



LEMIERRE'S SYNDROME

No. 12, 2000

Lemierre's syndrome is a potentially fatal infection due to *Fusobacterium necrophorum*. The infection usually starts in the upper airways and gives rise to metastatic abscesses in the lungs and other organs. The infection is sometimes called "the forgotten disease", but there is much to suggest that this serious infection is more frequent than hitherto assumed. A nation-wide retrospective survey in 1998 indicated that the frequency of severe cases of Lemierre's syndrome was at least four cases per year in Denmark. A nation-wide prospective study is now in progress. Data from the first year suggest that the real figure is at least four times as high as that found in the retrospective survey.

Clinical picture

Lemierre's syndrome chiefly affects young, healthy persons and has a characteristic clinical course. The syndrome typically starts with an upper respiratory tract infection, usually a pharyngotonsillitis of viral or bacterial origin. Infection from *F. necrophorum* can spread from the oropharynx to the parapharyngeal space and may be complicated by a focal septic thrombophlebitis of the internal jugular vein in the neck. The clinical findings are of submandibular oedema and tenderness along the sternomastoid muscle, usually unilateral. After one to two weeks, a "postanginal septicaemia" supervenes, with multiple metastatic necrotic abscesses, most often in the lungs, muscles, bones and joints, more rarely in the brain, liver and kidneys, etc. At this point there is usually a rapid and violent progression of symptoms. Chest x-ray often shows bilateral infiltrations which may be complicated by empyema and/or pulmonary abscesses. The musculoskeletal system shows a broad spectrum of symptoms and signs, from arthralgia to septic arthritis and osteomyelitis. A slight hyperbilirubinaemia and mild disseminated intravascular coagulation may be seen. Two fatal cases of septicaemia due to *F. necrophorum*, from 1998 and 1999 respectively, are described below.

Case 1

A 33-year-old, previously healthy, male foreigner who was in Denmark as a tourist, had at some unstated time developed a large infected

wound on the sole of the left foot. One evening he became unwell and drowsy. The next morning he became increasingly confused. At the end of the morning he collapsed dead and was brought into Casualty. Attempted resuscitation was unsuccessful. Medical legal autopsy showed pleural exudates and scattered subpleural pulmonary abscesses as well as infection of the left foot. Culture yielded growth of *F. necrophorum* from cardiac blood, pulmonary abscesses and pus from the foot.

Case 2

A 26-year-old, previously healthy man was admitted to hospital with a sore throat, cough and fever. Pneumonia was diagnosed on admission and the patient was treated with penicillin and ventilated. After approximately one week he developed adult respiratory distress syndrome (ARDS) and was treated for a short time with nitric oxide. During the course of illness he was variously treated with ciprofloxacin, rifampicin and vancomycin. When *F. necrophorum* was found in the sputum, treatment was changed to penicillin and metronidazole. He had at that time developed a right-sided pulmonary abscess which underwent a partial spontaneous drainage by perforating into the bronchi. There was only a slow improvement in his state. After two months in hospital the patient had lost 25 kg and asked to be discharged. At that point treatment was changed from intravenous antibiotics to oral grepafloxacin. The patient died a week later. Medical legal autopsy showed extensive infiltrations of both lungs, a large abscess in the upper lobe of the right lung and inflammatory changes in the myocardium. Culture yielded growth of *F. necrophorum* from cardiac blood, tissue from both lungs and cerebrospinal fluid.

Pathogenesis and microbiology

Lemierre's syndrome is caused by the pleomorphic, anaerobic, Gram-negative rod *F. necrophorum*, which probably forms part of the normal flora of the oropharynx, gastrointestinal tract and the female genitalia. In contrast to most other anaerobic bacteria, it appears to be able to act as a primary pathogen without predisposing immunosuppressive disease. It is not known why *F. necrophorum*

suddenly becomes invasive in some cases. The micro-organism can be demonstrated directly from septic foci by its characteristic morphology on Gram stain and microscopy. The demonstration of growth on plates or in blood culture requires 2-3 days' incubation. *F. necrophorum* is usually fully sensitive to penicillin and metronidazole, whereas erythromycin should not be used.

Treatment and prognosis

Early, intensive and prolonged antibiotic therapy is important. On the basis of the characteristic clinical picture, treatment is started with intravenous penicillin G in doses of at least 2 MIU x 4 daily, combined with metronidazole 500 mg x 3 daily for at least 2-3 weeks, or as long as abscesses persist. Clindamycin can be used in case of allergy to penicillin. On transfer to oral treatment, amoxicillin and metronidazole or clindamycin are recommended for a total duration of treatment of at least 3-6 weeks. It often takes weeks to obtain a definite clinical response, because of the tendency to develop necrotic abscesses. Percutaneous drainage of the abscesses may be indicated. In cases of mediastinitis, urgent thoracic surgery and drainage are important to clear the infection. Lemierre's syndrome has a variable mortality of 4-33%, even with correct antibiotic treatment.

Conclusion

Lemierre's syndrome should be suspected in younger, previously healthy persons with tonsillitis which is complicated after a week by a septicemic picture and pulmonary symptoms.

(L. Hagelskjær Kristensen, J. Prag, KMA, Viborg Hospital, H. Hamburger, MOH, North Jutland County)

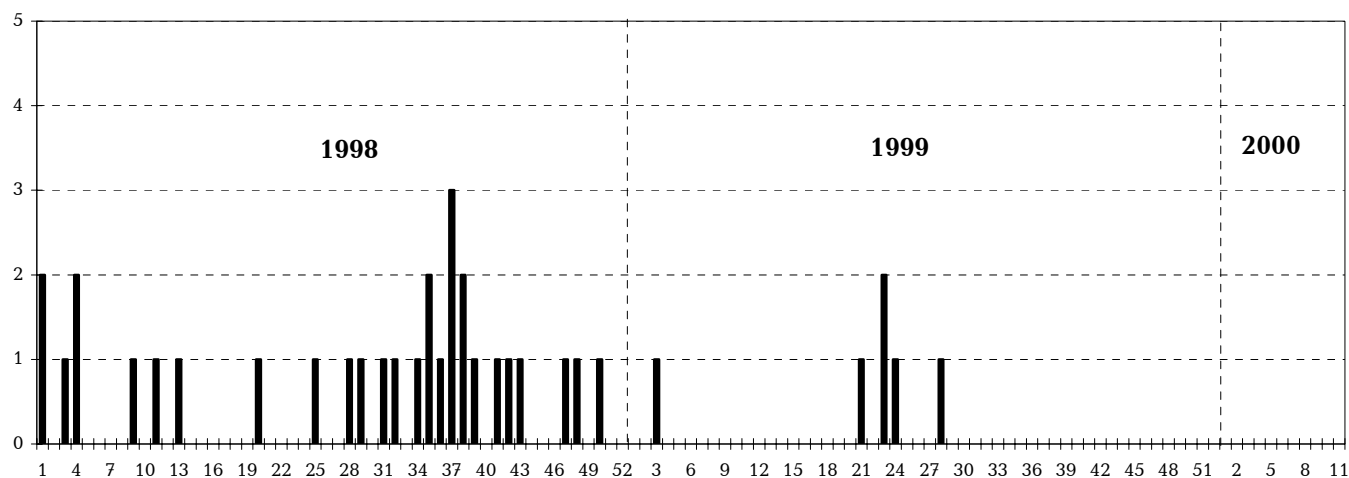
ABSENCE OF MEASLES

As shown overleaf, only six patients were notified with measles in 1999. One patient was admitted to hospital on 12 July. No cases of measles have thus been notified in Denmark for over eight months, the longest measles-free period ever. (A.H. Christiansen, T. Rønne, Dept. of Epidemiology)

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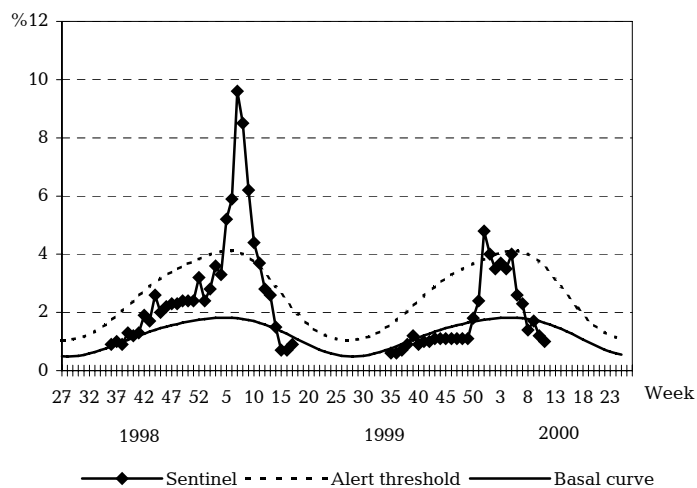


No. of notified cases per week in 1998 - 22.03.2000



Sentinel surveillance of influenza activity

Weekly percentage of consultations, 1998/1999/2000



- Sentinel:** Influenza consultations as % of total consultations
- Basal curve:** Expected frequency of influenza consultations under non-epidemic conditions
- Alert threshold:** Possible incipient epidemic

(Dept. of Epidemiology)

