Treatment:

Patient was originally administered isoniazid, rifampin, pyrazinamide, and ethambutol for 7 days per week for 8 weeks, followed by isoniazid and rifampin 7 days per week for 24 weeks. After two months he returned to the hospital, concerned that he had been "coughing up blood" over the previous 3 days. In addition to hemoptysis, he revealed that, since his previous visit, he had continued to feel malaise, was continuing to lose weight, and had been experiencing night sweats.
The emergency room physician immediately transferred the patient for isolation in a local hospital. A repeat chest radiograph revealed progressive bilateral fibronodular disease with a "miliary" pattern. The patient was given a 20-month regimen of levofloxacin, kanamycin, cycloserine, pyrazinamide and prothionamide. Following completion of therapy, closure of the destruction cavity was found with local pneumofibrosis.

Discussion

With 1.3 million deaths annually, tuberculosis remains one of the leading causes of mortality worldwide. The emergence of multidrug- and extensive drug resistance (MDR-TB and XDR-TB, respectively) is a major public health problem that threatens progress made in TB care and control. Drug resistance arises due to improper use of antibiotics in drug-susceptible TB patients, which includes administration of inappropriate treatment regimens and failure to ensure that patients complete the whole treatment course.
Essentially, drug resistance arises in geographic locales with weak TB control programs. A patient who develops active disease with a MDR-TB strain can transmit this form of TB to other individuals.

Treatment of MDR-TB

In general, treatment of MDR-TB is extended to 20 months and an individualized treatment regimen often is required. The principles of management include use of aggressive regimens with at least five drugs that are likely to be effective.
Fluoroquinolones play a key role in resistant TB, and the later generation fluoroquinolones (e.g. levofloxacin or moxifloxacin) are considered to be the most effective ones. Use of an injectable agent, such as capreomycin or an aminoglycoside (e.g.kanamycin), have been shown to predict culture conversion and survival.
However, resistance to aminoglycosides is becoming increasingly common. The regimens may be reinforced by pyrazinamide and ethambutol, as these contribute by increasing the regimen's activity or by preventing resistance to more active agents.
The current WHO guidelines on treatment regimens for MDR-TB recommend an intensive phase of 8 months and total treatment duration of 20 months for most patients.