The Journal of Laryngology and Otology
December 1994, Vol. **108**, pp. 1097–1098

Necrobacillosis – an unusual case of pharyngotonsillitis

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Abstract
Necrobacillosis is a potentially life-threatening septicaemic illness occurring in the previously fit and healthy. The authors illustrate a case presenting as an atypical pharyngotonsillitis with renal complications, initially misdiagnosed as post-streptococcal glomerulonephritis. Necrobacillosis should be considered in cases of unusual pharyngotonsillitis.

Key words: Tonsillitis; Fusobacterium infections

Introduction

Necrobacillosis is a severe septicaemic illness caused by the anaerobic gram-negative bacillus *Fusobacterium necrophorum*. It classically occurs in previously healthy teenagers and young adults and is characterized by oropharyngeal infection and metastatic infective complications. We present this case as a reminder of a condition which is potentially life-threatening although may present as a trivial pharyngotonsillitis.

Case report

A fit, healthy 20-year-old part-time milkman presented with a four-day history of worsening sore throat, fever and rigors. He had been commenced on erythromycin by his general practitioner and for two days prior to his admission had noted his urine was red. Initially he had suspected this was a side effect of his treatment.

On admission he was clearly toxic. His temperature was 39°C, he had an exudative pharyngotonsillitis, cervical lymphadenopathy, and marked tenderness in the renal angles, loins and suprapubic areas. Urinalysis revealed both marked proteinuria and haematuria. Serum urea and creatinine were 20.7 and 398 mmol respectively and white cell count was 11.8×10^9/l. Bilateral small pleural effusions were noted on CXR. An ultrasound scan of his kidneys showed diffuse echogenicity of both kidneys consistent with glomerulonephritis. A provisional diagnosis of post-streptococcal glomerulonephritis was made and throat swabs, repeated blood cultures and serum ASO titres were taken. He was commenced on intravenous benzylpenicillin 1.2 g every six hours and kept on a strict fluid balance after consultation with a physician regarding his renal failure. Forty-eight hours later he remained toxic and had developed an inflammatory mass in the subcutaneous tissues in the region of the submandibular gland (Figure 1). All cultures remained negative and ASO titres were not significantly elevated. Ultrasonography of the submandibular region revealed an inflammatory mass of nodes adjacent to the gland but no pus. White cell count was now 24×10^9/l.

After discussion with the microbiologist metronidazole was added to the antibiotic regimen to cover the possibility of anaerobic infection. Twenty-four hours later his clinical condition had improved considerably. Subsequently his pyrexia settled completely, the facial soft tissue infection resolved and the proteinuria disappeared.

After prolonged incubation *Fusobacterium necrophorum* was cultured from blood. Ten days later he was discharged home, with a further two weeks of antibiotics, as he was well.

Discussion

In the pre-antibiotic era *Fusobacterium necrophorum* was fre-

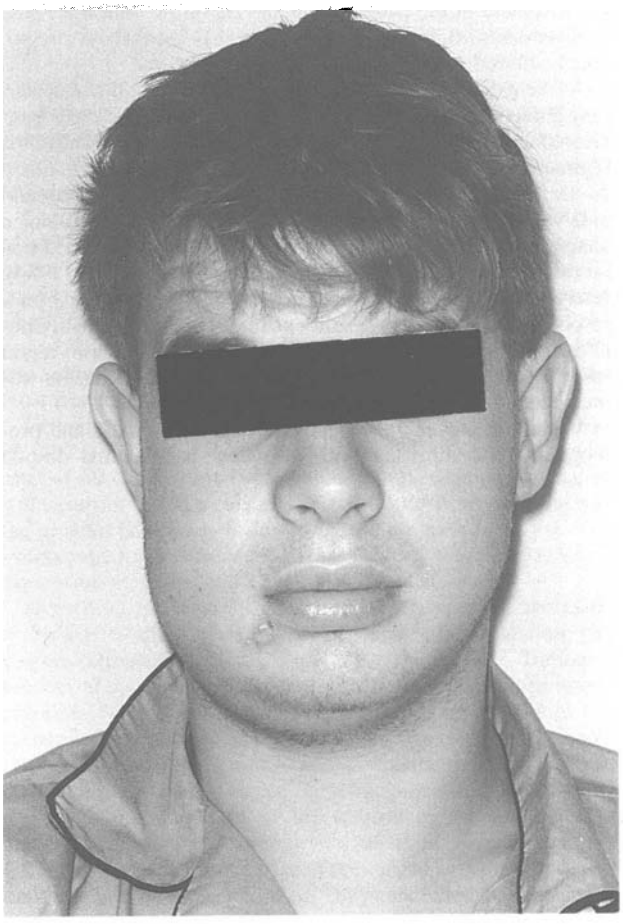

FIG. 1
Patient showing swelling in the region of the submandibular gland.

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Accepted for publication: 7 July 1994.

quently responsible for serious, often fatal septicaemic illnesses. In 1936 in a comprehensive review Lemierre (1936) described the syndrome of suppuration and thrombophlebitis at the primary focus, usually the palatine tonsil, with fever, rigors and septic pulmonary emboli in association. He suggested 'the syndrome is so characteristic that it permits diagnosis before bacteriological examination has provided conclusive proof.'

These anaerobic organisms exist as normal flora in the mouth, pharynx, intestine and genitourinary tracts of the human host (Dunkle *et al.*, 1976). The commonest site of primary infection is the throat with the tonsillar region the usual portal of entry (Oleske *et al.*, 1976).

The condition classically presents with oropharyngeal infection followed by septicaemia and *sequelae* related to metastatic abscess formation. Pulmonary embolic phenomena are the most frequent presenting with pneumonia, abscess or empyema (Alston, 1955). Clinically our subject had a normal chest examination but the pleural effusions evident on the chest X-ray suggested there was a degree of pulmonary involvement. Submandibular and cervical inflammation and suppuration as demonstrated in our case report are also frequently associated with the primary infection. Although hepatic involvement occurs relatively frequently renal involvement appears to be rare. A comprehensive review of the English literature over the past 25 years has failed to identify any cases in which the kidneys were involved. The development of glomerulonephritis following pharyngotonsillitis led us to make the incorrect diagnosis of post-streptococcal glomerulonephritis. The results later showed ASO titres were not significantly raised and there was no improvement in the patient's clinical condition with high dose intravenous penicillin. At no stage were β-haemolytic streptococci cultured from blood or throat swabs.

As the patient had such a poor response to penicillin an anaerobic infection and the possibility of necrobacillosis was considered and metronidazole was added to the patient's antibiotic regimen. Thereafter, he made a prompt clinical recovery. *Fusobacterium necrophorum* sensitive to penicillin and metronidazole was cultured from blood several days later after prolonged anaerobic incubation. As is commonly the case in this condition no other organisms were cultured (Moore-Gillon *et al.*, 1984). Interestingly other reports have commented on a similarly poor response to penicillin despite positive *in vitro* sensitivities (Vogel and Boyer, 1980). The subject of our case report responded well to antibiotic treatment once metronidazole was included.

Vogel and Boyer (1980) have described dramatic and prolonged febrile illnesses, with persistent bacteraemia despite appropriate antibiotics, and these have required prolonged therapy. A further testament to the potentially virulent nature of this organism was made by Rubenstein *et al.* (1974) who described cases where relapse occurred after initially short courses of therapy.

Conclusions

A rare clinical entity nowadays, necrobacillosis should be considered in all atypical pharyngotonsillitis associated with a septic illness. Treatment should be with a prolonged course of penicillin and metronidazole.

Acknowledgement

We would like to thank Mr K. B. Hughes for allowing us to report the case of a patient under his care.

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