

STAPHYLOCOCCUS PYOGENES IN A VILLAGE SCHOOL

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IN THE autumn of 1962, the number of children from a small village attending surgery with septic lesions, boils, otitis externa, impetigo and ulcers, increased sharply. The pain and distress caused by these lesions—and their treatment—induced one of us (B.H.) to telephone the health department to ask for help in prevention.

The rural village primary school is over a hundred years old, and is under church management. There is a staff of five and 53 children attend it. It has primitive bucket sanitation, two cold taps with soakaway drainage, and no running hot water. The children washed their hands in communal buckets—before dinner and after using the bucket latrines.

On instructions from the medical officer of health, one of us (N.J.), made a thorough examination of the whole school, and gave advice on hand-washing technique and the provision and use of disposable paper towels. She also examined the children and found that 19 of the 53 children showed signs of recent or active impetigo. Nine of these children were in the infant section (a class of 14). All the active cases were excluded from school.

Arrangements were made with the pathological laboratory to examine swabs from all children and staff. They were taken from all active lesions, anterior nares and antecubital fossae.

Thirty-two out of the 53 children were carriers of *Staphylococcus pyogenes*, either on the skin lesions or in the nose; eight of them

had never had any evidence of clinical infection.

Phage typing was done on a random selection of eight cultures from different children. The following types were identified: 7/29/42E/52/52A/79/80/81. One child was harbouring seven types. Only types 80 and 52A were found in as many as three different children. In view of these differences, it was clear that the epidemic had originated from no one source and it was not considered worth doing any more phage typing.

Twenty children were carrying a haemolytic streptococcus either on the lesions or in the nose. The general practitioners of all affected children were advised of the position and asked to treat them during the Christmas holidays.

Treatment

Thirty-one of the 32 carriers were treated (the other was not on the list of either B.H. or Dr Menzies, who co-operated closely).

Active lesions were cleaned with chlorhexidine solution three times a day before applying a neomycin ointment. A chlorhexidine and neomycin cream (naseptin) was applied to the nostrils twice a day. The antibiotic of choice, as determined by sensitivity tests, was given for five days to those with active lesions. The carriers of haemolytic streptococci were treated with a course of phenoxymethyl penicillin for five days.

With this treatment, an improvement in hygiene with the better facilities, an increased awareness of the problem amongst the staff, and a three week holiday, the number of new cases of sepsis in the spring term of 1963 fell sharply. Occasional cases continued to appear, and in March the 32 children who had had positive cultures in December were swabbed again. Thirteen were positive for *Staphylococcus pyogenes*, none grew a haemolytic streptococcus.

Further treatment of the 13 remaining carriers was with chlorhexidine-neomycin cream to the anterior nares in all cases, oral penicillin to the two with penicillin-sensitive organisms, and courses of tetracycline to one boy who developed acute otitis media soon after the swabbing had revealed the sensitivity of his staphylococcus, and to another who developed a widespread cellulitis and who was allergic to penicillin. This child was the only one of the 13 to have a positive swab in the final swabbing in May and the staphylococcus cultured on this occasion was insensitive to penicillin, though still sensitive to tetracycline, whilst previous swabs had grown an organism sensitive to both antibiotics. Had he been reinfected

by a new strain or had antibiotic treatment selected one? The treatment of the 13 had been reinforced by a letter to parents threatening exclusion from school if the carrier state persisted, asking for confirmation that the children were attending their general practitioner, and asking them to keep the children away from school meals.

One case was of special interest. He was a catarrhal child of five who had developed a streptococcal abscess of a gland of his neck in October, 1963, which not having responded to penicillin and tetracycline was incised in hospital. After his discharge from hospital, the infection re-occurred and he was re-admitted; he then had a six week course of penicillin, even so, in December, a haemolytic streptococcus was cultured from his nasal swabs.

He had another month's course of oral penicillin and twice daily naseptin. In March a *Staphylococcus pyogenes* sensitive only to chloromycetin was cultured. No antibiotic was used; but a further course of naseptin was instituted with the special instructions mentioned previously. Soon after this he sustained a supracondylar fracture of the humerus and B.H. was able to warn the orthopaedic surgeon of his dangerous carrier state. The fracture was therefore reduced under anaesthetic in outpatients, and he was returned home the same day and not admitted. His swab in May was sterile.

Discussion

Various aspects of carrier problems are brought out in this little outbreak.

1. The importance and practicability of close liaison between the general practitioner, pathological laboratory and local health authority at all levels especially in the field.
2. The importance of the general practitioner being aware of carriers amongst his patients, so that in the event of admission of one of these to hospital he may advise the ward to take appropriate steps.
3. The importance of the general practitioner being on the alert for any signs of infection in non-school members of a family and advising the local health authority (medical officer of health, health visitor or school medical officer) of the possibility of infection in the school member of such a family.
4. The importance of swift action by the local health authority once the general practitioner has reported any infection.
5. The apparent effectiveness of naseptin in the elimination of carriers.

Recommendations

We would like to see the archaic sanitation still tolerated in too

many schools, especially rural ones, brought up to modern and decent standards as a matter of urgency.

We would like to see all admissions to hospital having nasal swabs either before or on admission, particularly to paediatric wards.

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ACCIDENTS AND THE AMBULANCE SERVICE

Accidents make up 5 per cent of ambulance work. The other 95 per cent of journeys are for routine admission and discharge of hospital patients and for outpatient visits. Emergency telephone calls are always given priority, although not all of them justify it. Speed of attention is helped by radio control. In towns empty ambulances can be diverted in a matter of minutes. The normal equipment of a general ambulance is sufficient to deal with most accidents. The immediate removal of the first casualty does not comprise the whole of an accident episode. The first ambulance crew on the scene at once makes an assessment of the situation and reports to headquarters by radio if further help or appliances are needed or if unusual preparations should be made at the casualty reception unit. Special equipment can be dispatched at short notice from ambulance headquarters. Preparations have to be made for major civil disasters and massive stocks of blankets, stretchers, dressings, morphine and simple nursing equipment are kept ready for use.

The usual work of the ambulance service is at once set aside in order to deal with accidents. Once the incident is coped with, the ambulance must get back to normal transport work. Diversion of ambulances may mean the late collection of patients for admission to and discharge from hospital. In any area there is an accident peak period with factors of time, place and season. Arrangements have to be made in advance to cope with the extra load.

Fifteen years of the special organization of the ambulance service in Britain have shown that fully trained staff can deal competently with accidents. A separate accident ambulance service would be uneconomic in staff and equipment. The main need in the future is closer liaison in training between medical men and the ambulance staff.

*Report of the Working Party on
Accident Prevention and Life Saving.
1961-63. Royal College of Surgeons
of England, P. 21.*