had dropped to 5.5 gm. Despite several transfusions the hemoglobin remained between 7 and 8 gm during the next several days.

At this time a highly significant fact became known. A blood culture which was drawn at La Rabida showed questionable growth on October 7, the date of the onset of the acute illness, and now showed definite evidence of the presence of Streptococcus viridans. In addition, another blood culture which was drawn on admission to Bob Roberts Hospital showed the same organism.

During the next 5 days she continued to have episodes of severe abdominal pain of

![Fig. 1. Retrograde pyelogram.](image-url)
variable character. Toward the end of this period it was recognized by a number of observers that there was fullness on the left side of the abdomen, although it was difficult to outline a mass.

An intravenous pyelogram performed at this time showed lateral displacement of the left kidney with marked distortion of the calyces. This was confirmed by a retrograde pyelogram (Fig. 1).

On the basis of these findings it was decided that there was a mass in the region of the left kidney, in addition to rheumatic heart disease complicated by subacute bacterial endocarditis. There was considerable speculation as to the nature of this mass. The possibilities of perinephric abscess, neoplasm, or retroperitoneal hematoma were considered.

She was explored on October 19 by Dr. George Miller of the urology department. After the initial incision was made, the retroperitoneal space was entered. A large, bulging, red mass was immediately evident, the nature of which was not clear. The eleventh rib was resected and the mass was carefully dissected. This involved entering the peritoneal cavity at one time but the peritoneum was easily closed, and the entire mass was removed without rupture. This mass is shown in Figure 2.

The mass was 15 cm in diameter and showed a variety of dark red colorations in some areas and a mottled appearance in other areas. When opened by Dr. Eleanor Humphreys, it was apparent that the mass contained the kidney imbedded in a large hematoma composed of clots in different stages of

Fig. 2. Mass removed at operation.
The opened specimen is shown in Figure 3. One probe is in the ureter and the other at the apparent point of bleeding. It was impossible to determine whether this represented the renal artery or a major branch of the renal artery. Microscopic studies of sections of this area showed that the walls of this artery had been destroyed by infection.

These findings suggested that a mycotic aneurysm of the renal artery or some major branch thereof had ruptured, resulting in bleeding into the space between the renal capsule and Gerota's fascia. Bleeding apparently occurred on several different occasions.

Of interest, also, was the fact that in the kidney itself there was evidence of multiple emboli that had occurred at various times.

Before surgery, the patient was treated with a dosage of 3,200,000 units of penicillin, and this was continued for some time. The symptoms gradually improved and she appeared to be recovering from the subacute bacterial endocarditis.

However, on December 18 she had another episode of acute pain in the left upper quadrant. At this time the leukocyte count and sedimentation rate rose. It was thought that embolization of the spleen had occurred.

The dosage of penicillin was increased to 5,000,000 units per day, and for a period of some weeks this was given intravenously. Signs and symptoms gradually subsided and the dosage of penicillin was decreased to 3,000,000 units, intramuscularly. With the exception of intercurrent mumps and one throat culture positive for beta-hemolytic streptococcus, she had an uneventful course until March 13, 1955, when penicillin was discontinued.

Since that time this patient has been seen regularly in the outpatient department and has remained in good health except for continued evidence of a systolic murmur over the precordium, indicative of mitral insufficiency.

In summary, this 9-year-old girl had her first attack of acute rheumatic fever at 4 years of age, and in January of 1954 developed a febrile infection with beta-hemolytic strepto-
DORFMAN – BACTERIAL ENDOCARDITIS

coccus from which she did not make a satisfac-
tory recovery. During the next 6 months she had a series of intermittent illnesses and
finally was admitted to the hospital and treated as if she had acute rheumatic fever.

The most striking episode in the illness was heralded by an attack of acute abdominal
pain, rise in leukocyte count and fever. This, in retrospect, was due to the rupture of a
mycotic aneurysm of the left renal artery. The resulting hematoma and the kidney con-
tained within it were successfully removed. The subacute bacterial endocarditis was suc-
cessfully treated by penicillin, and the patient has recovered except for residual rheumatic
heart disease.
CLINICAL CONFERENCE: Bacterial Endocarditis
Albert Dorfman
Pediatrics 1957;19;688

Updated Information & Services
including high resolution figures, can be found at:
/content/19/4/688

Permissions & Licensing
Information about reproducing this article in parts (figures, tables)
or in its entirety can be found online at:
/site/misc/Permissions.xhtml

Reprints
Information about ordering reprints can be found online:
/site/misc/reprints.xhtml
CLINICAL CONFERENCE: Bacterial Endocarditis
Albert Dorfman
*Pediatrics* 1957;19:688

The online version of this article, along with updated information and services, is located on the World Wide Web at:
/content/19/4/688