CASE 4

This 82-year-old man had bronchogenic carcinoma on the left side involving the mediastinum, aorta, and esophagus. He was treated with cyclophosphamide and had a bronchoesophageal fistula. A Celestin tube was placed one week before he died of continued spread of his disease.

CASE 5

This patient had an esophageal lesion eroding into a bronchus, with continuous aspiration. A Celestin tube was placed, with remarkable palliation for a short time. There was mediastinal extravasation of barium in this patient, with the Celestin tube allowing continuous passage of ingested materials into the surrounding tissues without contamination.

DISCUSSION

Communications between the tracheobronchial tree or obstruction of the esophagus, whether due to benign or malignant lesions, are difficult to palliate. These patients usually die in a short time from aspiration pneumonia, starvation or even the palliative procedure. Many approaches have been used to treat these lesions including exclusion of a segment of esophagus, resection of the communicating areas, along with irradiation, or bypass procedures, all of which are extensive procedures with poor surgical expectations. Similarly, some of the earlier esophageal prosthetic devices were attempted in intubating beyond the cricoid, with poor results because of dislodgement and obstruction, or erosion from a short, stiff and narrow tube. Therefore, the pull-through Mousseau Barbin and Celestin tube are now most commonly used. However, their disadvantage is that they require gastrostomy, often in poor risk patients. This is associated with a high mortality from laparotomy or a substantial morbidity from ileus wound infection, sepsis and peritonitis, often aggravated by the pre-terminal state of these patients. By the use of simple endoesophageal placement of a Celestin tube over a mercury weighted bougie, in turn manipulated into place by a larger bougie and finally inspected via an esophagoscope, we have eliminated the morbidity and mortality of the procedure in desperately ill patients.

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Systemic Nocardia caviae Infection

W. A. Causey, M.D.,* P. Arnell, M.D.,** and J. Brinker, M.D.†

Nocardia caviae has been implicated as a cause of actinomycotic mycetoma in man. To date, this is the only form of nocardiosis with which this species has been associated. The two fatal infections described in this report are the first known cases of systemic nocardiosis in man caused by N caviae.

Nocardia caviae was first isolated from an infected ear of a Sumatran guinea pig by Snijders in 1924. This species occurs in soil as a saprophyte and has been isolated from cases of human mycetoma in Tunisia, Japan, India, and Mexico. N caviae has also been associated with naturally occurring infections in animals. There have been reports of bovine mastitis in the United States, and fatal infections have occurred in a dog in England, a bottle-nosed dolphin in Hawaii, and a domestic goat in Malawi. To our knowledge, N caviae has not previously been reported as a cause of systemic human disease.

CASE REPORTS

CASE 1

This 54-year-old Illinois housewife was well until a month before her admission to the hospital when she began to have intermittent bouts of fever, sweats, and dyspnea accompanied by pain under the left breast and severe generalized weakness. Two weeks before her admission she was found to have bilateral anterior pulmonary infiltrates, although her chest roentgenogram had been normal six months previously. She was given oral tetracycline, but failed to improve and was hospitalized. A review of her past history was not significant except for occasional episodes of "pleurisy and bronchitis" that extended back at least four years. She had no family history of diabetes and had taken no medicines before the onset of her illness.

On physical examination the patient seemed to be acutely ill and had a temperature of 39°C and a blood pressure of 120/58. A 12 to 15 mm Hg pulsus paradoxus was noted, and there was a grossly irregular heartbeat at 100 per minute. The heart was enlarged toward the left, her neck veins were distended, and her heart tones were muffled. The suspicion of a pericardial effusion was supported by the appearance of massive cardiomegaly on chest radiograph. Bilateral pleural effusions were also noted. An electrocardiogram showed low voltage and nonspecific ST and T wave abnormalities.

Pertinent laboratory abnormalities included a mild normocytic anemia, moderate leukocytosis with a slight shift to the left, and a markedly accelerated erythrocyte sedimentation rate. A nose and throat culture grew out Proteus mirabilis. Tetracycline was continued, and rapid digitalization was accomplished.

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Indications: For prevention or correction of potassium depletion and hypokalemic alkalosis. Especially useful when thiazide diuretics or corticosteroids cause excessive excretory potassium losses.

Contraindications: Severe renal impairment with oliguria or azotemia, untreated Addison’s disease, adynamia episodica hereditaria, acute dehydration, heat cramps, and hyperkalemia from any cause.

Precautions: In response to a rise in the concentration of body potassium, renal excretion of the ion is increased. With normal kidney function, it is difficult, therefore, to produce potassium intoxication by oral administration. However, potassium supplements must be administered with caution, since the amount of the deficiency or daily dosage is not accurately known. Frequent checks of the clinical status of the patient, and periodic ECGs and/or serum potassium levels should be made. High serum concentrations of potassium ion may cause death through cardiac depression, arrhythmias or arrest. This drug should be used with caution in the presence of cardiac disease. Potassium supplements should be given cautiously to digitalized patients. To minimize the possibility of gastrointestinal irritation associated with the oral ingestion of concentrated potassium salt preparations, patients should be carefully directed to dissolve each tablet completely in the stated amount of water.

Adverse Reactions: Vomiting, diarrhea, nausea and abdominal discomfort may occur with the use of potassium salts. The symptoms and signs of potassium intoxication include paresthesias of the extremities, flaccid paralysis, incontinence, mental confusion, weakness and heaviness of the legs, in blood pressure, cardiac arrhythmias and heart block. Hyperkalemia may exhibit the following electrocardiographic abnormalities: disappearance of the P wave, widening and slurring of QRS complex, changes of the S-T segment, and tall, peaked T waves.

Dosage and Administration: Adults: 1 tablet (20 mEq. each of potassium and chloride) completely dissolved in 3 to 4 ounces of cold water 2 to 4 times daily depending upon the requirements of the patient. The approximate minimum adult daily requirement of potassium is 40 mEq. Deviations from this recommendation may be indicated, since no average total daily dose can be defined but must be governed by close observation for clinical effects.

NOTE: Klorvess should be taken with meals.

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At autopsy, the lungs showed extensive bilateral basilar consolidation. In the right middle lobe there was a 7 cm, thick-walled abscess cavity. A dense, fibrinopurulent exudate extended over the ponsite cistern and left Sylvian fissure, and to a lesser extent, over the remainder of the brain. The exudate extended into the fourth ventricle and covered the choroid plexus. Many nocardial organisms were demonstrated in the consolidated areas of the lung and in the lung abscess and meningeal exudate. There was also a large recurrence of the glioblastoma multiforme.

COMMENT: In this case the nocardial infection became manifest after the brain tumor appeared and radiation therapy had been completed. It is assumed that the right middle-lobe infiltrate of June 1972 was the earliest manifestation of nocardiosis, and that systemic spread of the organisms occurred after corticosteroid therapy was begun. Although recurrence of the brain tumor was noted, the immediate cause of death was thought to be nocardial meningitis and ventriculitis.

RESULTS

The isolates from both cases were identified as N. caviae according to the criteria established by Gordon and Mihm. They were further characterized according to the methods of Bird.

DISCUSSION

To our knowledge, N. caviae has not previously been associated with human disease other than mycetomas. In mycetomas the most likely route of entry for the infecting organisms is through traumatic implantation of contaminated materials into the skin. The patients described in this report most likely acquired their infection by inhalation.

Pathogenicity of soil isolates of N. caviae for laboratory animals has been demonstrated. Smith and Haywood have shown that N. caviae and N. asteroides were of equal pathogenicity for mice when injected intravenously. Mishra and associates confirmed this finding and showed that both of these species were more virulent than N. brasiliensis. They also showed that pretreatment of test animals with cortisone significantly reduced their resistance to all three species inoculated intravenously.

Systemic nocardiosis caused by N. asteroides has a mortality rate of at least 50 percent. Sulphonamides are widely considered to be the drugs of choice for all forms of nocardiosis, but antimicrobial susceptibility studies on the isolate involved may be useful in guiding therapy since some isolates of nocardiae may be resistant to these agents.

This report shows that N. caviae, like the more common members of the genus, N. asteroides and N. brasiliensis, can cause serious and even fatal disease in man.

ACKNOWLEDGMENTS: We wish to express our deep appreciation to Dr. Llilio A. Saarlo, chief of the Mycology Branch of the Center for Disease Control, and to Dr. William Kaplan, chief of the Developmental Mycology Section of the Mycology Branch, for their help in the preparation of this manuscript.

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ANNOUNCEMENTS

13th Workshop in Electrocardiology

The Rogers Heart Foundation will present the 13th Workshop in Electrocardiology for cardiac nurses and interested physicians at the Tides Hotel and Bath Club, Redington Beach, Florida, April 18-22. Dr. Henry J. L. Marriott is course director. For information, please write the Rogers Heart Foundation, St. Anthony's Hospital, St. Petersburg, Florida 33705.

Inhalation Therapy Course (XIII)

The Inhalation Therapy Course sponsored by the Office of Continuing Education, Tufts University School of Medicine, will be held April 29-May 3 in the Dental Health Sciences Building, Boston. Applications and information may be obtained from Dr. Maurice S. Segal, Office of Continuing Education, Tufts University School of Medicine, 136 Harrison Avenue, Boston 02111.

Psychosocial Aspects of Pulmonary Disease

Of interest to respiratory therapists and allied health professionals will be the seminar, Psychosocial Aspects of Pulmonary Disease to be held April 4 and 5 at the City Line Holiday Inn, Philadelphia. The seminar is sponsored by the Delaware Valley Chapter, American Association for Respiratory Therapy. For information: Ms. Susan Weiner, Respiratory Therapy Department, Hospital of the University of Pennsylvania, Philadelphia 19104.

Seventh Ten-Day International Teaching Seminar on Cardiovascular Epidemiology

The Council on Epidemiology and Prevention, International Society of Cardiology, will present its Seventh Ten-Day International Teaching Seminar on Cardiovascular Epidemiology in Hungary, August 4-16. Approximately 30 Fellows can be accepted. Nominees should be at the postdoctoral level, with some residency training or its equivalent, and be interested in cardiovascular epidemiology. Limited funds may be available to pay room and board and for partial assistance with travel costs for accepted Fellows. Fluency in English is required. Deadline for applications is May 1. For information, write Dr. Jeremiah Stamler, Northwestern University Medical School, 303 East Chicago Avenue, Chicago 60611.