

Puerperal Sepsis: A Microbiological Study

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Abstract

Fifty cases of puerperal sepsis in women from various hospitals in Faisalabad were included in the study. The frequency of various organisms was *Escherichia coli* 58%, *Streptococcus Pyogenes* 44%, *Staphylococcus aureus* 28%, *Aerobacter aerogenes* 14%, *Streptococcus pneumoniae* 12%, *Staphylococcus epidermidis* 10%, *Streptococcus faecalis* 8%, *Candida albicans* 6%, *Streptococcus mitis* (Viridans group) 6% and *Clostridium welchii* 2%.

In vitro antibiotic sensitivity revealed that 41 cases were sensitive to one or more antibiotics. No single drug was effective in all the cases. Fifty four per cent of organisms were sensitive to Streptopenicillin 46% to Streptomycin 47% to Erythromycin 36% to Ampiclox 34% to Kanacillin and 28% to Chloramphenicol 28%. Carbenicillin, Kan-amycin, Septran and tetracycline were found to be effective in less than 15 % cases. Findings indicated that hygienic conditions during and after parturition need improvement (JPMA 31286, 1081).

Introduction

Puerperal sepsis consists of a series of febrile disorders caused by the development of microorganisms that enter through wounds of the genital tract during or after parturition.

It is generally known as "child bed fever" and has frequently been the cause of severe illness and at times death of the mother. A variety of microorganisms have been isolated from cases of puerperal sepsis e.g. *Escherichia coli*, Enterococci, *Klebsiella* (Selluer, 1968), *Staphylococcus aureus*, *Streptococcus faecalis*, *Streptococcus Pyogenes*, other hemolytic and non-hemolytic streptococci, *Aerobacter aerogenes* (Stevenson, 1969) and *Clostridia* (Sweet, 1975).

In Pakistan, most of the deliveries are conducted by unqualified and unskilled mid-wives under unhygienic conditions. Thus the chances of infection are very high. The present study was therefore undertaken to assess the relative significance of different microorganisms in post parturient infection of women and to work out their sensitivity to various antibiotics.

Material and Methods

Vaginal swabs from fifty postpartum (7-10 days) cases having puerperal infection were taken from various hospitals of Faisalabad city. All these cases of puerperal sepsis were diagnosed by the lady gynaecologist on duty. The patients had temperature, vaginal discharge (bloody or purulent) and pelvic pain. The patients had not taken any antibiotic before the collection of the samples. Swabs were taken aseptically and transported to the laboratory. Each sample was streaked immediately on two Blood agar, one MacConkey agar and one Sabouraud's agar plate. One of the inoculated Blood agar plate was incubated anaerobically at 37°C for 48 hours while all others incubated aerobically for 24 hours at the same temperature. Pure isolates were obtained by subculturing and identified by morphological, cultural and biochemical tests. Confirmation of *Candida albicans* was done by germ tube test (Lynch et al., 1969).

In vitro antibiotic sensitivity of the original swab samples was tested using filter paper disc method (Gould and Bowie, 1952). Commercially available antibiotic discs of Septran, Ampicillin, Ampiclox,

Kanacillin, Carbenicillin, Erythromycin and Vibramycin, were used while filter filter paper discs of Penicillin, Streptopencillin, Streptomycin, Tetracyclin, and Chloramphenicol were prepared in the laboratory. The test was carried out on Blood agar plates using 5 discs on each plate (150 mm diameter). Incubation was done aerobically at 37°C for 24 hours.

Results and Discussion

A total of 94 strains of different species of organisms were isolated from 50 cases. Fourteen cases showed infection with a single organism while 36 revealed mixed infections. The relative occurrence of different species of organisms has been shown in Table 1.

Table I
Relative Incidence of Different Species of Osgan-
isms in Puerperal Sepsis Cases.

<i>Organism</i>	<i>No. of strains</i>	<i>Incidence %</i>
<i>Escherichia coli</i>	29	30.86
<i>Streptococcus pyogenes</i>	22	23.40
<i>Staphylococcus aureus</i>	14	14.89
<i>Aerobacter aerogenes</i>	7	7.44
<i>Streptococcus pneumoniae</i>	6	6.39
<i>Staphylococcus epidermidis</i>	5	5.31
<i>Streptococcus faecalis</i>	4	4.26
<i>Candida albicans</i>	3	3.19
<i>Streptococcus mitis</i> (Viridans Group)	3	3.19
<i>Clostridium welchii</i>	1	1.07
Total	94	100

Incidence of *Escherichia coli* was the highest since it was isolated from 58 per cent cases. The next in order of frequency were *Streptococcus pyogenes* and *Staphylococcus aureus* isolated from 44 per cent, 28 per cent cases, respectively. All other organisms were encountered in less than 15 per cent cases. Involvement of *Escherichia coli*, *Streptococcus pyogenes* and *Staphylococcus aureus* in puerperal sepsis cases have also been reported by Freel et al (1969), Selluer (1968), Sweet (1975), Stevenson (1969) and Tancer et al (1969). In vitro sensitivity revealed that 41 out of 50 samples were sensitive to one or more of the antibiotics used. No single drug was effective in all cases. Streptopenicillin was effective in 56% cases, Streptomycin in 46%, Erythromycin in 44%, Ampiclox in 36%, Kanacillin in 34%, Chloramphenicol in 28%, Penicillin, Kanamycin in 26%, Carbenicillin 10%; Vibramycin 8% Septran 6% and Tetracyclin 2%, cases. Nine samples were not sensitive to any of the antibiotics tested. All these cases had mixed infection of three or four organisms. Most of the organisms isolated in this study were contaminants and caused infection whenever they found favourable environment for growth. This indicated that hygienic measures during and after parturition need improvement. Furthermore, indiscriminate use of antibiotics to check infection must be discouraged as each case may respond to different antibiotics.

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