

## A 32 year old female with suspected pulmonary kaposi's sarcoma, secondary to HIV infection

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### Introduction

HIV/AIDS is a huge problem for Africa generally, and Southern Africa in particular. Adult HIV infection rates are thought to be as high as 40% in some countries<sup>1</sup> with the infection rate in Malawi estimated to be around 15.3%.<sup>2</sup> Thousands will die in Malawi this year as a result of the disease. This case study describes a patient with pulmonary kaposi's sarcoma (KS), an illness commonly associated with HIV infection.

HIV infection in itself does not cause illness. Instead, it causes a defect in cell mediated immunity, allowing a range of opportunistic infections to develop. As a result, diseases that were once relatively rare in the general population have now become very common – KS is one such disease.

KS is a malignant, multifocal neoplasm of reticuloendothelial cells. Historically it affected mostly elderly men of eastern European and Mediterranean origin. Although essentially incurable it responded well to radiation and chemotherapy, and patients could be expected to survive for years, even decades. This variant of KS is now known as 'classical KS'.

During the 1950s, well before the first reported cases of HIV, KS was found to be common in some African populations. Known as 'endemic KS', this variant affects both adults and children and sufferers have a life expectancy of months or years.

However, with the outbreak of the HIV/AIDS pandemic, a new, far more aggressive form of the disease has become extremely common. Known as 'epidemic KS', it is significantly less responsive to conventional treatments and sufferers often die within a few months. It is currently thought that KS is caused by a sexually transmitted virus known as HHV-8. In most carriers it does not cause symptoms, but in immunocompromised hosts the disease is able to progress.

KS is now the most frequently occurring tumour in central Africa, accounting for 50% of tumours reported in men in some countries.<sup>3</sup> Between 10% and 35% of patients with AIDS will develop KS during the course of their disease.<sup>4,5,6</sup>

KS most commonly affects the skin, appearing as multiple firm purple-blue or reddish brown patches. Typically they appear first on the hands and feet and progress up the arms and legs. However, visceral involvement is also common, the lungs being affected in approximately 20% of patients with cutaneous KS.

Symptoms of pulmonary KS include dyspnoea, cough, haemoptysis, fever, bronchoconstriction and chest tightness. Radiographs can show many different appearances, but the most frequently described are:<sup>4,5,6</sup>

- ◆ Ill defined nodules, randomly scattered or spreading from hila along pulmonary vessels and bronchi;
- ◆ Hilar and mediastinal lymphadenopathy;
- ◆ Large pleural effusions.

There are, however, a large number of HIV/AIDS opportunistic infections which produce similar appearances. In immunocompromised patients, pulmonary tuberculosis in particular can mimic many other pathologies (or show no

radiographic signs at all). This presents huge diagnostic difficulties for the clinical officers who have very little training in interpreting radiographs.

### Clinical presentation

The patient was sent to the Central Hospital from a smaller district hospital with acute shortness of breath. Whilst this type of case is usually managed at the district level, the patient had asked to be referred in order to be closer to her family. Owing to the acute shortage of trained nurses in Malawi, most of the basic nursing care on the wards (and often provision of food) is carried out by relatives. Being treated in a hospital in their home area is therefore even more important to patients here than it is in the UK.

The patient was a 32 year old woman who bought and sold household goods to provide a small income. She had once been married but her husband had abandoned her when she became sick six months previously. While she had been pregnant four times, two pregnancies had ended in abortion and one child had died, leaving her with one surviving child.

On examination the patient looked chronically ill and emaciated but was afebrile. Auscultation of her chest revealed coarse crepitations bilaterally and decreased air entry to her left lower lobe, whilst on percussion there was dullness of both bases.

### Philips first to deliver 16-slice CT scanner

Philips Medical Systems has announced it is the first to begin commercial shipments of its Mx8000 IDT 16-slice CT scanner. Philips was the first company to obtain FDA marketing clearance for 16-slice scanners and plans to install more than 100 scanners worldwide by the end of the year.

The Philips Mx8000 IDT CT scanner is up to 38 times faster than a conventional single-slice scanner. With 16-slice technology, smaller arteries and minute lesions can be seen more easily allowing more accurate diagnosis across a broader range of conditions. The scanner also includes dose reduction technology.

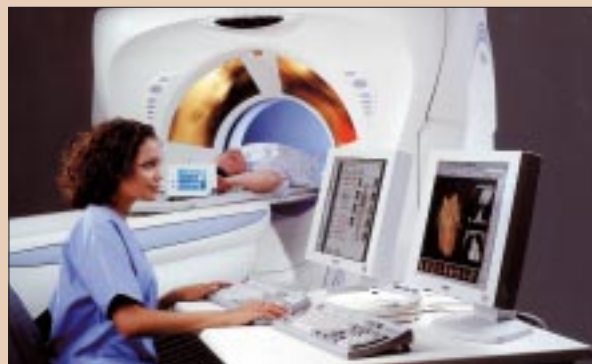




Figure 1: The patient's chest radiograph. Note the large pleural effusion on the left and the signs of right middle lobe collapse.

The skin had multiple KS lesions. Generalised oedema was found which was suspected to have been caused by KS lesions blocking lymphatic drainage. Examination of the mouth revealed extensive candidiasis (oral thrush), another common opportunistic infection in HIV.

The patient had previously been counselled and tested for HIV and was aware that she was HIV positive.

### Radiological examination

The patient was referred for chest radiography (see Figure 1). A postero-anterior projection was obtained using a high kV technique in order to achieve better penetration of the mediastinum. This had the added advantage of allowing a shorter exposure time which was useful since the patient's condition prevented her from holding her breath.

### Radiological appearances

Since February 2002 there has been no radiologist at the hospital, in fact the only radiologist in the country is based at a hospital about 300 miles away. Therefore, radiographic interpretation is mainly carried out by clinical officers (paramedics who are the mainstay of the Malawian hospital system). However, in this particular patient's case, the clinical officers were lucky enough to have been assisted by a doctor.

Their findings were as follows:

- ◆ Large left sided pleural effusion occupying more than half of the left lung field and causing tracheal deviation;
- ◆ Collapse of medial basal lobule of right middle lobe;
- ◆ Hilar lymphadenopathy.

These findings supported a diagnosis of pulmonary KS. Possible differential diagnoses could be fungal infection, pulmonary tuberculosis or pneumocysti carini pneumonia.

In developed countries, it is possible that bronchoscopy would have been considered to confirm the diagnosis but unfortunately it is not available here. In addition, given the very limited range of treatment options available in Malawi, bronchoscopy would be unlikely to significantly alter the management of the patient.

### Other investigations

The patient's haemoglobin level was checked and found to be 7mg/dl. The normal range for a female is 12-16mg/dl although, due to poor diet, frequent pregnancies, recurrent malaria and worm infestations, the majority of the general Malawian female population has a Hb of around 9-10mg/dl.

A diagnostic and therapeutic tap was carried out on the pleural effusion. Approximately two litres of bloody pleural fluid was drained and sent to the laboratory for analysis. Cytology and protein levels both supported the diagnosis of pulmonary KS. No Acid Alcohol Fast Bacilli (AAFB) were found in the fluid, ruling out a differential diagnosis of pulmonary tuberculosis.

### First Philips Bi-plane Allura system in Europe installed at QMC

A departmental celebration for the official handover of a Philips' Bi-plane Allura cardiac system – the first in Europe to be installed – has been held at Queen's Medical Centre, Nottingham.

The new system features Philips' fully integrated digital imaging, based on CCD technology and offering consistent high speed, high resolution imaging with a true 1024 matrix and as many as 50 frames per second in biplane. It also uses the award-winning MRC x-ray tube with SpectraBeam technology, which allows the highest filtration without compromising image quality.

In addition, the Allura utilises SyncraPlus for tableside adjustment of dose levels, SyncraView for instant feedback on actual dose levels and it provides a dose report, recording the cumulative fluoro and exposure dose. Its unique BodyGuard anti-collision system lets you safely use the Integris Allura at full speed



Shown here – front row, from left: Ruth Harvey, Account Manager, Philips Medical Systems; Dr. Tim Jaspan, Consultant Neuro-radiologist; Steve Cropper, Northern Regional Sales Manager, Philips Medical Systems; John MacDonald, Chief Executive, Queen's Medical Centre; Professor Alan Moody; and Dr Tony Goddard, Consultant Neuro-radiologist.

Middle row, from left: Helen Cable, Staff Nurse; Ellen Johnson, Staff Nurse; Dr. Norman McConachie, Consultant Neuro-radiologist; Janice Hunter, Senior Radiographer; Jean Croft, Sister; and Mick Brojaka, Portering Manager.

Back row, from left: Keith Hollis, Radiology Services Manager; John Bamkin, Superintendent Radiographer; David Pye, Radiation Protection Advisor; Dr. Robert Lenthall, Consultant Neuro-radiologist; Dr. Simon Whitaker, Consultant Radiologist; and Matthew Bishop, Physicist.

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## Treatment

Vincristine is often used to treat cutaneous KS and has limited benefits for sufferers of pulmonary KS. However, despite being sold by the hospital at the heavily subsidised price of mk 4500/\$64 for an initial course of treatment (the standard price in commercial pharmacies is mk11400 (US \$163), this was still too much for the patient to afford. Most people in Malawi live on less than \$2 a day.

Ideally the patient would also have received antiretroviral therapy to slow down the progress of HIV but these are far too expensive for the majority of people and not widely available in Malawi. The patient was therefore treated with Phenobarbitone for sedation, Diclofenac for pain relief, Ketoconazole for the oral candidiasis, and oxygen therapy to relieve the breathlessness.

It was planned that when the patient's condition had stabilised she would be discharged to a 'home-based care' scheme. However, after 11 days in hospital she died from suspected respiratory failure.

## Conclusion

KS is one of many opportunistic infections related to HIV. HIV/AIDS is having a devastating impact on most African countries including Malawi. In addition to the humanitarian aspect, the disease is also creating millions of orphans and reducing productivity, hampering the efforts of the continent to lift itself out of poverty.

Health systems are failing to cope with the crisis. The high price and lack of availability of antiretroviral drugs in developing countries has been well publicised in the media but many hospitals in Malawi cannot even provide basic drugs to treat opportunistic infections.

However, it is important to remember that HIV/AIDS is not just a problem for the developing world. Whilst new HIV infection rates fell dramatically following the massive publicity campaigns of the 1980s and 1990s, cases of sexually transmitted diseases (STDs) in the UK have now risen again to their highest level for 13 years. Since there is a strong link between HIV and STDs, it can be assumed that HIV infection rates are also rising. We can therefore expect to see an increase in AIDS and related opportunistic infections in UK hospitals in the near future.

## References

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Andy Creeden was recruited by Voluntary Services Overseas (VSO) to work as a radiographer on a two-year placement in Malawi. If you would like to find out more about volunteering or supporting VSO, the world's largest international development charity working through volunteers to tackle poverty and disadvantage, visit [www.vso.org.uk](http://www.vso.org.uk) or telephone 020 8780 7200. For details of the Society of Radiographers' Overseas Placement Fund, contact Gill Smith at Head Office on 020 7740 7203 or email [gills@sor.org](mailto:gills@sor.org)