

Multidrug-resistant tubercular cold abscess: a rare form of extrapulmonary MDR-TB

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Abstract

Although prevalence of drug-resistant pulmonary tuberculosis is increasing globally, only a few cases of drug-resistant extrapulmonary tuberculosis have been reported globally so far. Tubercular cold abscess is a form of extrapulmonary tuberculosis that is responsible for a significant morbidity and mortality. It is more challenging to the patient and clinician if the same occur due to multidrug-resistant strain of *Mycobacterium*. We report a case of multidrug-resistant tubercular cold abscess that is extremely rare in the literature.

KEY WORDS: Multidrug-resistant cold abscess, multidrug-resistant extrapulmonary tuberculosis, multidrug-resistant tuberculosis

Introduction

Multidrug-resistant tuberculosis (MDR-TB) is a form of tuberculosis that occurs due to a strain of *Mycobacterium tuberculosis* that is resistant to at least isoniazid and rifampicin with or without any other first-line antitubercular drugs. World Health Organization (WHO) estimates that, globally, there were approximately 450,000 new cases of MDR-TB and 170,000 deaths due to it in 2012.^[1] In India, MDR-TB accounts for 2.2% and 15% of the newly detected smear-positive TB and retreatment TB cases, respectively.^[1] Although pulmonary form of MDR-TB is widely reported but extrapulmonary forms of MDR-TB are rarely reported.^[2-6] To the best of our knowledge, only two cases of tubercular abscess due to MDR-TB are reported previously.^[5,6] We report an extremely rare but treatable form of MDR-TB.

Case Report

A 25-year-old male farmer from a rural area presented with insidious onset swelling and heaviness over posterior

aspect of right side of lower chest and lumbar region. The patient had intermittent low-grade fever, loss of appetite, and generalized weakness. There was no history of cough, expectoration, hemoptysis, or breathlessness. He had sputum-positive pulmonary TB 1 year ago and for that he had been treated with isoniazid, rifampicin, pyrazinamide, and ethambutol for initial 2 months and with isoniazid and rifampicin for next 4 months. The results of follow-up sputum acid-fast bacillus (AFB) strain examination at the end of second, fourth and sixth month were negative, and the patient was declared cured at end of 6-month therapy. He had no history of any comorbidity or addiction.

On general examination, it was found that there was mild pallor and body temperature was raised (100.4 °F). Body weight was 50 kg. There was a huge fluctuant nontender, nonpulsatile swelling with ill-defined margin in right paravertebral region extending from infrascapular area up to right loin [Figure 1]. Surface temperature of the swelling was not raised compared to the opposite side of body. The result of transillumination test was negative. The findings of examination of respiratory, neurological, and other systems were normal.

Investigation revealed hemoglobin levels to be 10.4Gm%; total leukocytic count, 11200/mm³ (N64%, L24%, E4%, M8%, BO%); ESR, 110 mm in first hour. Fasting blood glucose was 98 mg/dl. The result of Mantoux test was positive (14 mm × 12 mm) but that for sputum examination was negative for AFB. He was HIV negative. PA chest X-ray revealed few fibrotic area occupying right upper and left lower zone, but X-ray of dorsal spine [Figure 2] revealed fusiform swelling extending from eighth thoracic vertebra up to 12th thoracic

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Figure 1: Photograph showing huge right para vertebral swelling due to the cold abscess.



Figure 2: X-ray of dorsal spine showing fusiform swelling extending from 8th thoracic vertebra up to 12th thoracic vertebra with narrowing of spaces between 11th and 12th thoracic vertebrae.



Figure 3: CT thorax showing paravertebral abscess with vertebral erosion and cystic collection in the subcutaneous plane of right paravertebral region.

vertebra with narrowing of spaces between 11th and 12th thoracic vertebrae. Computed tomography scan of thorax [Figure 3] revealed features suggestive of paravertebral abscess around sixth thoracic to first lumbar vertebra with corresponding erosion of 10th to 12th thoracic vertebrae. There was also a cystic collection in the subcutaneous plane of right paravertebral region. Diagnostic and therapeutic aspiration of pus from the nondependent area of the cystic collection was carried out, which was negative for gram stain and pyogenic culture but positive for AFB smear and mycobacterial culture by radiometric method (BACTEC). The patient was suspected as a case of MDR-TB. By method of real-time PCR on GeneXpert platform, the aspirated pus detected mycobacterial TB with rifampicin resistance. Drug sensitivity by radiometric method showed bacilli were resistant to isoniazid and rifampicin but were sensitive to ethambutol, kanamycin, ethionamide, levofloxacin, cycloserine, and para aminosalicylic acid. The patient was put on second-line antitubercular drugs with kanamycin, levofloxacin, ethionamide, cycloserine, pyrazinamide, and ethambutol.^[7] He tolerated the drugs well, improved symptomatically, and became afebrile within 1 month. Till 6-month follow-up he was gaining body weight and there was no recurrence of symptom or pus collection. He is continuing drug treatment.

Discussion

An abscess is a collection of pus within the body. A “cold abscess” is cold because it is not accompanied by the classical signs of inflammation. Cold abscesses are almost always a sequel of tubercular infection anywhere in the

body. It usually occurs in association with vertebral TB after hematogenous spread and develops as an exudative lesion due to hypersensitivity reaction to mycobacterial TB.^[6] The exudate is composed of serum, leucocytes, caseous material, bone fragments, and tubercle bacilli.^[6] It penetrates ligaments; follows the path of least resistance along fascial planes, blood vessels, and nerves to distant sites from the original bony lesion; and forms a swelling.^[6] Tubercular cold abscess is a form of extrapulmonary TB. Extrapulmonary TB accounts for approximately 15% of the TB cases among immunocompetent hosts and for 50%–70% of cases of TB occurring in immunocompromised individuals, especially in persons with HIV. Multidrug-resistant tubercular cold abscess in an immunocompetent person is rare in the literature.^[5,6] Contrary to the previously reported MDR, tubercular abscess presentation was different in our case. Our patient had cold abscess involving thoracolumbar vertebra extending to paravertebral subcutaneous space due to MDR-TB. He had undergone antitubercular treatment for sputum-positive pulmonary tuberculosis 1 year ago.

Rapid diagnosis of MDR-TB requires strong clinical suspicion and timely molecular, microbiological, and histopathological evaluation, particularly in extrapulmonary cases. Treatment of MDR-TB is very difficult in context to tolerability of the second-line antitubercular drugs, toxic effects of the drugs, and continuation of therapy. Till 6 months, response to the second-line drug therapy was satisfactory in our case.

Conclusion

This report may create awareness about the possibility of MDR-TB in extrapulmonary sites. It also emphasizes the need for rapid diagnosis by genotypic/molecular drug sensitivity testing (GeneXpert or Line probe assay) to detect MDR-TB, particularly when extrapulmonary site yields mycobacteria in cases having history of antitubercular therapy.

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