Nocardiosis after Appendicectomy

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Nocardiosis is a rare infection of world-wide distribution caused by *Nocardia asteroides*, and less often by other *Nocardia* species. The genus *Nocardia* is placed in the order Actinomycetales, together with the genera *Actinomyces* and *Mycobacterium*. Characteristically, nocardia grow in filaments which show branching, and this gives them a superficial resemblance to fungi. Nevertheless, they are classified as true bacteria.

Nocardiosis usually occurs as a chronic respiratory disease. Metastasis to secondary sites is frequent and may involve any tissue. In the following case infection appears to have originated from the intestinal lumen. Though this is a recognized route of infection in actinomycosis, it has not been associated with nocardiosis. The diagnosis in this case was not established until one year after the onset of symptoms, and this report is made to increase awareness of this condition.

Case Report

The patient was aged 56 at the time of his admission to the General Hospital, Birmingham, on 1 February 1968. He had been ill for one year and complained of abdominal abscesses, which had become chronic discharging sinuses, and of loss of weight. On examination he looked ill and wasted. He had discharging sinuses in the right iliac fossa, the right inguinal region, the left iliac fossa, and medial to the right posterior superior iliac spine. The discharge was a yellowish serous fluid, which did not contain granules. In the right lumbar area there was a tender fluctuant swelling about 2 in (5 cm) in diameter. Lateral to the lower end of an upper midline incisional scar there was a healed sinus. He also had a cough of recent onset with production of purulent sputum. This responded rapidly to tetracycline with complete clinical and radiological resolution. There was no previous history of respiratory disease.

The patient's relevant medical history began on 15 July 1966 when he had a vagotomy and pyloroplasty done at another hospital. At the same time his appendix was removed. Five months later he developed pain in the right iliac fossa and after another two months a mass became palpable. A laparotomy was performed and pus was found deep to the internal oblique muscle. No organisms were isolated on aerobic and anaerobic culture of this material. Subsequently further abscesses appeared at intervals of two to three months and these formed chronic sinuses after drainage. Routine cultures, including examination for tubercle bacilli, of pus from these abscesses were negative.

On admission to the General Hospital the haemoglobin concentration was 8.3 g/100 ml and the E.S.R. was 60 mm/hour (Westergren). An intravenous pyelogram showed appearances suggestive of an inflammatory mass lying medially to the right kidney. A sinogram showed a narrow track communicating between the posterior sinus and the sinus in the right iliac fossa. The possible diagnoses were thought to be retention of a foreign body,

actinomycosis, and tuberculosis. Swabs were taken from the discharging sinuses and films prepared by gently rolling them on to slides so as to preserve the morphology of any organisms present. Stained films showed Gram-positive bacilli and occasional clumps of Gram-positive organisms arranged in filaments and showing branching. When stained by Kinyoun's modified Ziehl-Neelsen method the organisms were found to be acid-fast. A diagnosis of nocardiosis was made. Aerobic cultures on blood agar grew a Gram-positive organism with a tendency to form chains of pleomorphic cells varying from cocci to bacilli. In subcultures to glycerol broth there was surface growth with hanging threads but no turbidity. This medium was the only one in which branching of the filaments could be demonstrated.

A course of sulphadiazine, 1 g thrice daily, was begun. Three weeks later the patient was feeling much better, was gaining weight, and the discharge from the sinuses was considerably reduced. After 15 weeks all the sinuses had healed, he had regained his former weight, the E.S.R. had fallen to 6 mm/hour (Westergren), and his haemoglobin was 14.3 g/100 ml. Therapy was therefore stopped. Two years later he was well and there was no evidence of recurrence.

Comment

Nocardiosis usually affects the respiratory tract and in about 70% of cases metastasizes to other sites (Murray *et al.*, 1961). Five per cent of patients present with cerebral abscess. Infections of the skin and subcutaneous tissues also occur.

In the above case the previous appendicectomy and the onset of clinical infection in the right iliac fossa suggest that infection may have originated from the intestinal lumen. Hickey and Berglund (1953) described the case of a patient who presented with a gangrenous appendix in which nocardia were isolated from a secondary abscess. They concluded that infection had occurred via the appendix perforation. It is noteworthy that infection by the related pathogen *Actinomyces israeli* commonly arises from the intestinal tract (Porter, 1953).

Nocardiosis may mimic tuberculosis and actinomycosis, and diagnosis is often difficult. Accurate identification is essential because of differences in the specific therapy to which actinomycosis, tuberculosis, and nocardiosis respond. Peabody and Seabury (1960) recommended long-term treatment of nocardiosis with 4-6 g of sulphadiazine daily, and considered that the prognosis was fairly good. Many cases of nocardiosis are associated with underlying disease, particularly malignancy, and these have a high mortality (Murray *et al.*, 1961). An optimistic prognosis is justified in patients without underlying disease, except in those with a cerebral abscess in whom Hoeprich *et al.* (1968) reported an 87% mortality. They emphasized that survivors from a cerebral abscess had all had surgical excision as well as sulphonamide therapy, and suggested that the mortality could be lowered by combined treatment. Such an approach is likely to be of benefit in infections at other sites.

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References

- Hickey, R. C., and Berglund, E. M. (1953). *Archives of Surgery*, **67**, 381.
- Hoeprich, P. D., Brandt, D., and Parker, R. H. (1968). *American Journal of Medical Science*, **255**, 208.
- Murray, J. F., Finegold, S. M., Froman, S., and Will, D. W. (1961). *American Review of Respiratory Diseases*, **83**, 315.
- Peabody, J. W., and Seabury, J. H. (1960). *American Journal of Medicine*, **28**, 99.
- Porter, I. A. (1953). *British Medical Journal*, **2**, 1084.

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