

## Lesson of the Week

### Fulminant streptococcus pyogenes infection

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Life-threatening infection due to *Streptococcus pyogenes* ( $\beta$ -haemolytic streptococcus, Lancefield's group A) has become uncommon since the introduction of penicillin.<sup>1 2 3</sup> Excluding the four cases reported here, the department of bacteriology at this hospital has seen only six cases of *Str pyogenes* bacteraemia in the past 10 years, and nationally the species accounted for only 2.7% of all bacteraemias recorded in 1976 and 1977.<sup>4</sup>

We report on four major infections by group A streptococci seen in this hospital over three months to emphasise their fulminant nature, the fact that they presented in ways that did not immediately suggest their cause, and the limitations of certain commonly used methods of treatment.

#### Case reports

**Case 1**—An acutely ill 15-year-old girl was admitted on 29 January 1980 with peritonitis. On a presumptive diagnosis of perforative appendicitis, gentamicin and metronidazole were given preoperatively. Laparotomy showed bilateral suppurative salpingitis, and many Gram-positive cocci were seen in films made from the pus. Benzylpenicillin, 2 MU six hourly, was given immediately, and culture of the pus subsequently yielded *Str pyogenes*. Though initially very ill, she was discharged well after five days and subsequently returned to school. It is not yet known whether she has permanent tubal damage.

**Case 2**—A 73-year-old man was admitted on 27 February 1980 with recurrent ulceration after a vagotomy and pyloroplasty. He also had chronic bronchitis and atrial fibrillation. On 29 February he underwent partial gastrectomy. On 3 March his wound began leaking (but was not grossly inflamed) and he was chesty; a wound swab was sent for culture. On 4 March at 3 am he became shocked but recovered without treatment. At 11.30 am he became profoundly shocked though he remained apyrexial. Blood was taken for culture and gentamicin and metronidazole were given. He died at 10.30 pm. *Str pyogenes* was isolated from both specimens. Necropsy examination showed bilateral lower lobe pneumonia which also yielded *Str pyogenes*: this was considered to be the portal of entry.

**Case 3**—A 69-year-old woman was admitted on 1 March 1980 with vague abdominal pain as an emergency case. Abdominal examination was unhelpful but she was obviously in peripheral circulatory failure. She was apyrexial with a leucopenia. Blood cultures were taken, and gentamicin and metronidazole were given for a provisional diagnosis of Gram-negative septicaemia:

**Life-threatening infections with *Streptococcus pyogenes*, though rare, still occur and do not always present a classical picture.**

she died later that day. At necropsy there was pulmonary oedema, peritonitis, and an erosion of the uterine cervix. *Str pyogenes* was isolated from blood, peritoneal fluid, and the cervix.

**Case 4**—A 70-year-old woman was admitted on 14 April 1980 with a history of two days of vomiting culminating in profound collapse. Her temperature on admission was 37.5°C but the abdomen was soft, and bowel sounds were present. She died 40 minutes after admission. A necropsy examination showed acute phlegmonous gastritis with perforation at the pylorus and peritonitis and bilateral adrenal haemorrhage. Culture of gastric wall and peritoneal fluid yielded *Str pyogenes*.

#### Comment

Certain features of these cases are noteworthy. All four patients had a surgical presentation, but in none was a diagnosis of streptococcal infection suspected clinically. The last patient (case 4) was especially difficult to diagnose since acute phlegmonous gastritis is rare and not usually diagnosed until laparotomy or necropsy.<sup>5</sup> The choice of metronidazole and gentamicin as initial treatment, reflecting the current pre-occupation with enterobacteria and anaerobes as causes of abdominal sepsis, is inappropriate for *Str pyogenes* infection. The initial combination therapy for severe infections of unknown cause should therefore include a penicillin or cephalosporin. If group A streptococcal infection is confirmed benzylpenicillin is the treatment of choice and should be given in adequate dosage for 7 to 10 days to prevent relapse. In three of these patients the infection had progressed so far that there was little hope of successful treatment. But there is no doubt that treating the first patient with benzylpenicillin saved her life.

#### References

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