patient. I also thank Professor A. W. Downie and Dr. T. Black for the bacteriological investigations and sensitivity tests. The chloramphenicol was supplied by the Medical Research Council.

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Fatal Staphylococcal Septicaemia Following Removal of Tonsils and Adenoids

From the most recent report of the Chief Medical Officer of the Ministry of Education it is evident that at least 1,500 children are operated on each week in this country for the removal of their tonsils and adenoids. The case we record below must fortunately be a rare occurrence, as a search of the literature has failed to reveal any report of a fatal staphylococcal septicaemia following this operation, particularly when it is carried out under an umbrella of penicillin.

CASE REPORT

A girl aged 13 was admitted to hospital for removal of tonsils and adenoids on December 20, 1951. Her previous history was that when she was 4 years old glands on the left side of the neck had discharged spontaneously; these were diagnosed as tuberculous. At the age of 5 she had rheumatic fever. She had also had measles, whooping-cough, and chicken-pox. On examination she was seen to be a pale girl, tall for her age. The tonsils were enlarged, one tooth was septic, and slight nasal discharge was present. Mitral stenosis was diagnosed, but no active disease of the heart was found.

On admission she was placed on 1 ml. of "distaquaine penicillin" twice daily, on account of her heart condition, and this was continued for eight days after operation. The operation was performed successfully on December 21. Convalescence was uneventful until the eighth day, when secondary haemorrhage from the adenoid bed occurred. The haemorrhage, however, stopped spontaneously; she was given a further 1 ml. of distaquaine penicillin on December 30 and 31, and was discharged on January 2, 1952, 13 days after her operation, apparently fit and well.

On January 4 she woke up with severe frontal headache and fleeting joint pains which progressively increased. She was seen by her family doctor, who gave her daily injections of penicillin on January 5, 6, and 7. Her condition deteriorated, and she was readmitted to hospital on the 10th. On admission her temperature was 104.6° F. (40.3° C.), pulse 144, and respirations 28. Neck rigidity was marked, and she was semi-comatose. A petechial rash was present on the trunk and extremities. She had suffused conjunctivae, but her fauces appeared clean and healed. X-ray examination of skull, chest, and cervical and thoracic spine revealed no abnormality. A white-cell count numbered 26,000 per c.mm. (polymorphs 83.5%, eosinophils 0.5%, plasma cells 2%, metamyelocytes 6%, myelocytes 1.5%, monocytes 1.5%, lymphocytes 5%). The cerebrospinal fluid showed: cells, 235 per c.mm. (polymorphs 80%, mononuclears 20%); Gram-stained film, no organisms seen; sugar, 45 mg. per 100 ml.; chlorides, 620 mg. per 100 ml.; protein, 70 mg. per 100 ml.; culture yielded no growth in 48 hours.

Her general condition was very poor, and on the same day she was transferred to an infectious diseases hospital with a tentative diagnosis of an incompletely treated coccal meningitis. She was immediately given 2,000,000 units of crystalline penicillin intramuscularly, 1 g. of "soluthiazole" intravenously, and 5 mg. of "percorten" (deoxycortone acetate) intramuscularly, followed by three further intramuscular injections of 2,000,000 units of crystalline penicillin at four-hourly intervals. Another 2 g. of soluthiazole and 5 mg. of percorten were also given, but she died on January 11, within 24 hours of admission to hospital.

FINDINGS AT NECROPSY

Post-mortem examination on the following day showed multiple petechiae on the extensor and flexor surfaces of both arms and legs; one of these petechiae was removed for sectioning. Within the substance of the cerebellum there was a blood clot measuring 2 in. (5 cm.) in diameter. In the cerebrum there was an abscess $\frac{1}{2}$ in. (1.27 cm.) in diameter in the region of the right insula. Sphenoidal, frontal, and ethmoid air sinuses appeared normal. So far as could be seen the mouth, tongue, fauces, pharynx, and nasopharynx were clear. The pleurae were normal and the lungs moderately congested, with no macroscopic abscesses. The heart showed mitral stenosis. Macroscopically, the endocardium and myocardium were normal. No vegetations were found on any of the heart valves. There were enlarged mesenteric and coeliac glands and a small quantity of clear fluid in the peritoneal cavity. No peritonitis was seen. The liver had two small septic infarcts on the superior surface of the right lobe, otherwise it was normal. The spleen was grossly enlarged—weight 18½ oz. (523 g.)—and on cutting was "toxic-looking" and contained two septic infarcts. There was a septic infarct in the upper pole of the right kidney. The suprarenal glands appeared normal—an observation confirmed by subsequent histological examination. No other abnormality was found in the abdominal cavity.

A blood culture had been taken while the patient was alive, and this grew a coagulase-positive mannite-fermenting *Staphylococcus aureus*. Swabs taken post mortem from the septic infarcts as well as from the pharynx and trachea all grew a similar *Staph. aureus*. All the staphylococci isolated were resistant to penicillin (10 units per ml.) and "sulphatriad" (10 mg. and 100 mg. per ml.), but sensitive to streptomycin (10 mg. per ml.) and chloramphenicol (25 µg. per ml.). Staphylococci from the sites mentioned in the Table were sent for phage-typing, and all proved to be of the same type.

Site	Organism	Coagulase	Mannite	Phage Pattern
Blood culture ..	<i>Staph. aureus</i>	+ve	+	47/53+
Nasopharynx ..	" "	"	+	47+
Trachea ..	" "	"	+	47/53+
Brain ..	" "	"	+	47/53+
Pelvic peritoneum ..	" "	"	+	47/53+
Spleen ..	" "	"	+	47/53+

Sections taken for histology from abscess areas, including the skin lesion, all showed large numbers of Gram-positive cocci. The lung sections showed congestion, but no microscopical abscesses were seen. Histologically, the section of the cerebellum showed only a blood clot and normal cerebellar tissue. We assume that the immediate cause of death in this case was cerebellar haemorrhage, probably due to a septic infarct eroding one of its vessels.

COMMENT

No definite primary focus of infection could be identified at the post-mortem examination. It appears, however, a reasonable presumption that the *Staph. aureus* isolated in this case from various sources having the same phage pattern was introduced through the raw surface of the adenoid bed, since a secondary haemorrhage which occurred from it on the eighth post-operative day was almost certainly due to infection.

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