

ANAEROBIC ORGANISMS IN POSTOPERATIVE GYNAECOLOGICAL INFECTIONS

by

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The postoperative gynaecological infections need immediate and drastic therapy because of the extent of morbidity and mortality. There has been a failure in the past to realise the importance of the microbial flora involved in causation of these infections, specially the anaerobes—though such possibility has been recognised by Altemeier (1938) and Altemeier *et al* (1973)—essentially due to non-availability of technical facilities for growth of anaerobic organisms.

Materials and Methods

All patients were from S.N. Hospital, Agra admitted during July 1975 to October 1977. The material was collected with due precautions at the bed-side or in the theatre in Thioglycollate broth for anaerobic cultures as recommended by Dowell and Hawkins (1974) and with usual precautions for aerobic organisms. Multiple swabs were taken from the site of wound or from pus discharge for aerobic and anaerobic cultures.

For anaerobic culture the swabs were directly transferred to pre-reduced thioglycollate and V.L. medium. The final isolation was done on blood agar and thioglycollate plate after 72 to 96 hours. The culture plates were incubated in polysterine bags using Barton and Winzer technique (1973). The organisms were confirmed by biochemical tests by using the scheme suggested by Dowell and Hawkins (1974).

The aerobic organisms were isolated in routine manner and confirmed biochemically as well as by serotyping.

Blood culture was done for aerobic and anaerobic organisms at the time of collection of pus and another 24 hour later.

Observations

The types of operation and the post-operative infection that developed are shown in Table I. The most common post-operative infection was Urinary Tract Infection (UTI) followed by wound infection. Both, peritonitis and pelvic abscess were seen in about 16% cases. It is observed that 47 isolates were anaerobic and 257 aerobic organisms (Table II). It is also evident that except in pelvic abscesses and UTI, the infection was caused by more than one organism in about 60% cases. The aver-

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TABLE I
Clinical Types of Postoperative Infections After Gynaecological Surgery

Nature of Operation	No. of Cases	Post-Operative Infective Lesion					
		Wound Infection	Septic Endometritis	Pelvic Abscess	Peritonitis	Urinary Tract Infections	Bacteraemia
Vaginal Hysterectomy	40	4	—	9	11	28	7
Vaginal Tubectomy	35	3	—	14	10	12	12
Abdominal Hysterectomy	30	14	—	6	5	15	10
Abdominal Tubectomy & Tubo-oophorectomy	32	10	—	3	8	15	3
D & C	45	11	12	3	3	21	22
Misc. Operations	30	4	8	3	2	20	—
Total	212	45	20	38	39	111	54

TABLE II
Aerobic and Anaerobic Isolates From the Infections After Gynaecological Operations

Clinical Type of Lesion	AEROBES			ANAEROBES				Total Isolates	Isolates per case
	Enterobacteria & Pseudomonas	Staph. aureus	Streptococcus	Bacteroides	Peptococcus	Peptostreptococcus	Fusobacterium		
Wound Infection (46)	42	8	9	9	4	—	1	71	1.4
Septic Endometritis (20)	17	4	5	2	—	1	—	29	1.45
Pelvic abscess (32)	14	5	—	9	5	4	1	38	1.0
Peritonitis (39)	30	9	9	5	3	2	—	60	1.5
U.T.I. (101)	98	3	4	—	1	—	—	106	1.04
(244)	201	29	27	25	13	7	2	304	1.24
Bacteraemia (37)	31	2	—	3	—	—	—	—	—

age number of isolates per case varied from 1.4 to 1.5.

The aerobic organisms included the organisms of enterobacteraceae family, *Staphylococcus aureus*, *Streptococcus*, β -hemolyticus and *Streptococcus faecalis*. The maximum isolates were of *Klebsiella* and *E. coli*.

Amongst the anaerobic organisms, *Bacteroides* was the major pathogen. It accounted for 23.6% cases of pelvic abscess and 12.8% peritonitis. With other organisms it was isolated in nearly one-fifth cases of wound infections.

Blood culture was done in 37 cases. Three (8.1%) cases were due to bacteroides and all proved fatal. This was the only anaerobe isolated from blood.

Discussion

The present series brings out a few facts clearly. That the members of enterobacteraceae family constitute the major pathogens after gynaecological surgery and other aerobic organisms include: Coagulase positive staphylococci, streptococcus faecalis, streptococcus β -hemolyticus.

The organisms, aerobic or anaerobic, that are isolated from the infections are the members of the flora of gastrointestinal and female genital tracts. Similar have been the observations of Moore (1969) and Sherwood (1975).

Bornstein *et al* (1964) and Gorbach (1971) and Gorbach and Bartlett (1974) have emphasized the pathogenicity of anaerobic organisms in intra-abdominal infections. In the present series in fact that all the 3 cases with anaerobic bacteraemia proved fatal favours their pathogenicity.

The importance of the anaerobic cultures in clinical practice is further enhanced because the antibacterial suscepti-

bility of these organisms is different from the usual aerobes isolated from the lesions.

Bacteroides species in general and *B. fragilis* in particular constitute the major anaerobic pathogen, which is associated with lesions following female genital tract surgery and gastrointestinal surgery. *B. fragilis* is resistant to streptomycin, kanamycin and gentamycin (Kislak, 1972), the antibiotics commonly used for aerobes in these clinical conditions. In addition it is known to cause phlebitis and invade the blood stream (Chow and Guze, 1974). On the basis of antibiotics sensitivity tests the use of Chloramphenicol and Erythromycin or the newer antibiotics Clindamycin, Cephalothin and Lincomycin (Kislak, 1972) with judicious use of surgery and anticoagulants has been advocated (Collins, 1970). The work of Martin *et al* (1972) and Swenson (1972) on antimicrobial susceptibility of anaerobes has clearly brought out that for adequate treatment of bacterial infections the recognition of anaerobes and their treatment is essential.

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