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Light at the End of the Tunnel

M MOKETE, MD

In the previous Editorial we had argued that goal posts for the Millennium Development Goals had been shifted from the Alma Ata objectives because of lack of political will of the Governments.

The fifteen-year extension from the original twenty years of Primary Health Care basically covered the same problems.

Is there some light in the five year long tunnel through which we can expect to reach at least, child mortality reduction, maternal health improvement and combating HIV/AIDS as well as malaria goals?

With most states committed to achieving universal primary education, there is an assurance that gender, equality and empowerment can be achievable. Further the possibility of learning, understanding, and implementing the requirements of reduction of child mortality and improvement of maternal health including knowing the HIV status of every person are realisable with emphasis on community health and family medicine reinforcement.

The "Know Your Status" campaign including prevention of mother to child transmission of HIV have been great steps towards brightening the flicker of light at the end of the tunnel.

Robust cooperative movements are the best answer to number one goal related to poverty. A realisation that wind power and solar energy are the best alternatives to carbon-dioxide producing industries that have degraded and defiled the atmosphere with prospects of rendering an uninhabitable earth.

Time and tide wait for no man. The remaining five years are a challenge for all Governments.

TB or not TB: A review of the differential diagnosis of lymphocytic pleural effusions

Dr Matt Brouns MRCP, Department of Internal Medicine, Queen Elizabeth II Hospital, Maseru

Introduction

Lesotho suffers from some of the highest rates of tuberculosis (TB) and HIV infection in the world. Pleural effusions are therefore a common problem both amongst primary care providers and within specialist care. It is important for doctors to have an appreciation of the causes of lymphocytic effusions, in particular when to suspect a diagnosis other than TB.

Evaluation of a patient with pleural effusion

Fluid collects in the pleural space for one of three reasons: first, if there is an imbalance in the osmotic and hydrostatic pressures resulting in fluid seepage into the pleural space; secondly as a result of pleural pathology; and finally as a consequence of abdominal disease (most commonly ascites) which results in fluid passing through pores in the diaphragm into the thorax. The first step in evaluating a patient with pleural effusion is to establish into which of these three categories the patient's effusion falls. The different types of

effusions have specific characteristics and causes (see Table 1).

Pleural effusions due to pressure changes or abdominal disease require evaluation and management of the underlying cause but further thoracentesis is most often not needed. Effusions due to pleural disease, however, will require further investigation of the fluid.

One of the first tests performed will be the differential white blood cell count. There are a number of pleural pathologies that are associated with a predominance of lymphocytes (see Table 2).

Clinical presentation

Most pleural disorders will present with pleuritic chest pain, cough (often non-productive) and possibly shortness of breath. A bacterial or viral pleuritis tends to have a short history, days to weeks. This includes TB which when infecting the pleura, presents with a short history without systemic symptoms. In the HIV positive patient, however, there is an increased chance of systemic symptoms such as fever, night sweats and weight loss.

Table 1: Classification of pleural effusions and some of the common causes

	Pressure effusions	Pleural pathology	Abdominal disease
Fluid chemistry	Transudate*	Exudate**	Either
Location	Often bilateral	Often unilateral	Right sided or bilateral
Common causes	Left ventricular failure Hypoalbuminaemia	Infections Malignancy Collagen vascular disorders	Ascites of any cause Subphrenic abscess

*Transudate = total protein < 30 g/l, fluid protein: serum protein ratio < 0.5 or fluid LDH: serum LDH < 0.6
**Exudate = total protein > 30 g/l, fluid protein: serum protein ratio > 0.5 or fluid LDH: serum LDH > 0.6)

Table 2: Causes of lymphocytic effusions

Infections (bacterial) Tuberculosis Mycoplasma pneumonia Chlamydia pneumonia Brucellosis*	Malignancy Mesothelioma Lymphomas Metastatic carcinoma Kaposi sarcoma
Infections (viral) Infectious mononucleosis	Pulmonary embolism
Infections (fungal) Cryptococcosis Pneumocystis jiroveci Histoplasmosis* Coccidioidomycosis*	Others Sarcoidosis Post cardiac injury syndrome Yellow nail syndrome* Trapped lung Drug reactions
Collagen vascular disorder Rheumatoid arthritis Wegner's granulomatosis Systemic lupus erythematosus	
*Very uncommon in Lesotho or endemic elsewhere in the world	

The collagen vascular disorders are often associated with non-pulmonary features such as arthritis, rash or haematuria. Pulmonary embolism causes pleural effusions in about a third of cases. It can present with any of the following: difficulty in breathing, pleuritic chest pain, cough (with haemoptysis), circulatory collapse.

Trapped lung is a condition where the pleural disorder causing the effusion is no longer active or is cured. However, the lung does not re-inflate, most commonly due to visceral pleural thickening, and hence is "trapped". Patients with trapped lung are often asymptomatic, and the pleural effusion is found by chance.

Pleural malignancy most often will present with progressive difficulty in breathing. Mesothelioma is associated with chest pain, and lymphoma may be associated with systemic features such as fever and lymphadenopathy. If suspecting pleural malignancy, symptoms of the primary tumour may be present. The most common malignancies found in the pleural space are carcinomas from lung, breast and ovary and the lymphomas.

It is also important to establish factors in the history that may provide clues to the underlying cause. HIV status is important as it increases the chance of TB and certain malignancies. Exposure to asbestos is linked with mesothelioma and bronchogenic carcinoma as is tobacco smoke. Certain drugs are associated with pleural effusions; most relevant to Lesotho are Nitrofurantoin, Phenytoin, Dapsone and Isoniazid.

Pleural fluid examination

Once confirmed as a lymphocytic exudate, you may need to evaluate the pleural fluid further. Specific requests for fungal culture may increase the yield if suspecting such a pathogen. Pleural fluid is infrequently positive for acid-fast bacilli (AFB) but the rates are increased in HIV (about 10% in non-HIV to 20% in HIV). TB culture of pleural fluid is only positive in about 30% of cases. If suspecting TB, however, pleural fluid adenosine deaminase (ADA) is a useful test. ADA is an enzyme involved in the maturation of lymphocytes. It has been found to have similar diagnostic accuracy to more advanced molecular tests. Sputum culture may be positive in up to 50% of cases of TB pleuritic, even without obvious parenchymal disease.

Cytological examination is the cornerstone of diagnosing pleural malignancy. Most carcinomas and lymphomas may be diagnosed on cytology, with a 60-70% positive rate on the first sample. A further 30% may be positive on a second sample. Malignant mesothelioma is more difficult to diagnose on pleural fluid cytology, with about 30% being positive on pleural fluid cytology.

Imaging

The chest x-ray will be the first investigation of patients with a pleural effusion. Most of the causes, including TB, are associated with

effusions less than half of the hemi-thorax (see Fig 1). If there is a complete effusion malignancy should be suspected.

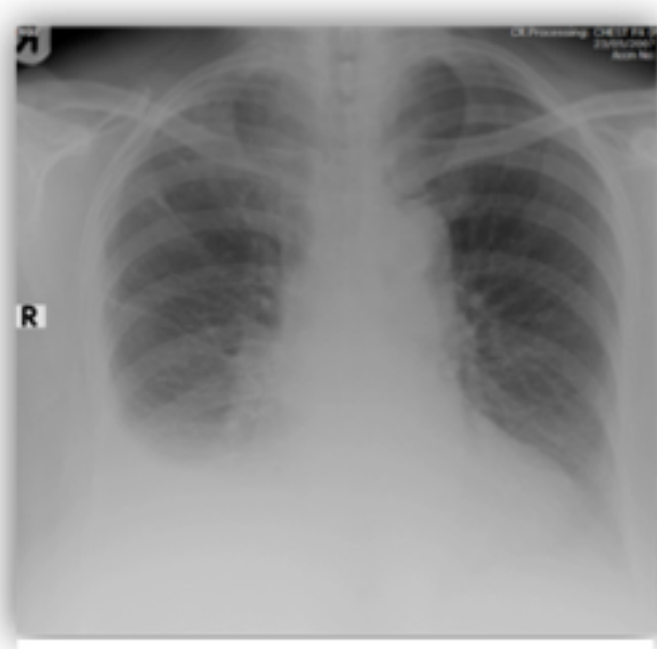


Fig 1: Chest x-ray of TB pleuritis

Abnormalities should be looked for in the remaining lung. Most infectious diseases will be associated with consolidation, interstitial abnormalities or cavitation elsewhere on the chest x-ray. Up to 50% of patients with TB pleuritis have lung infiltrates. The fungal infections are almost always associated with parenchymal abnormalities.

It may be necessary to perform a CT scan of the thorax in some cases of undiagnosed pleural effusion. This may be helpful in identifying pleural, parenchymal, vascular abnormalities or abnormalities elsewhere that aid in diagnosis. For example circumferential pleural thickening and pleural nodules are suggestive of a malignant aetiology.

Pleural biopsy

The gold standard in diagnosing pleural malignancy and TB is pleural biopsy. This can be achieved either blind, with an Abrams needle or for a greater diagnostic accuracy, under di-

rect vision with thoracoscopy. In a high TB prevalence setting, an Abrams needle biopsy will be positive in 80% and a thoracoscopic biopsy 98% of TB cases. For malignant pleural effusions not diagnosed on pleural fluid cytology, blind pleural biopsy may be positive in about 15% of cases, thoracoscopic biopsies are positive in about 95% of cases.

Other investigations

There are several other investigations that may be needed to secure a diagnosis in a lymphocytic pleural effusion. If malignancy is suspected, particularly primary lung cancer or Kaposi sarcoma, a bronchoscopy may be helpful. If a collagen vascular disorder is suspected, immunological tests may be required.

Trapped lung can be diagnosed by assessing the change in pleural pressure (with a manometer) as pleural fluid is removed. With an expanding lung the pressure should remain relatively constant, but if the lung is trapped the pressure falls as fluid is removed from the pleural space.

Empirical treatment for tuberculosis

It may be the case that after careful examination there is no confirmed cause identified. The likely causes in this scenario are non-specific pleural inflammation (which tends to run a benign course), malignancy (which even if occult is incurable) or TB. If the patient is well, with little in the way of symptoms it may be best to monitor the situation. Serial measurement of pleural fluid LDH with reducing values may reassure that there is a benign pleural pathology.

If there is any suspicion the pleural effusion is caused by TB, it may be prudent to treat empirically with anti-tuberculous therapy. If there is no clinical response it will be necessary to investigate the patient thoroughly for

drug resistant TB and the other causes of lymphocytic pleural effusions as outlined above.

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Brain Atrophy and Its Radiological Diagnosis

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INTRODUCTION:

Brain atrophy is a very common Radiological finding in our daily practice. Usually we mean it's a common finding in the aging process. However brain atrophy is diagnosed in different age groups such as infants, children, adolescents, and adults and older. Also we can get it as an incidental finding.

DEFINITION:

In short brain atrophy is an irreversible loss of brain substance and subsequent enlargement of intra and extra-cerebral cerebrospinal fluid (CSF) containing spaces.

TYPES:

Brain Atrophy could be Generalized or Focal.

I. Diffuse/Generalized

It's more commonly degenerative or Idiopathic. However vascular, inflammatory, traumatic and toxic types also occur or may be associated.

Inflammatory brain atrophy is common in Lesotho due to post infective complication caused by encephalitis, meningitis, and opportunist infections (Cryptococcus, Cytomegalovirus infection) in HIV infected patients. Toxic atrophy is common in alcohol and drug abuse cases. Also drug induced brain atrophy is noticed in our practice after long time use of Dilatin, steroids, methotrexate and chemotherapy.

Generalized atrophy of the brain is a routine concomitant of the aging process and is a

normal finding in elderly, increasing with age. The loss of neural tissue in the senile brain occurs in a cranium of unchanged size and is therefore compensated by an increased volume of CSF that occupies the resulting enlarged ventricles, sulci and sub-arachnoid space. Degenerative disease like in Alzheimer's disease (temporal lobe affected) and Pick disease (frontal and temporal lobes are affected) are also showing brain atrophy. Generalized brain atrophy is not uncommon in Hypoxia, Renal failure and anorexia.

In newborn babies with a history of prolonged labour and HIV, we are getting a number of cases having generalized brain atrophy.

Senile dementia shows similar changes but most patients with generalized atrophy show no evidence of dementia and the findings are therefore nonspecific.

II. Focal Brain Atrophy

Focal causes are: Vascular, traumatic, metabolic, chemical and idiopathic.

III. Reversible Pseudoatrophy

Due to a high dose of steroids and antidiuretic, fluid may shift from the brain. It can happen in Anorexia nervosa, protein starvation and severe dehydration—which may simulate CT appearance of true brain atrophy. It is reversible with appropriate treatment.

IV. Isolated Cerebellar Atrophy without Cerebral Atrophy

Onset of ataxia in young adulthood can be seen in Olivopontocerebellar degeneration. Other causes are – chronic alcoholism, Etha-

nol toxicity, long-term use of phenytoin therapy, Idiopathic degeneration in cerebellum secondary to carcinoma (paraneoplastic) usually in Oat cell carcinoma of lung, post Radiotherapy, and posttraumatic injury.

RADIOLOGICAL DIAGNOSIS (IMAGING)- CT/MRI:

1. Ventricular dilatation with rounding of the ventricular angles
2. Enlargement of the Cerebral and Cerebellar sulci (more than 1mm)
3. Increased width of the Sub-arachnoid space and basal cisterns (more than 1.5mm at cerebellopontine cisterns)
4. Increase prominence of the interhemispheric and Sylvian fissures

Diagnosis of Brain Atrophy is usually obvious by CT & MRI --- but it can be occasionally difficult in patients with Communicating Hydrocephalus, particularly in normal pressure or in low pressure Hydrocephalus.

In this situation CT findings are as follows: In Communicating Hydrocephalus – ventricular bodies and frontal horns are more rounded. Temporal horns are more dilated and prominent. But in Brain Atrophy—they are usually normal or relatively small. Sulci are less prominent with Hydrocephalus rather than dilated as in atrophy.

DIFFUSE BRAIN ATROPHY IN HIV INFECTED/AIDS PATIENTS:

Diffuse brain atrophy is the most common manifestation on HIV infection of the brain on neuro-imaging studies, present in about 30% of all patients with AIDS.

This is largely central atrophy, predominantly white matter involvement. The degree of at-

rophy usually correlates with the severity of dementia.

MRI is more sensitive than CT for detection of white matter lesions commonly seen in patients with AIDS Dementia Complex (ADC). Most severe cases of HIV brain infection show extensive bilateral areas of abnormal signal throughout the periventricular white matter, brain stem and cerebellum. CT may also be abnormal, showing low density without enhancement in the white matter.

Infants and children with HIV encephalitis exhibit loss of developmental milestones, apathy, failure of brain growth and spastic paraparesis.

In brief, HIV/AIDS patients have brain atrophy associated with conditions like Encephalitis, Toxoplasmosis, fungal meningitis (commonly in Cryptococcosis, although in histoplasmosis, candidiasis, aspergillosis and coccidioidomycosis), Progressive Multifocal Leukoencephalopathy (PML), CMV infection, and Mycobacterial Infections.

HIV/AIDS Infection in the Brain and Its CT Findings

Central Nervous System infections are a common complication of AIDS, and manifest clinically as meningitis, focal lesions or generalized abnormalities.

Meningitis is most commonly due to *Cryptococcus neoformans*, but can also arise from *Mycobacteria* or Herpes Simplex.

HIV Encephalitis – This is the most common form of CNS disease in paediatric patients with AIDS. Pathologically, HIV infection results in vacuolation of the white matter with areas of demyelination. All white matter including the brainstem and cerebellum may be affected. Infants and children with HIV en-

cephalitis exhibit loss of developmental milestones, apathy, failure of brain growth and spastic paraparesis.

Focal Lesions are mainly due to infections giving rise to abscesses and granulomas. The most common organism responsible is *Toxoplasma gondii*. The organisms seen are *Mycobacteria* and the fungi *Cryptococcus*, *Aspergillus fumigatus* and *Candida albicans*. Focal brain lesions in patients with AIDS can be neoplastic as well as inflammatory like Kaposi's sarcoma.

Generalized changes are seen with viruses like CMV, Herpes Simplex and papovavirus responsible for PML.

CT and MRI findings: Both modalities can identify focal lesions such as abscesses due to Toxoplasmosis or *Cryptococcus*.

CT findings differ in congenital and adult types of Toxoplasmosis. In the Congenital type there is more or less gross degree of ventricular dilatation, depending on the degree of brain destruction caused by infection. It is also associated with extensive basal ganglia calcifications and subcortical regions. The adult type shows focal, usually multiple lesions of low density in the thalamus and basal ganglia or subcortically. After giving contrast such lesions show ring or nodular enhancement. This is usually associated with mass effect and brain oedema.

CT IMAGES:

Figure 1. Brain Atrophy in 19 year old female

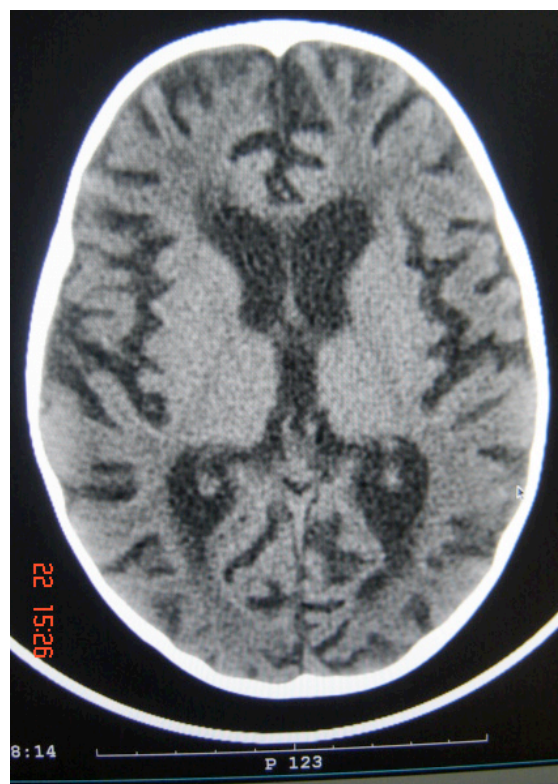


Figure 2. Brain Atrophy in an 80-year-old female with cerebral infarction in Rt. Basal ganglion

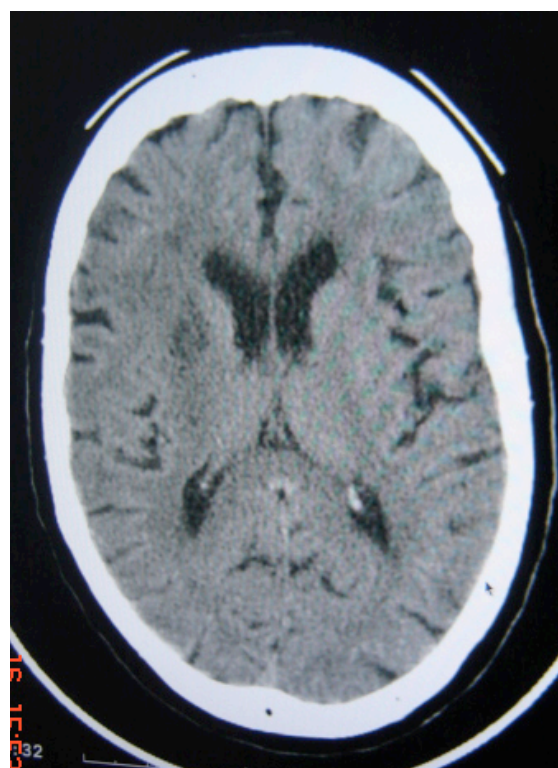


Figure 3. Brain Atrophy in a 7months female child

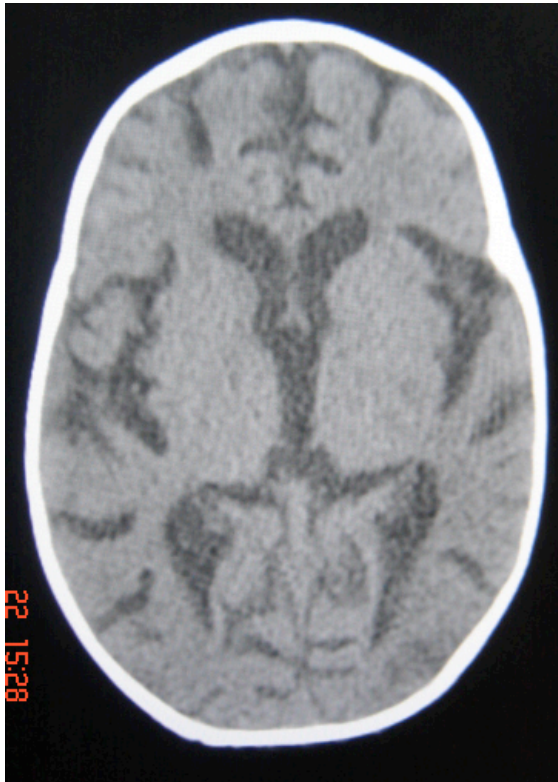


Figure 5. Brain Atrophy in a 3 year old male child with HIV infection



Figure 4. Brain Atrophy in a 10 months male child

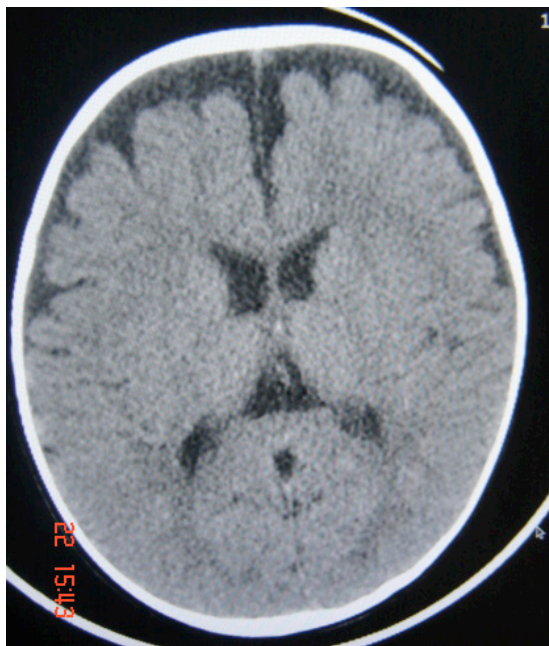
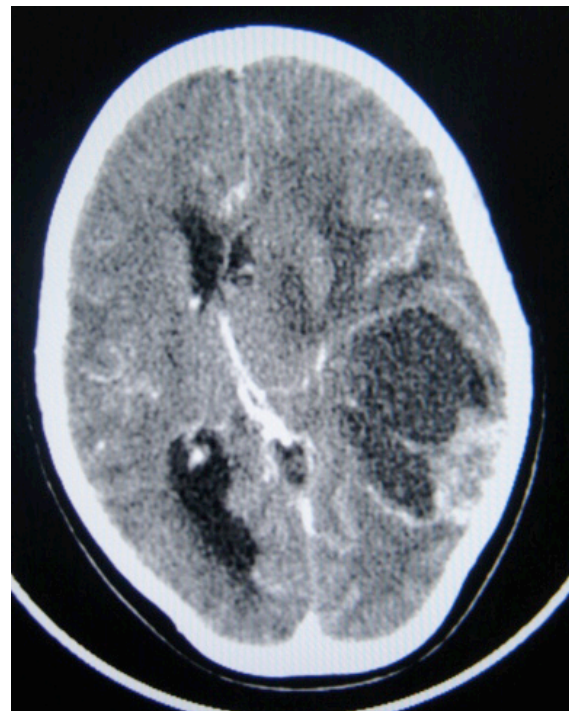


Figure 6. Toxoplasmic brain abscess in a 63-year-old female—in a post-contrast CT



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Laryngeal Cancer Misdiagnosed as Asthma: Case Report and Analysis

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Introduction

Different causes of airway obstruction may present with similar symptoms. Asthma is one of the most common causes of airway obstruction, but it is important to consider the alternative diagnoses including the upper airway obstruction. Several cases of upper airway obstruction that were mistaken as asthma have been reported previously^{1, 2}. We describe two cases of laryngeal cancer that have recently presented to the ENT department at Queen Elizabeth II Hospital, Maseru, Lesotho, who were incorrectly diagnosed as having asthma.

Case 1

A 33-year-old man presented complaining of difficulty in breathing accompanied with hoarseness of voice. It had started two years ago but had become severe two days prior to presentation. He had been diagnosed with asthma a year previously and had received treatment with inhaled bronchodilators and corticosteroids without improvement. He was admitted to the medical ward in June 2010 with the deterioration in symptoms; in particular he was unable to lie flat. He was managed with nebulised bronchodilators, corticosteroids and antibiotics with no improvement. On the morning of the second day of admission he was found to be unconscious

with stridor and was in respiratory failure. Intravenous bronchodilators and hydrocortisone were administered along with supplementary oxygen.

Following an improvement in his condition, an ENT opinion was sought by the physician. Bedside fibrolaryngoscopy identified a cauliflower-like growth inside laryngeal cavity, spreading to bilateral vocal cords, ventricular cords and root of epiglottis. An urgent tracheotomy was performed under local anesthesia in theatre. This relieved the patient's respiratory distress and stridor. The procedure was complicated by subcutaneous emphysema on the neck and face, but this absorbed three days later. Direct laryngoscopy and biopsy was done under general anesthesia one week later. The biopsy revealed poorly differentiated squamous cell carcinoma of larynx and the patient was referred to the oncologists for radiotherapy.

Case 2

A 65-year-old woman was investigated for hoarseness of voice in 2008. She had been examined with fibrolaryngoscopy, and subsequently had a tumor removed under direct laryngoscopy. The postoperative pathology results showed this to be a laryngeal papilloma. She was kept under 6 monthly follow

up, with no evidence of recurrence at the last review.

Four months before her admission, she started to suffer from difficulty in breathing. She was diagnosed with asthma and received corresponding treatment without improvement. She eventually attended her routine follow up, when a cauliflower-like growth was detected on bilateral vocal cords. Biopsy and tracheotomy was performed under general anesthesia in July of 2010. After the tracheotomy, she no longer suffered from any breathing difficulties. The pathology revealed moderately differentiated squamous cell carcinoma of larynx, and the patient was referred to the oncologists for radiotherapy.

Discussion

Although asthma is a very common cause of airways obstruction, laryngeal cancer is not rare. It is the most common malignant tumor of the larynx with 10,000 new cases per year in the USA and accounts for 1% of cancer related mortality in that country³. Laryngeal cancer can result from malignant transformation of laryngeal papilloma⁴, which is a type of benign laryngeal tumor in adults. This was demonstrated in the second case.

The two cases we have described demonstrate the importance of a careful clinical assessment of a patient with dyspnoea. It is especially important when a patient diagnosed with asthma does not respond to treatment. The second case also highlights the importance of reviewing the past medical history, as she was known to have a laryngeal pathology.

Laryngeal tumors can present with a variety of symptoms including dyspnoea on exertion, stridor, wheezing, orthopnoea, haemoptysis, and hoarseness of voice. Among them,

hoarseness is the most characteristic, prominent and common symptom to offer a clue for the diagnosis⁵. However, if the laryngeal cancer is located away from the vocal cords, (either supraglottic or subglottic) hoarseness may not be present in the early stages. As the disease progresses and the vocal cords are invaded a patient may then develop hoarseness. Of note, supraglottic and subglottic tumors will often cause stridor or dyspnoea without hoarseness. It is in these circumstances that the clinical features of laryngeal tumors may be mistaken for asthma.

Asthma on the other hand typically presents with cough, wheeze or dyspnoea that is variable in severity, may be triggered by certain exposures and is often worse at night. The symptoms should respond to treatment, especially with corticosteroids. A personal history of rhinitis, eczema or a family history of asthma may help make the diagnosis⁶. If a patient's symptoms are not variable or do not respond to treatment, further investigation is warranted.

When examining a patient it is important to be able to distinguish wheeze from stridor. Stridor is the characteristic clinical sign of upper airways obstruction, whereas wheeze is that of lower airways obstruction. The best and simplest way to distinguish stridor from wheeze is the timing and location of the sound on auscultation. The sound associated with stridor has a similar frequency to that found with asthma. However, the sound of stridor is more intense over the neck than over the chest, whereas in asthma the reverse is true. The sounds in patients with stridor occur during inspiration, whereas in those patients with asthma, they occur predominantly in expiration⁷.

Besides the auscultation, pulmonary function testing can aid in the diagnosis of upper airway obstruction. The effect of an extra-thoracic or upper airway obstructing lesion is to reduce airflow mainly during inspiration, but an intra-thoracic or lower airway obstruction causes impaired flow during expiration. As mentioned above, this can manifest in the clinical signs of stridor and wheeze respectively. These physiological abnormalities can also be measured with simple pulmonary function tests. A flow volume loop demonstrates flow of air throughout the respiratory cycle (Figure 1 - A). When there is lower airway obstruction the flow volume loop shows a blunting of the expiratory part of the loop (Figure 1 - B), but in upper airway obstruction there is also blunting of the inspiratory part (Figure 1 - C).⁸

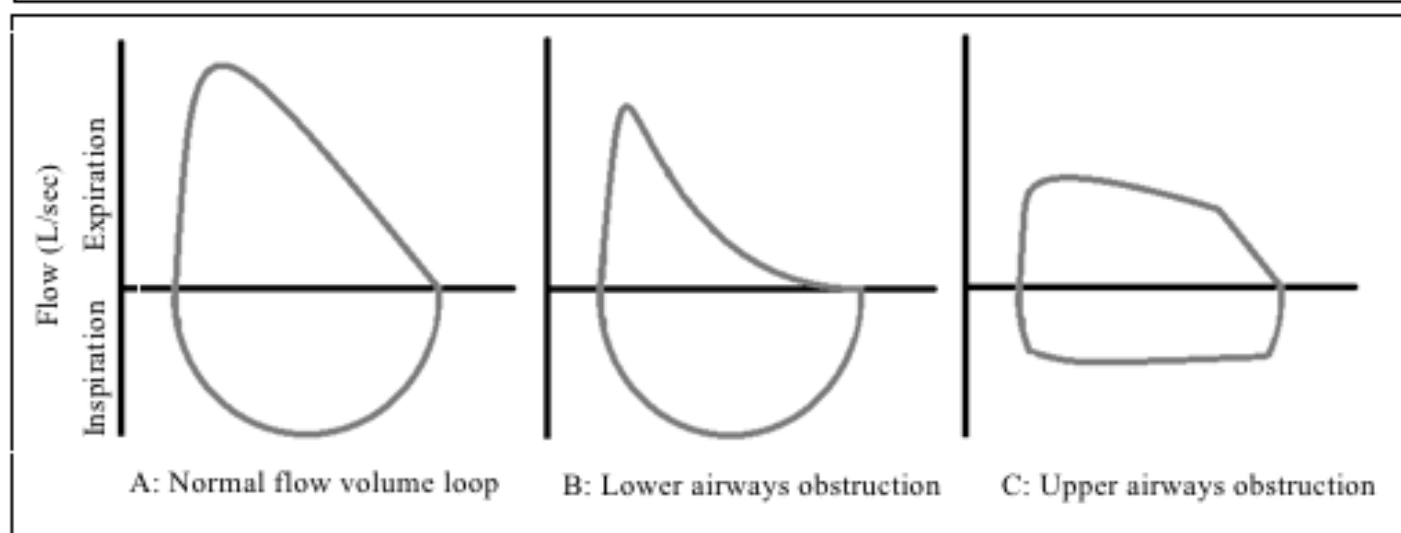
Fibrolaryngoscopy, as a direct and intuitive method to examine the laryngeal cavity, has an important role in excluding the possibility of laryngeal cancer. However, for the patients with severe dyspnoea, laryngoscopy must be performed with great caution especially when local anesthesia spray is applied, for the procedure may aggravate dyspnoea. In case 1, this procedure was performed after the relief

of his condition. Other noninvasive options to exclude laryngeal cancer include CT scan and MRI.

Conclusion

Laryngeal cancer may be misdiagnosed as asthma especially when the clinical feature starts as stridor or dyspnea without hoarseness. Hence, careful history taking and physical examination are important in establishing an early diagnosis. Fibrolaryngoscopy, pulmonary function testing, CT scan and MRI could be performed as further examination to confirm the correct diagnosis.

Figure 1: Flow volume loops



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Breast Cancer: A Lesotho Study

Ntšeliseng Monyanke

Background

Health care delivery in Lesotho is facing a number of challenges and the magnitude of these challenges is rising with each day. First, the health care system in Lesotho is comprised of health posts and health centres at a primary level, with 16 district hospitals comprising of secondary level of care (MOSHW: 2004). There is only one referral hospital located in Maseru at Queen Elizabeth II Hospital. There is also Mophemi mental hospital, Botsabelo leprosy hospital and Senkatana AIDS clinic. There is also Baylor paediatric clinic which is now branching to the other nine districts of the country. There is a new private public partnership hospital that is under construction.

These health centres are serving a population of roughly two million and majority of this population (81%) living in remote areas. Given the rough topography of Lesotho, patients find it hard to access the health centres as they have to walk several hours over the rough mountain paths.

The country is disease stricken, with an estimated 270 000 people living with HIV and 70 dying each day (WHO: 2007). This puts Lesotho in the third rank worldwide. TB also poses a major threat and it is estimated that there are 695 cases per 100 000, 10% whom have MDR TB (WHO: 2007). This problem is evident to the Ministry of Health and Social Welfare. The government recognises it as a major challenge and has in turn reduced the charges to accessing primary health care and secondary level of care. Human resource crisis is also critical in Lesotho and there are about

90 Doctors for more than two million people and 80% of those Doctors as foreigners (Bicknell et. al: November 2008). Furthermore, there is a severe shortage of nurses and allied health professionals making it even more difficult to deliver quality health services.

Pharoee et. al (2007) assert that Lesotho is also facing a cancer crisis. The occurrences of cancer are also eminent and less is seemingly done about it. Cervical cancer accounts for 40.9% of these occurrences. Breast cancer comes second with an 18% prevalence rate. Other cancers include prostate cancer with 13.5% and skin cancer accounting for about 12.6%. Presently there is no cancer treatment centre in Lesotho and a majority of patients are diagnosed at an advanced cancer stage and are referred to the Republic of South Africa. There is no registry and no comprehensive cancer screening program (Brown; 2009)

The Problem

Cancer has received low priority from health care services in Africa. The reason is undoubtedly the overwhelming burden of communicable diseases. In Lesotho the toll is rising and very little is being done. There is no cancer centre in Lesotho thus making it difficult to diagnose and monitor the affected. In the national Health policy, 2004, palliative care is not included thus making the prognosis even worse (Pharoee et. al. 2007). Patients are referred to the Republic of South Africa and most of them are diagnosed at a late stage of the disease. There is no national prevention programme that includes comprehensive screening, education and awareness. Basotho tend to have little knowledge about cancer

and its complications. They categorise it as a disease that belongs to the western society or the rich people and also believe that if one has it, one was bewitched or is being punished by the gods.

Breast cancer patients account for 18% of all the cancers in Lesotho. This occurs mainly in the age group of females between the ages 30-70 (Bicknell et. al. 2008). The country's massive HIV epidemic has brought cancer related mortality to a younger segment of the population. This HIV crisis has led to a large rise in virus related tumours, such as the cancer of the cervix- the countries most common type of tumour (Brown; 2009). This places breast cancer second. The consequences of this cancers are eminent, current cost of transferring a patient with invasive cancer to South Africa is R108 000 per patient per course of treatment. This amount of money places a lot of burden onto the government thus resulting in compromised service and delivery of other health related services.

The country has few health personnel and few experts in the field of oncology. There is an absence of comprehensive screening programmes in Lesotho, which also contributes largely to the problem. This reveals that the government fails to acknowledge the importance of primary care in public health promotion. The burden is left on doctors and nurses and they are left to solve all health problems thus leaving the population without adequate health information.

Because of the incidence, significant mortality and lack of cure, cancer survivors, advocates and activists have brought social and political attention to this disease and are trying to put it in the national spotlight. The government of Lesotho and a hospital based in South Africa created a system to bring oncology services from the Free State capital of Bloemfontein.

Each month an oncologist went to Maseru Private Hospital to diagnose, treat and assess patients with suspected or confirmed cancer. The hospital in turn ordered special batches of cancer medicine, trained staff to oversee drug administration and organising management of side effects, discharges and subsequent clinic appointments. After a few months, the Lesotho government found it difficult to afford these services of foreign specialist. This contract was terminated in April 2008 and patients in dire need were sent to Bloemfontein (Brown: 2009).

Maseru Private Hospital has been raising cancer awareness for prevention through an annual radio and advertising campaign that encourages women to self examine their breasts and to do pap smears. There are also several NGO's that are helping to draw up public education programmes, among them being the Lesotho Breast Cancer Network which was launched in September 2008.

The study was carried out with an aim to determine how much knowledge the nation has regarding the breast cancer and will be used to aid the health personnel to know which areas need attention and fill the missing gaps. Also for people living with breast cancer and other cancers, this data will provide the government with thorough information on how to improve the services that are rendered to them and solve the problems they are facing. For those who are already in the terminal phase, it will be reviewed on the best palliative measure that can be employed to actively care for their physical, emotional and psychosocial needs of the patient and their families with an aim of relieving distress. It will be emphasised that palliation starts at the moment of diagnosis of their illness and continues for the duration of the illness.

If and when a cure is no longer possible, palliative care plays the major or the total role. Above all, the study will provide information regarding the magnitude of the problem and make recommendations on how to better review this problem holistically.

Research Objectives

General objective

The main objective of this study was to find out the efficiency of the health system in Lesotho in diagnosing and managing breast cancer. It also focused on the prognostic outcome of the management.

Specific Objectives

This study was guided by the following specific objectives:

1. To evaluate the efficiency of the screening methods used for breast cancer.
2. To determine the extent of public awareness about breast cancer and breast self examination in the detection of breast cancer.
3. To assess the level of care for breast cancer patients and the problems facing this patients.
4. To provide data on the prognosis of breast cancer and treatment results.
5. To provide information about knowledge of the community regarding breast cancer.

Breast cancer refers to a condition where breast cells multiply uncontrollably and at times spread to adjacent distal organ (Stedman's; 20001)

Risk factors include age and it's most prevalent in the advanced aged. It is eminent in the developed countries but rising tolls are witnessed in developing countries. Oestrogen window also plays a major role, age of men-

arche before 11, age at menopause after 54 and age of first full pregnancy in the early 40's.

Breast cancer in the 1st degree relative poses a major risk. Patients who are carriers of autosomal dominant breast cancer genes called BRCA 1 and BRCA 2, which are found on the long arms of chromosomes 17 and 13, have greater risks of more than 85% (Boon: 2006). Exogenous hormones like oral contraceptives and hormone replacement therapy used for more than 10 years increase the risk.

There are different types of breast cancer, which can develop in different parts of the breast. The most common is known as ductal breast cancer, which develops in cells that line the breast ducts. They account for 80% of all cases of breast cancer and are very aggressive. Less common types include lobular, inflammatory and Paget's disease of the breast. (WHO: 2007). They can also be triaged into invasive and non-invasive cancers. Invasive cancers are divided into intraductal carcinoma, intraductal carcinoma with Paget's disease and lobular carcinoma in situ. The invasive are the invasive ductal, invasive lobular and medullary carcinoma. (AFIP: 2005)

Most patients present with mastalgia, a lump, skin changes, nipple discharge, mastitis or breast abscess. Most diagnostic methods for detection of breast cancer are anamnesis, physical examination and mammography. However, a biopsy for pathological evaluation is performed for exact diagnosis. (Jones: 2007). Other important techniques include native mammography, positron emission tomography (PET), single photon emission imaging and computed tomography (SPECT). A fine needle aspiration and a core cut biopsy are very effective and give a confident diagnosis of 95% of the cases (Narita: 2008).

Markers of breast cancer like carcino embryonic antigen (CEA) are few percentages of breast cancer. Katepsin D is more important diagnostic test due to its specificity in breast cancer (Willis: 2003)

Clinical stage of tumour is an important factor in order to get valid prognosis and treatment. It assesses the extent of breast cancer and they are staged using the TNM (Tumour, Nodes and Metastasis) breast cancer classification. Metastatic screening involves full blood count, liver function tests and chest x ray. According to this classification, there are four stages. Stage I and II show low incidence metastasis while stage III involves bone, liver involvement in most case.

Mean survival rate of 5 years of stage one is eighty four percent while for stage two is seventy one percent. Stage three accounts for forty eight percent and lastly being stage four with an eighteen percent mean survival rate of five years (Dixon: 2007)

As elicited by Brunner (2004), treatment can be classified into loco-regional treatment and systemic treatment. Loco-regional controls the local disease and it involves surgery and Radiotherapy. Systematic treatment deals with treatment of micro metastatic disease and in this category, chemotherapy and hormonal therapy are used.

Surgery is used for breast conservation surgery or mastectomy. Incomplete excision could lead to local recurrence they can be done breast reconstitution.

Radiotherapy is also used as a method of breast conservation therapy. It is the treatment of cancer using ionising radiation and for certain localised cancers it may be curative. According to Boon (2006) this ionising radiation can be delivered by radiation emitted from decay of a radioactive isotope or by high-

energy radiation beams, usually X-rays. Side effects include acute inflammatory radiation reaction localised to the area treated.

Another form of treatment is by Chemotherapy. Chemotherapy is treatment of disease by means of chemical substances or drugs. It can be given as an induction, adjuvant, or neoadjuvant chemotherapy. Adjuvant chemotherapy significantly decreases breast cancer mortality. It involves the use of three drugs namely Cyclophosphamide, Adriamycine and Fluorouracil (SAMF 7:2007). Combination of drugs is more effective than single drug and prolonged course (6 cycles) is more effective than a single course. There is greatest benefit in women less than 50 years of age (UICC: 2006).

Trials have also proven that Tamoxifen reduces risk to contralateral breast cancer by 40-50% and the greatest benefit in hormone sensitive tumours. It is effective if given four to five years as opposed to two years.

Prognosis depends on a number of variables. The most malignant development according to histological classification is ductal invasive carcinoma, followed by invasive lobular carcinoma. Medullary and mucinous carcinoma have better prognosis.

It is known that tumour development as well as prognosis depends on histological differentiation. Well-differentiated tumours have slower development and metastasize later. Poorly differentiated tumours are more malignant; the most malignant tumours being the anaplastic tumours.

Pain control must be holistic and best results are achieved when there is a multidisciplinary approach. The perception of pain is modulated by a patient's mood, morale and meaning of pain for that patient.

Methodology

For this study, a descriptive design was used. This design involves a systematic collection of data and presentation of that data to give a clear picture of the situation. The population of this study comprised of women of more than 30 years, the age group among which most oncology cases are reported. According to Pharooe (2007), there is an incidence rate of breast cancer of 27.8:100,000 women in that age group. There is more data that is provided by Bicknell (2007) who reviewed all referrals from Lesotho to South Africa between April 1, 2006 and March 31, 2007 and found out that 49% of all were for adult oncology and of that 18% were for breast cancer.

The sample of this study consisted of 50 patients. Systematic Sampling was convenient for this study, in which every third patient was chosen from the patients that presented for inclusion in the sample.

Study area

The study area was the district of Maseru and the hospital of choice was a government tertiary hospital: Queen Elizabeth II Hospital. This hospital is a referral hospital, thus most patients and records are readily available.

Data Analysis and Interpretation

Demographic data

The population of this study consisted of women of 30 years and above. Of all the respondents, the largest group (34.7 percent) were from an age range of 51-60 years and the minimal percentage of 10.2 was from an age range of 30-40 years. The results further show that these who had an age range from 41-50 years had a percentage of 26.5 followed by an age of 61+ years represented by 28.6 percent of respondents.

In this group of women, 60 percent were married, 26 percent single, 34 percent were widowed, and none were divorced.

When asked about their level of education it was found that out of a total number of 50 respondents, 10 percent had tertiary education, 40 percent had secondary education. Furthermore 36 percent represents respondents with primary education while 14 percent represents the respondents with no education at all.

Results from interview with patients using a standard questioner as a guide

Knowledge of respondents

Table 1: Frequency distribution of knowledge of respondents about breast cancer

Knowledge	Frequency	Percentage
Poor knowledge	20	40
Fair knowledge	14	28
Good knowledge	16	32
Total	50	100

Health seeking behaviour

When the interviewed were asked at what stage they sought medical attention, it was found that majority of respondents (46 percent) called for medical assistance when the disease had progressed even though other parts other than the breast were not affected, yet some of the respondents reported that the tumour was palpable and that accounts for 36 percent. The least percentage of 18 was for those that their treatment required total removal of the breast or those that nothing could be done for them except management of symptoms and enhancing comfort.

Accessibility of health services

Table 2: Frequency distribution of accessibility of health services measured in terms of distance

Distance to hospital	Frequency	Percentage
Less than 5km	7	14
5-10 km	12	24
More than 10km	23	46
Don't know	8	16
Total	50	100

Availability of resources

This presents the responses of the patients towards a question whether all the time they come to the hospital to seek help they found resources always available. There were zero percent of patients who responded positive with an always answer to this question. Patients pointed out that at times when they seek medication for their symptoms there was no availability of such and at times there were no enough health personnel to help them. Eighty-eight percent pointed out that they receive medication sometimes and at times find health personnel available to attend to them. Twelve percent show that they never find resources available and they were tired of coming there since they go away without any help and their sickness still worse.

These responses elicited that the cancer care in Lesotho is facing a crisis. This is probably due to the fact that there is poor administration of drugs, poor service delivery and shortage of specialists in these fields.

Discussion

Availability of equipment

Lesotho faces many challenges in cancer management. The problems as depicted by the study range from late presentation of patients, lack of skilled personnel, limited facilities for staging and treatment, poor record keeping, lack of cancer registry, no palliative facilities and virtually no community advocacy for cancer. The situation regarding breast cancer has not been a priority. Despite the WHO sponsored guidelines in the country, a plan for implementing a programme for comprehensive screening of women at risk has not emerged (Mohapi: 2007). There is high mortality and these mortalities are preventable through targeted screening, early diagnosis and treatment. There are no equipments and supplies for screening and treatment.

Availability of skilled personnel for cancer diagnosis and treatment

In Lesotho the main centre where cancer services were offered is in Maseru at Maseru private hospital. An oncologist used to come once a month until the contract was terminated. The equipment that was there is failing into disrepair, leading to an overall deterioration. According to Phaaro (2007) there are a few health personnel who are trained to do comprehensive screening of women at risk. There is no cancer registry and there is a poor follow up system in the country (APCA 2007).

Although Maseru private hospital had built up some extensive expertise in cancer care, it is very unfortunate that it is going to waste because without government support, patients who need these services cannot access them. The hospital was also involved in public awareness but the activities of one hospital are no substitute for organised public health promotion run by the government.

Flexibility of the referral system

The centre that remains standing for care and administering breast cancer patients is Queen Elizabeth II Hospital. This hospital acts as a mediator for referring patients to South Africa or treating patients for symptoms rather than the underlying disease. This in turn has increased the magnitude of the problem. The patients complain that at times they are refused treatment with a reason that the government of Lesotho has not paid. According to Brown (2009), This referral system further places a burden on the patients, it is far, their families are not able to visit them during their treatments, and they at times are not able to access travelling documents to go to South Africa.

It is estimated that one patient with advanced cancer cost R108 000 per course of treatment. This money could have been saved if patients diagnosed with late stage cancer had had access to primary care screening and prevention.

Conclusion

In conclusion, there is poor diagnosis of breast cancer in Lesotho and there are no screening programmes. The management of breast cancer patients is not efficient either and it is worsened by the poor accessibility due to distance and lack of facilities. There is seemingly a high mortality rate with regard to breast cancer, thus indicating that there is poor prognosis for this condition here in Lesotho. It is high time that the cancer control becomes one of Lesotho's priorities.

Recommendations

Effective breast cancer control requires national cancer control plans covering cancer prevention, early detection, treatment, palliative care and support for cancer patients, their families and caregivers. In a country with lim-

ited financial resources and human resources like Lesotho, there is a need to integrate the various facets of a national cancer plan into what already exists with some additional skill augmentation. With a crisis of shortage of doctors, this further shows that Lesotho health system has several fundamental areas that need to be addressed before prevention and treatment of cancer can really improve outcomes.

This problem can also be addressed by making use of nurses who receive extra training and become nurse clinicians. They could be given a responsibility for routine consultations and treatment of minor ailments, which would free up doctors to concentrate on patients with serious illnesses.

The national health policy, the HIV AIDS control policy, National medicines policy and the Lesotho standard treatment guidelines must include palliative care and affirms palliative treatment in the country.

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Lesotho Medical Association Highlights

1. The Lesotho Medical Association at its exciting A.G.M. in July 2010 tackling the Environment Millenium Goal emerged with the following executive committee:

Dr K. Hoedofia	President
Dr M. Mojela	Vice President
Dr R. Molise	Secretary General
Dr A. Chowdhury	Vice Secretary General
Dr T. Mwabury	Treasurer
Dr M. Rahman	Member
Dr T. Mohapi	Member
Dr M. Mokete	Member

LMA Executive Board, pictures below from left to right:

Dr K. Hoedofia, Dr M. Mojela, Dr R. Molise, Dr T. Mohapi, Dr T. Mwabury, Dr M. Rahman & Dr M. Mokete.

2. Editorial Board

Dr. Mokete, Editor
Dr. Mohapi
Dr. Rahman
Dr Chowdhury

3. The Lesotho Medical Association, Stellenbosch University, and Frankfurt University held a very successful Summer School in Lesotho on Management of HIV and AIDS in a rural setting. Thirty-Eight (38) participants came from Eastern Europe, Europe, West Africa, East Africa, South Africa and Lesotho with exciting presentations from a Cosmopolitan International Faculty. (11/10/10-22/10/10).



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TWO WARD ATTENDANTS

HOSPITAL HOUSE KEEPERS

CLERKS

HIGH TECH SECURITY SYTEM

THREE DRIVERS