

Section of Pædiatrics

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MEETING AT THE GENERAL INFIRMARY, LEEDS

Diagnostic Swabs in Pertussis.—ANDREW BOGDAN, M.D.

“Whooping-cough has now achieved the notoriety of being more deadly to infants than any of the common infectious diseases. This is because the patient is highly infectious well before the nature of the illness can be diagnosed” (Ministry of Health, 1954).

Swabs from pertussis contacts support this statement. However, their results provide evidence that pertussis can be diagnosed in the symptom-free incubation period up to four days before the first cough or catarrhal symptom appears (Bogdan, 1951*b*).

Indication for swab diagnosis.—The obvious use of swabs is in symptom-free contacts or children in the early pre-paroxysmal stage, when isolation may limit spread of infection and suppressive treatment modify the disease (Bogdan, 1951*a*, *b*, 1952). A recent editorial (*Brit. med. J.*, 1953) suggested that “the most rational use of antibiotics is in the treatment of contacts before they develop the typical symptoms of the disease”. The suitability of suppressive treatment in institutions has been pointed out (*Lancet*, 1951). Atypical cases following immunization and parapertussis can only be diagnosed by swabs. Tempered by clinical judgment, it may be possible to exclude infectivity in contacts and in clinical cases after an antibiotic has been used; to curtail quarantine is a matter of some social significance. Therapeutic trials, such as the Medical Research Council’s Pertussis Vaccine Trial (1951) and Antibiotic Trial (1953), are dependent on swab diagnosis. Good results may encourage the wider use of swabs and epidemiological research in pertussis.

Clinical assessment of swab accuracy.—This depends on each patient being a “known” case of pertussis by ascertaining exposure to infection, duration, nature and progress of symptoms, hence appreciation of the precise stage of the illness when swabs are taken; also if immunization may have modified the disease. If an antibiotic has already been used or there is a history of previous pertussis, then swabs would be negative. Swabs should be taken in the pre-paroxysmal stage and certainly no later than the 10th day of the paroxysmal stage when infectivity is waning (Kristensen, 1933). Such swabs may be expected to yield a positive culture and so individual accuracy can be assessed; especially if cultured within three to five hours on a highly selective medium, such as diamidine-fluoride-penicillin medium on which my swabs were cultured. Lacey’s figures (1954) show that this medium yielded between 15 and 30% more positive cultures than Bordet-Gengou-penicillin medium on absolute diagnostic reckoning. Nicholson’s and Turner’s (1954) highly selective medium is also suitable for parapertussis.

Results.—The measures, preliminary to clinical assessment of swabs outlined above, were observed in my study of swab technique thus reducing the problem of accuracy in diagnosis to one of reliability in swab contamination. With cough such a constant feature of pertussis, it seemed reasonable to utilize cough to contaminate swabs.

The first of the two new techniques utilizing cough contamination of swabs was the supralaryngeal. The latter was described to this Section when initial results appeared promising (Bogdan, 1951*c*). The second was a pernasal technique modified for use with supralaryngeal swabs. Bradford and Slavin (1940) had initially used pernasal swabs for taking nasopharyngeal cultures in pertussis. In the supralaryngeal technique I aimed to get obvious contamination of the swab with laryngeal mucus brought up by cough; the same principle applied in the modified pernasal technique. Both new techniques have been fully described recently.

With practice and exercising care to acquire a portion of freshly expectorated mucus from the larynx, the average swab accuracy of each supralaryngeal swab rose to 92.5% (37/40) in “known” cases.

The combination of a supralaryngeal swab with my modified pernasal technique resulted in bacteriological confirmation of the diagnosis in 84% (92/109) of “known” cases. This combined technique offers the bacteriologist the best material for a positive culture, and is especially useful if for any reason the physician taking a single supralaryngeal swab fails to get visible, hence satisfactory, contamination of his swab.

The application of these new techniques may further the ultimate control of pertussis by assisting to solve the problem of early diagnosis stressed in the Report for 1953 by the Chief Medical Officer of the Ministry of Health.

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The Significance of *Hæmophilus Influenzæ* in Bronchiectasis of Children.—E. C. ALLIBONE, M.D., P. R. ALLISON, F.R.C.S., and K. ZINNEMANN, M.D.

In 32 children with chronic purulent bronchiectasis, observed for five to thirty-six months, non-capsulated *H. influenzae* was the predominant organism in the sputum and was present in antrum washings in 19 (59·4%). Appropriate chemotherapy reduced the amount of sputum and eliminated pus and *H. influenzae* simultaneously. During prolonged treatment a total of 204 relapses occurred of which 51% were due to *H. influenzae*, 9·3% to other bacteria; in 39·2% no bacterial agent could be recognized. *H. influenzae* is regarded as the organism responsible for the inflammatory process in chronic purulent bronchiectasis.

A full account will be published elsewhere.

The Antibiotics in Bacillary Dysentery.—E. F. MURPHY, M.D., M.R.C.P.Ed., D.C.H.

Bacillary dysentery has become widespread in the community. It is now frequent in epidemic form in children's hospitals and institutions throughout the country. Table I shows the notifications to the Registrar-General since 1940.

TABLE I—NO. OF CASES NOTIFIED EXCLUDING ORIGINAL NOTIFICATION IN PORT HEALTH DISTRICTS

Year	No.	Year	No.	Year	No.
1940	2,845	1945	16,247	1950	17,271
1941	7,292	1946	7,870	1951	28,564
1942	7,077	1947	3,761	1952	14,520
1943	7,877	1948	5,084	1953	18,409
1944	13,000	1949	4,519	1954	31,834

Effective treatment in the form of the wide-spectrum antibiotics is now available. The results of this application to a series of 500 cases admitted to Seacroft Hospital, Leeds, from January 1952 to May 1955 are shown in Table II. 26 cases were excluded because of doubt in the bacteriology. Of the 474 remaining, 62 were treated with sulphonamide and the remainder with Aureomycin or Terramycin/streptomycin in combination. Three consecutive negative stools after treatment constituted a success, a single positive constituted a failure.

TABLE II.—RESULTS OF TREATMENT WITH COMBINED TERRAMYCIN/STREPTOMYCIN, AUREOMYCIN ALONE AND SULPHONAMIDE ALONE

	Terramycin/streptomycin combination				Aureomycin				Phthalylsulphathiazole				Total
	Sonne		Flexner		Sonne		Flexner		Sonne		Flexner		
	Cases	%	Cases	%	Cases	%	Cases	%	Cases	%	Cases	%	
Success..	154	98·72	97	91·51	22	95·65	118	92·91	41	68·33	2	—	434
Failure..	2	1·28	9	8·49	1	4·35	9	7·09	19	31·67	0	—	40
Total ..	156		106		23		127		60		2		474

The scale of dosage is shown in Table III.