

SHIGELLA FLEXNERI ISOLATION FROM THE BLOOD OF A CHILD WITH SEVERE BACILLARY DYSENTERY*

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Introduction

It is rarely possible to isolate the etiologic agent from the blood of a patient with bacillary dysentery. Most medical literature attests to this.^{1,2} Some authors believe that the bacilli can invade the blood stream and the viscera only during the terminal stage of the illness. However, it seems possible that a short and undetectable phase of bacteremia could occur under certain undefined conditions, as is seen in salmonella infections.

There are, as far as we could find in the medical literature, only three or four reports on shigellosis with a positive blood culture. In Turkey, not a single case has yet been reported. For this reason, we are reporting this case with some of the laboratory findings.

Case: Ş. Ö., a seven month old girl, was admitted to our hospital suffering from a severe diarrhea. She was malnourished, listless and dysuric. Diarrhea had persisted for two days and was bloody before admission. Family history was not pertinent.

Physical Examination: The patient was 60 cm. long and weighed 4000 grams. Her temperature was 37 C., pulse 160 per minute and respiration 40 per minute. She was dehydrated, with sunken eyes and marked cyanosis around the lips and was generally debilitated. Her heart and lungs were normal but her liver was enlarged 2 cm. below the costal margin.

Treatment: The patient was given 100 mg. chloramphenicol per kilogram of body weight per day and 800,000 units of penicillin daily. Parenteral fluid treatment was also started.

Laboratory Findings: The stool culture taken on admission revealed *Shigella flexneri*, type 2b. Bacilli of this type were isolated from a blood culture made on the second day. Some of the laboratory test results are shown in the following table:

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TABLE 1
BACTERIOLOGICAL FINDINGS

DATE	EXAMINATION	RESULT
Oct. 3, 1960	Stool culture	Sh. flexneri, 2b
Oct. 4, 1960	Blood culture	Sh. flexneri, 2b
	Stool culture	E. coli
Oct. 6, 1960	Stool culture	Sh. flexneri, 2b
	Blood culture	No growth
	Group aggl.	Negative
Oct. 10, 1960	Stool culture	E. coli
Oct. 19, 1960	Stool culture	E. coli and B. proteus

Sensitivity tests of the isolated strain showed it to be resistant to all antibiotics used routinely in the hospital: penicillin, 5 units:cc.; streptomycin, 10 mcg.:cc.; Terramycin, 10 mcg.:cc chloromycetin, 10 mcg.:cc. and erythromycin, 5 mcg.:cc.

Course: After isolation of the bacilli from the blood and the performance of sensitivity tests, 200 mg. of Gantrisin per kilogram of body weight per day was added to the treatment. The patient remained in poor condition, with two to ten defecations each day and frequent bloody stools. Meningeal symptoms were never established. Seventeen days after admission (Oct. 19, 1960), crepitant rales were heard, the liver became palpable 5 to 7 cm. below the costal margin and the pulse was 172 per minute. The patient was digitalized on this date. During the 22 days of treatment, besides antibiotics, the patient was given 8 blood transfusions, 10 cc.: Kg.

Two days before death, since the patient was perceptibly weakening, 0.5 cc.: Kg. gamma globulin was given. On October 23, 1960, twenty-one days after admission, the heart beat and breathing became irregular, the temperature fell to 35 C., petechiae formed over the body, the legs became swollen, and necrosis of the vulva and ulcers in the perianal area were observed. Necrosis developed over the entire body just before death.

Pathology: The pathologic examination showed changes in the intestinal tract typical of bacillary dysentery. A postmortem blood culture revealed *Bacillus proteus*, *Aerobacter aerogenes* and *Escherichia coli*, but no shigella growth.

Discussion

The isolation of an etiologic agent from the blood of a patient with shigellosis is extremely rare. As far as we could find, in all the medical literature there were only three or four reported cases of shigellosis with a positive blood culture. These include a *Sh. flexneri* isolation by Fournier and Brygoo,³ information given by Delbove and Reynes,⁴ about 2 cases of *Sh. shigae* isolation out of 8620 blood cultures, Kerstein's⁵ report on a case in the German literature, and another report by Brumpt et al.⁶ on a case of *Sh. shigae* infection.

Fournier and Brygoo found an organism containing Vi antigen which might be the cause of the virulence of the *Sh. flexneri* type 5 bacilli which were isolated from the blood of their patient. In our case, however, the bacillus isolated was *Sh. flexneri* type 2b, which, as we mentioned in another article,⁷ is the common cause of shigellosis among Ankara children, and did not contain any antigen different from those of other 2b types.

It is mentioned by some authors that a real phase of bacteremia may be observed in some cases of shigellosis. Others believe that the invasion of the blood stream and the viscera occurs only during the terminal stage of the shigellosis infection. However, in some cases, as in our patient, shigellae did grow in blood cultures.

What factors may have made this possible we do not know for certain, but the following circumstances may have played a role in producing a demonstrable bacteremic phase in this patient's course:

1. Malnutrition.
2. Resistance to antibiotics on the part of the organism in question.
3. The patient's age.

Among the things we do not know is the titer of antibodies which the patient may have received from the mother, whether trans-placentally or by way of the breast milk.

Summary

Sh. flexneri type 2b was isolated from the stool and from the blood culture of a seven month old girl who died of shigellosis.

Since Turkish medical literature has no report of such an isolation and elsewhere it is rare, we are reporting our microbiologic findings and other indications of bacteremia as found in this case.

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