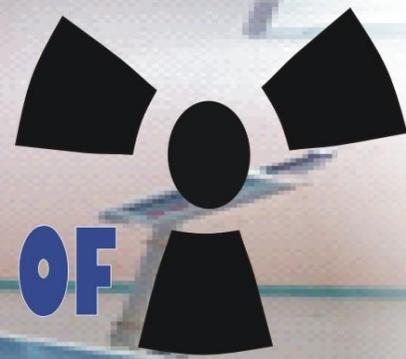


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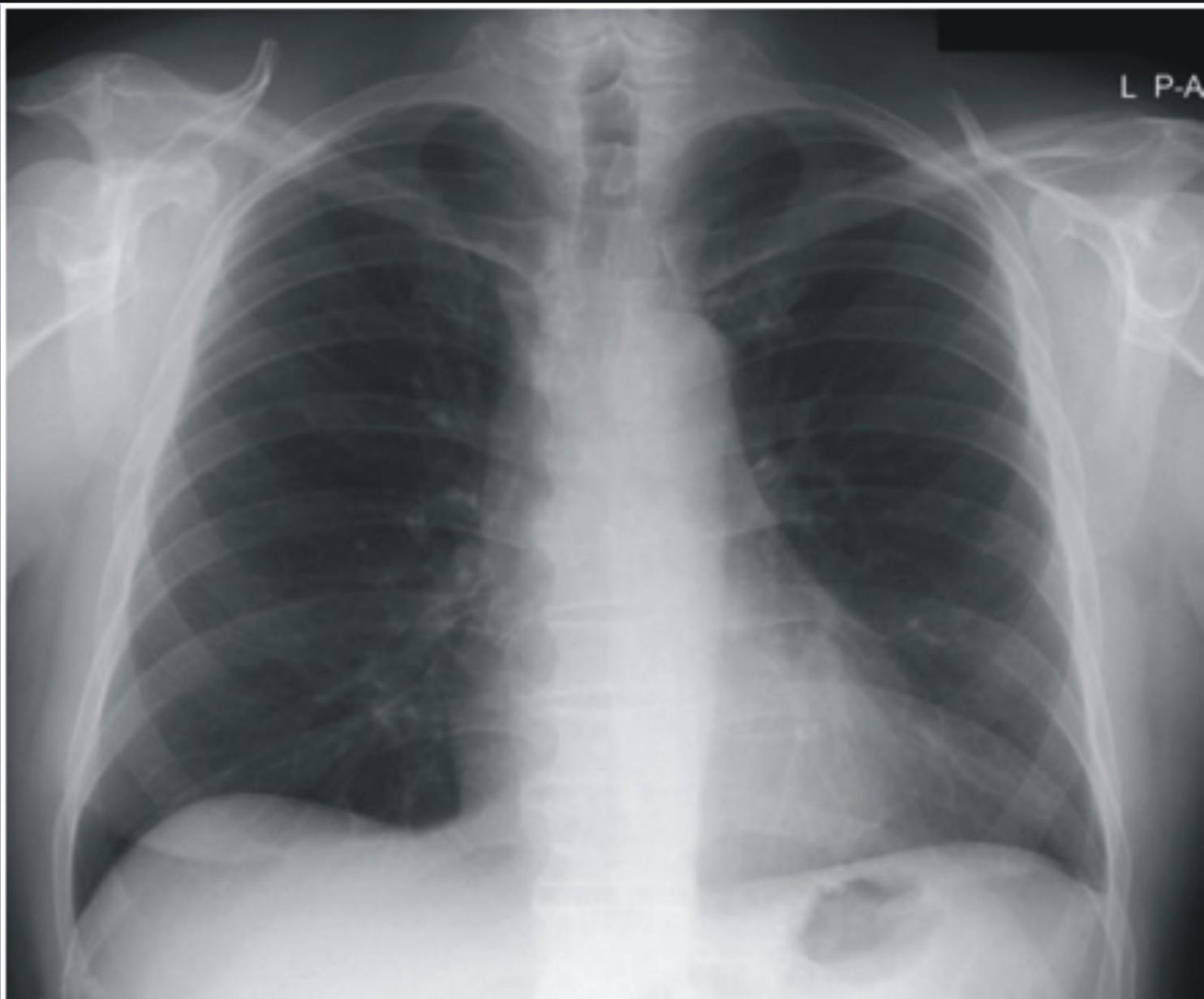


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Assessment of Common Chest X-ray Findings in Immuno-compromised Patients in Lagos Metropolis, Nigeria

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ABSTRACT

Background: Retroviral diseases such as the Acquired Immuno-Deficiency Syndrome (AIDS), is characterized with immune suppression leading to opportunistic infections (OI). This immune deficiency predominantly involves the lungs, gastrointestinal tract and central nervous system.

Purpose: To assess the prevalence of a variety of infections associated with immune compromised patients (ICPx) using chest radiographs.

Methods: A retrospective study of 543 (44.75 % male and 55.25 % females) postero-anterior (PA) and the antero-posterior (AP) chest radiographs of HIV/AIDS patients for a period of 5 years (2008-2013), selected at random from the X-ray departments of 5 hospitals within Lagos Metropolis.

Results: The result showed that about 395 (72.44 %) radiographs presented with various infectious patterns while 148 (27.56 %) radiographs demonstrated normal radiographic patterns. Subjects with pulmonary tuberculosis (30.94 %) were presented with the most predominant opportunistic infections (OI), followed by pneumonia (17.12 %), pleural effusion (12.89 %), kaposi's sarcoma (8.66 %). Other conditions such as cardiomegaly, atelectasis and lung consolidations constituted 3.13 %.

Conclusion: Most HIV/AIDS patients in Lagosmetropolis presented with episodes of PTB as evidenced on the chest radiograph. Also, as important as the chest radiograph is in detecting lesions, some patients presented with normal chest x-ray findings despite a high suspicion of pulmonary disease.

Key words: Immuno-compromised patients, chest radiographs, patterns, Lagos

Introduction

Retroviral diseases such as the acquired immuno-deficiency syndrome (AIDS), is characterized with profound immune suppression of the human body leading to opportunistic infections (OI). This immune deficiency predominantly involves the lungs, gastrointestinal tract and the central nervous system. An understanding of the common presentations of pulmonary OIs and AIDS-related pathology is therefore very important radiographically, since about 80 % of AIDS patients will have respiratory disease during the course of their illness [1], hence, the significance of chest radiograph as a diagnostic

tool for proper and adequate assessment of these complications.

Despite modern advances in radiographic modalities such as the computed tomography (CT) scan and the limitations of conventional chest radiography in terms of sensitivity and specificity, the conventional chest radiograph still remains the first line of radiographic diagnostic evaluation of ICPx and also a valuable tool to begin the formulation of differential diagnosis [2].

With the alarming prevalence of HIV/AIDS in Nigeria, practicing physicians in Lagos need an evidence-based literature which synthesizes and highlights which of the wide spectrum of opportunistic infections is mostly associated with HIV/AIDS patients to aid their management of patients conditions. This study sought to provide quantitative data on the incidence and prevalence of AIDS-related conditions in Lagos metropolis.

Material and methods

A retrospective evaluation of about 543 postero-anterior (PA) and antero-posterior (AP) chest radiographs of HIV/AIDS patients, retrieved from 5 hospitals within Lagos metropolis in Nigeria. The selected hospitals were in different regions of Lagos State, giving a fair representation of the healthcare institutions across the state. The radiographs were obtained within a period of 5 years (2008–2013) in the respective hospitals. The difference in the number from each institution reflects the level of patronage by the AIDS patients as well as the standard of archival system practiced in the health institution. Radiographs were viewed using an illuminator and were accessed for the different pathology in addition to the sex of the patients, clinical information and provisional diagnosis obtained from their request cards. Request forms without clinical details were not used and radiographs without report sheets were excluded from the study. Data collected were represented in tabular formats.

Results

The frequencies of radiographs included in the study and the centres involved in the study are shown in Table 1. The distribution of opportunistic infections in the studied population is shown in Table 2. Radiographs characterized with patterns of PTB recorded the highest percentage (30.94 %). This is closely followed by radiographs with normal findings (27.26 %). Other pathologies include pneumonia (17.12 %), pleural effusion (12.89 %), and Kaposi's sarcoma (8.66 %). Cardiomegaly, atelectasis and consolidation of the lungs, grouped as others constituted about 3.13 %. Also, the women

presenting with HIV/AIDS recorded about 55.3 % higher than men (44.7 %) in the study sample.

From the 543 radiographs reviewed, about 30.94 % cases indicated a predominant pattern of PTB. This result is in agreement with [3], who inferred that PTB is the commonest chest x-ray finding among the African immune-compromised patients. The results of this study also indicate that about 27.26 % of the patients presented with normal chest radiographs, despite high suspicion of pulmonary disease which is not in line with the similar work of [1]. This significant increase of 27.26 % obtained in the present study could probably be attributed to low sensitivity of chest radiographs in detecting pulmonary infections, especially in the early stages of infections on pattern recognition. This is dangerous because disease not obvious on the chest film might allay practitioners' fears and by false reassurance, delay diagnosis.

Only 8.66 % of the cases presented with Kaposi's sarcoma. This reduction decrease in cases recorded in our study population could probably be attributed to be as a result of the introduction of effective HIV treatment and safer sexual practices.

Our result revealed that women recorded about 55.3 % higher than men (44.7%) on the gender distribution of AIDS patients. This agrees with a similar work of [4], which holds that women are more infected than men owing to probable reasons such as the higher viral load in semen being more than that of vaginal mucus, an immature vaginal tract which is more easily infected and semen tends to stay longer in the vagina and some other factors in similar works.

Conclusion

PTB (30.94 %) is the disease mostly associated with immune-compromised patients in Lagos metropolis. Also, clinicians have to be vigilant as over a quarter (27.26 %) of the study population presented with normal chest radiographs despite a high suspicion of pulmonary disease.

Conflict of interest: None declared

Table 1: Number of radiographs collected from each hospital

S/N	Hospital	Frequency	Percentage (%)
1	Me-cure Health Care Limited, Oshodi	75	13.81
2	Lagos State University Teaching Hospital (LASUTH)	80	14.73
3	Lagos University Teaching Hospital (LUTH)	92	16.94
4	Federal Medical Center, Ebute-metta	127	23.39
5	General Hospital, Marina, Victoria Island (VI)	169	31.12
Total		543	100

Table 2: Pathological findings

Findings	Male (%)	Female (%)	Total (%)
PTB	73	95	168 (30.94)
Pneumonia	40	53	93 (17.12)
Pleural effusion	35	35	70 (12.89)
Kaposi's sarcoma	27	20	47 (8.66)
Others	7	10	17 (3.13)
Normal radiographs	61	87	148 (27.26)
Total	243 (44.75)	300 (55.25)	543 (100)

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