WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 7.523
Volume 6, Issue 10, 34-38. Review Article ISSN 2277– 7105

LUNG INFECTIONS MIMICKING CANCER: ANTIBIOTICS EFFICIENCY

Dr. J. Fatihi*[1], S. Bellasri[2] and H. Janah[3]

[1]Department of Internal Medicine, 5th Military Hospital, Guelmim, Morocco.
[2]Department of Radiology, 5th Military Hospital, Guelmim, Morocco.
[3]Department of Pneumology, 5th Military Hospital, Guelmim, Morocco.

Article Received on
07 July 2017,
Revised on 28 July 2017,
Accepted on 18 August 2017
DOI: 10.20959/wjpr201710-9353

***Corresponding Author**
Dr. J. Fatihi
Department of Internal Medicine, 5th Military Hospital, Guelmim, Morocco.

ABSTRACT

We present two cases of lung infections simulating cancer. Initial clinical symptoms, chest radiographs and computed tomography images were suggestive of malignancy. CT-guided thoracic biopsy surprisingly established pulmonary infections, tuberculosis in the first case and actinomycosis in the second. The two patients were both successfully managed with anti-infectious drugs.

KEYWORDS: Lung infections, cancer, tuberculosis, actinomycosis, antibiotics.

INTRODUCTION

Lung infections mimicking malignancy are not uncommon. Different lung infections have radiologic signs and symptoms simulating lung cancer and making diagnosis difficult. The infections could be bacterial, mycobacterial, fungal, parasitic or rarely viral.[1,2] The clinical and image based diagnosis can be indistinguishable from thoracic malignancy. Differentiation can be challenging and pathological diagnosis is often necessary for specific diagnosis and treatment. We report two cases of pulmonary infections who presented with findings suggestive of lung cancer. The infection diagnosis was determined by computed tomography transthoracic lung biopsy and the course was favorable with antibiotic treatment.

First case presentation

A 35-year-old woman without prior medical problems presented with a 2 month history of non-productive cough, intermittent fever and weight loss of 6 kg in the past 2 months. She never smoked and her immune status was normal. Her physical examination was

unremarkable. Routine laboratory investigations were normal. The patient with Bacillus-Calmette-Guerrin vaccine (BCG) scar had a 20 mm induration on the tuberculin skin test (PPD test). The chest radiograph showed nodular infiltrate of the left upper lobe (Fig.1A). Further evaluation with CT scan demonstrated a 4.1 by 3.4 cm homogenous enhancing mass in the left apical lobe suggesting malignancy (Fig.1B). A CT-guided biopsy was done and histpathological examination revealed granulomas which were suggestive of tuberculosis (TB). The patient responded well to standard anti-TB-therapy composed of rifanpicin, isoniazid, pyrazinamide and ethambutol.

Second case presentation

A 73-year-old male patient, ex-smoker was referred for further investigation of a right parahilar lung mass discovered on a chest radiograph performed because of chest pain, dyspnea and productive cough with weight loss. Physical examination found a feverish patient with 38°c, diffuse rhonchi, painful right chest percussion and evidence of poor oral hygiene. Routine laboratory investigations indicated leukocytosis predominantly neutrophilic and elevated C-reactive protein (CRP), mycobacterial tests and serological testing for immunodeficiency virus were negative. The chest radiograph showed shadowing in the right parahilar zone (Fig.2A). Computed tomography (CT) scan of the thorax revealed a parenchymal mass in the right upper lobe with mediastinal adenopathy suspected as a malignancy (Fig.2B). A CT-guided biopsy was done and was complicated by fistula and parietal abscess (Fig.2C). To our surprise the histopathology revealed areas of patchy inflammation with formation of small abscesses containing ‘sulphur granules’, a pathological finding suggestive of actinomycosis (Fig.2D). The patient was treated with intravenous penicillin for 15 days and then given oral Amoxicillin 3gr/day for six months. The patient responded well to the above treatment, this was confirmed in the follow-up radiological examination at the end of six months.

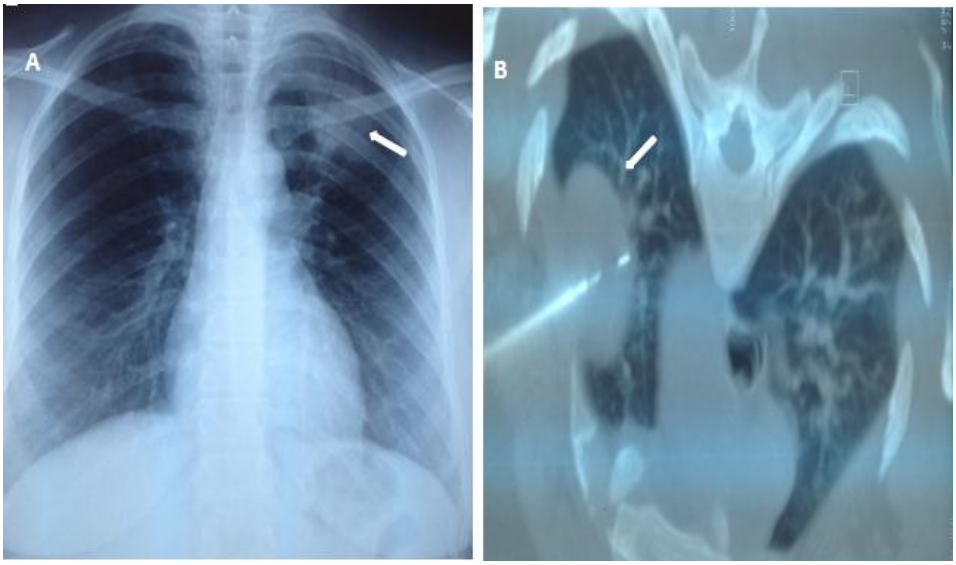

Figure 1: (A) Chest x-ray: left upper lobe shadowing; (B) Pulmonary mass CT-guided biopsy.

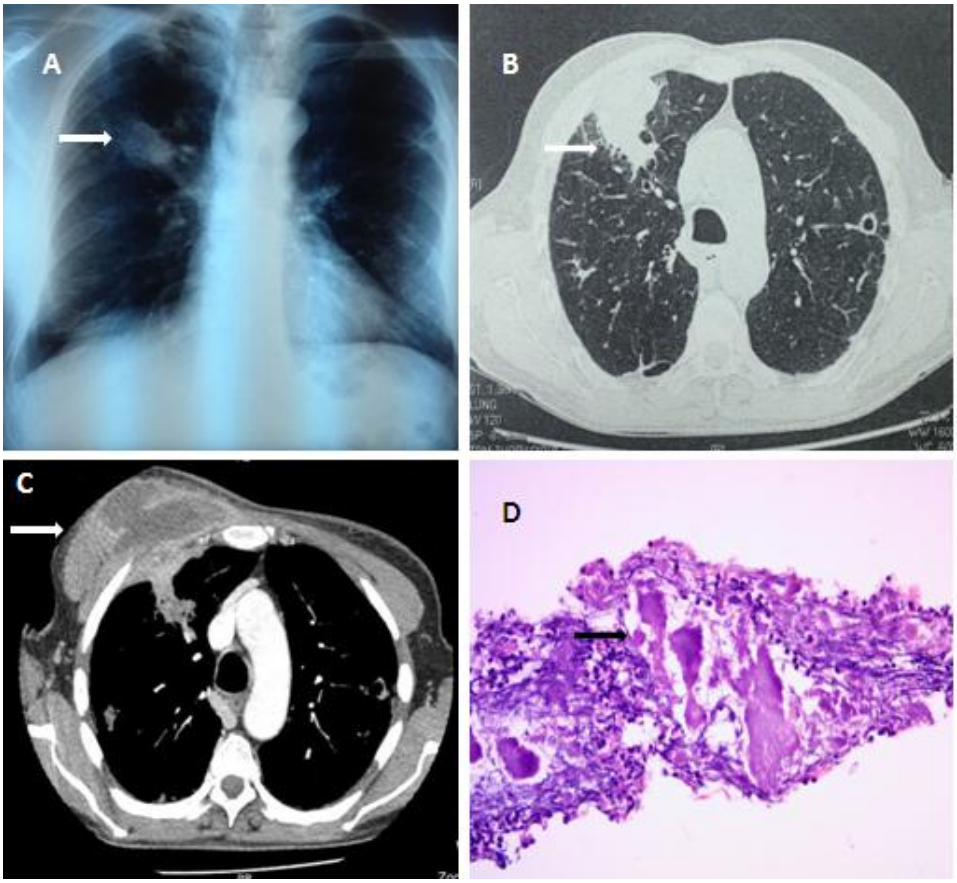

Figure 2: (A) Chest x-ray: right parahilar shadowing; (B) CT-scan: right upper lobe mass; (C) Fistula with parietal abscess after CT-guided biopsy; (D) Actinomycosis sulphur granules.

DISCUSSION

The lung is a frequent target of infection. Pulmonary infections occasionally present with clinical and radiological features simulating thoracic malignancy. These infections may be bacterial, mycobacterial, fungal, parasitic or rarely viral.[2] In some cases, clinical and radiological distinction between infectious disease and cancer can be challenging and look-alike infections are diagnosed incidentally during the evaluation of a presumptive malignant process.

Pulmonary tuberculosis is currently one of the most important infection related morbidity and mortality causes in the world and its myriad presentations continue to challenge physicians' diagnostic skills. Parenchymal pseudotumoral tuberculosis is uncommon and often radiographically confused with lung cancer, especially in the regions in which the tuberculosis is endemic.[3] On the other hand, lung cancer is also one of the leading mortality causes worldwide.

Pulmonary tuberculosis has varied presentations which include tuberculoma, cavitary involving the upper lobes and exudative appearances. Benign-type (diffuse, central, or lamellar) calcifications may be clues to the imaging diagnosis of tuberculosis over malignancy.[4] However, tuberculomas can appear mass-like and tend to be mistaken for malignancy if typical characteristics, such as upper lobe involvement and calcification, are absent. When the combination of clinical, laboratory, and imaging findings does not help to exclude malignancy, transthoracic needle biopsy can to lead to a timely diagnosis. Our first patient had a left apical lobe mass suggesting malignancy. Differentiation from lung cancer based on imaging findings alone was challenging. Pathological diagnosis on CT-guided biopsy revealed caseous granulomatous inflammation. Under anti-tubercular therapy the evolution was favorable with the disappearance of functional complains and radiological cleaning.

Also in the second case, the non-specific clinical and radiological presentations lead to misinterpretation as malignancy rather than an infective process. The diagnosis of actinomycosis was a "good surprise" in pathological study of CT-guided transthoracic lung biopsy.

Actinomycosis is a chronic suppurative granulomatous infection caused by non-acid-fast anaerobic Actinomyces spp.[5] About 15% of the infections caused by Actinomyces involve

the thorax. Because of its non-specific clinical and radiologic presentation, the disease is commonly confused with conditions such as chronic suppurative lung diseases and malignancy. Typical presenting features are chest pain, productive cough associated with skin changes, fistulas and underlying pleural and bony abnormalities.[6] Up to 25 % of cases with thoracic actinomycosis are initially mis-diagnosed as malignancy or tuberculosis giving the similar radiological picture.[7] Imaging is useful in evaluating the exact location and extent of disease to help direct accurate biopsy and to monitor response to treatment. Invasive investigations (e.g., CT-guided needle biopsy) are often necessary to obtain samples for histopathological and microbiological identification.[8]

CONCLUSION

Because of their increasing prevalence, pulmonary infections particularly tuberculosis should be considered in the differential diagnosis of intrathoracic masses suggestive of malignancy.

CONFLICT OF INTEREST

None

REFERENCES

1. Agarwal R, Srinivas R, Aggarwal AN. Parenchymal pseudotumoral tuberculosis: Case series and systematic review of literature, Respir Med, 2008; 102: 382–389.
2. Madhusudhan KS, Gamanagatti S, Seith A, Hari S. Pulmonary infections mimicking cancer: report of four cases. Singapore Med J, 2007; 48(12): e327.
3. Dalar L, Sökücü SN, Karasulu AL, Altin S. Tuberculosis Can Mimic Lung Cancer: A Case Series. Turk Toraks Derg, 2013; 14: 30-5.
4. Tan CH, Kontoyiannis DP, Viswanathan C, Iyer RB. Tuberculosis: A Benign Impostor. AJR, 2010; 194: 555–561.
5. Kobachi Y, Yoshida K, Miyashita N, Niki Y, Matsushima T. Thoracic actinomycosis with mainly pleural involvement . J Infect Chemother, 2004; 10: 172-177.
6. Prakash V, Kant S, Mishra AK, Verma AK, Shukla S, Yadav S. Pulmonary actinomycosis masquerading as a malignant lung tumor. CHRISMED J Health Res, 2015; 2: 298-301.
7. Gupta P, Dogra V, Goel N, Chowdhary A, Prasad R, Gaur S.N. An Unusual Cause of a Pulmonary Mass: Actinomycosis. Indian J Chest Dis Allied Sci, 2015; 57: 177-179.
8. Mabeza G.F, Macfarlane J. Pulmonary actinomycosis. Euro Respir J, 2003; 21: 545-551.