

All Blood Cultures Are Always Positive

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Citation

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Abstract

The aim of present work is to describe a method used to prove that all blood cultures are always positive because human blood has normal flora. There are negative blood cultures on account of sodium polyanethol sulfonate (SPS) bacteriostatic properties on Chlamydia-like microorganisms living as normal flora in human blood.

INTRODUCTION

SPS is an anticoagulant with surface-active action. It is used worldwide in blood culture media, because of believe that it makes number of positive blood cultures to increase, and accelerates obtainment of results (1). It is very important that SPS inhibit phagocytosis and in this way helps microorganisms in blood to survive (2). There is literature data however that SPS can be toxic for some microorganisms (3).

The finding that in the blood off every man or woman live Chlamydia-like microorganisms as normal flora (4,5,6,7) means that all blood cultures must be always positive, in contradiction with the routine practice in which some blood cultures are evaluated as positive ones, and others as negative ones

METHODS

BACTEC blood culture (8,9) assessed as negative, are lived in repose for 24 hours. Very carefully the medium is poured out avoiding shaking of blood. Decantation of medium stops when deposited on the bottom blood begins to pour out. 0, 5 ml of resting blood sediment is cultured in a tube with 4, 5 ml brain heart infusion with: 0, 25% sodium citrate, gentamicin 20 mg/l and chloramphenicol 50 mg/l, without SPS. After 30 days incubation at 37°C a Gram stained smear was made / Fig 1 / as well as electron microscopy photographs/ Fig 2 ,3 4, 5 /

Figure 1

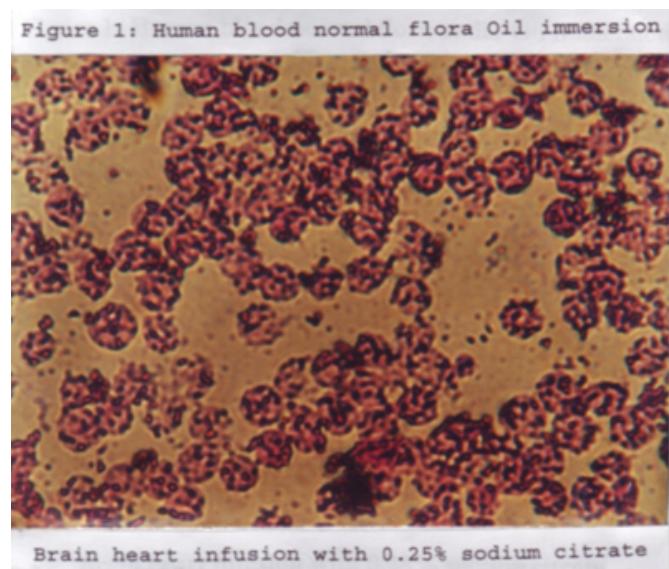


Figure 2

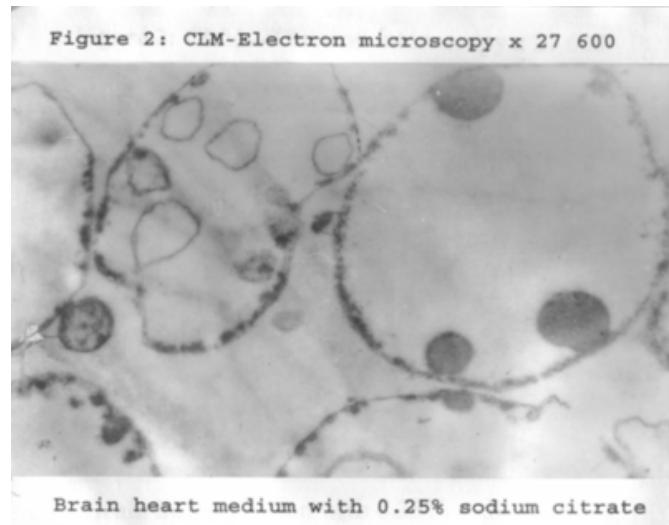


Figure 3

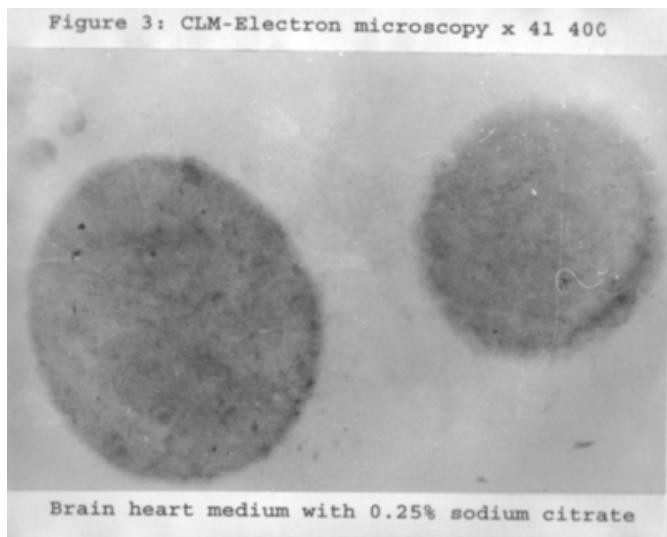
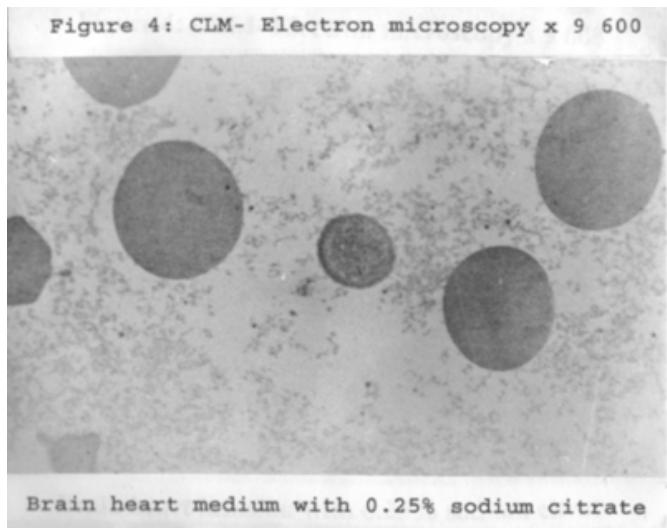


Figure 4



RESULTS

LIGHT MICROSCOPY

After 30 days incubation at 37°C human erythrocytes are full like nests with unknown microorganisms. In one erythrocyte a cluster of several microorganisms can be seen. Some microorganisms are outside the erythrocytes. The microorganisms are round, some time in pairs

ELECTRON MICROSCOPY

Surprisingly on electron microscopy one can see the unknown microorganisms like bodies inside the erythrocytes. Sometimes the bodies are dense like EB and another time the bodies are empty like RB Dance bodies enter the erythrocytes through the wall and for some time they are attached to the wall.

The new microorganisms have no visible nucleus, nor visible cell walls. They are compact bodies overgrown with tiny pili which are better seen in younger microorganisms than in older ones. Thanks to these pili the microorganisms can be distinguished from the erythrocytes which have no pili but round walls.

A new microorganism between several human erythrocytes Mimicry Microorganisms is overgrown with pili, while the erythrocytes have round walls. The microorganism is 0.3 µm to 2.6 µm while the human erythrocytes are 3.5 µm to 7.5µm

Figure 5

Table 1: Blood cultures

Bactec negative blood cultures	Number	CLM	Bacillus sp	Moulds sp	Staphylococcus sp	Negative cultures
Bactec Peds Plus/F	3	3	0	0	0	0
Bactec Plus Aerobic/F	44	34	3	3	1	3
Bactec Plus Anaerobic/F	9	7	2	0	0	0
Total number	56	44	5	3	1	3
Proportion (%)	100	78.57	8.92	5.35	1.78	5.35

Using 56 negative Bactec blood culture media were isolated 44 CLM (78.57 %), 5 Bacillus sp (8.92 %), 3 Moulds sp (5.35 %), 1 Staphylococcus sp (1.78 %) and 3 blood cultures remained negative (5.35 %).

DISCUSSION

The conclusion from performed subcultures of blood taken from negative blood cultures transferred thereafter in a new medium without SPS, is completely clear: SMS possesses bacteriostatic properties on unknown CLM in concentrations used in nutrient media.

One can not exclude the hypothesis that SPS could have some bacteriostatic effect on erythrocytes where CLM are reproduced.

The lack of CLM growth in cases when bacillus sp, moulds sp or staphylococcus sp are isolated, could be explained with faster multiplication of those microorganisms. One cannot exclude the possibility of contamination during medium transfer.

The lack of growth in 3 cases /5.3% / when there is neither CLM multiplication, nor contamination, can only be explained with insufficient pour out of medium containing SPS, because of its effect on normal blood flora.

CONCLUSION

The finding that it is impossible to have negative blood cultures has great theoretic value, but will not change the usage of blood cultures; the reason is that the multiplication of CLM living as a normal flora in blood happens too late, only after blood cultures are evaluated as clinically negatives

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