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New MRI improves diagnostic capacity in a Malawi hospital

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In August 2008, Queen Elizabeth Central Hospital in Blantyre, Malawi opened its magnetic resonance imaging service, a 0.35T GE open configuration magnet (fig. 1) was installed as a result of combined efforts of the Malawi Government, the university of Malawi College of Medicine, General Electric Healthcare, Michigan State University and National Institutes for Health (NIH-USA).

The facility serves a wide variety of patients for both clinical and research needs. The MRI scanner time is allocated to assure that it

serves three important functions: (1) Research on common neurologic disorders in Malawi, (2) Clinical services for patients receiving

care at QECH, a public facility and the teaching hospital for the University of Malawi College of Medicine, (3) A referral facility for private pay patients in Malawi and surrounding countries.

As such, apart from serving the 13.6million Malawi population the facility also receives patients from neighbouring Mozambique and Zambia. The facility is linked to the Department of Radiology at Michigan State University (USA) for image archiving and wider consultation in difficult cases. Manage-

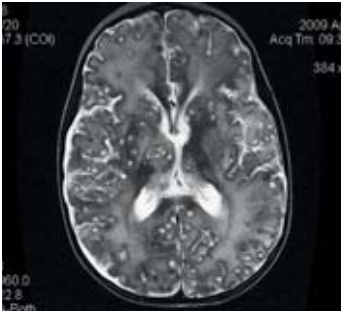
ment of high-tech facilities in the developing world is a challenge. To cover service charges, the MRI facility in Malawi also offers Imaging services to private patients at a reduced fee. A research grant from the NIH will also assist in meeting a service contract for the magnet.

People residing in developing countries clearly suffer disproportionately from neurologic disorders and disability. But much of the gap in neurologic health and well-being between the least and most developed regions of the world remains unexplained. Until we understand the specific factors that contribute to neurologic disease and disability in resource poor settings, we cannot establish focused, well-developed plans for addressing the gap.

One likely etiology for this difference in Malawi and other sub-Saharan countries is the heavy



■ *Figure 1: Malawi's first MRI: 0.35T GE Signa Ovation was donated by General Electric Healthcare.*

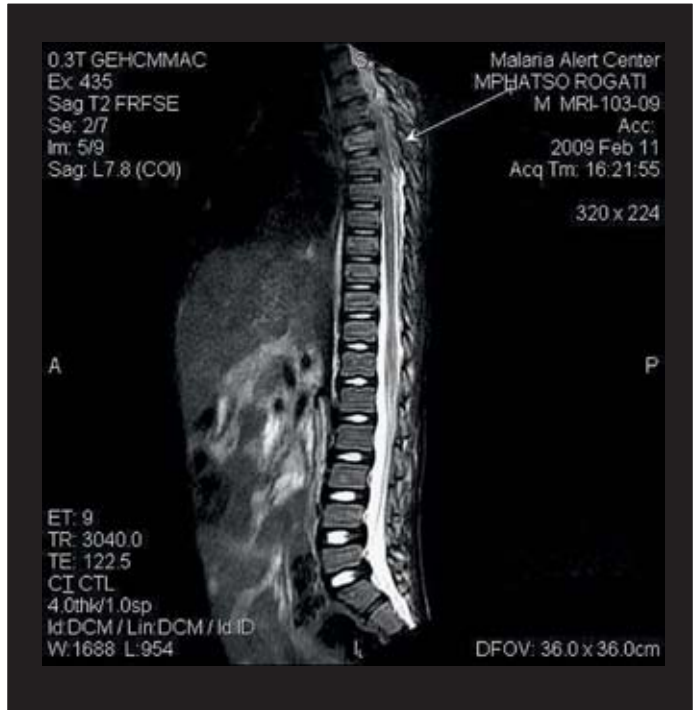


■ Figure 2: Axial T2 (FSE TR 3200 TE 110 FOV 24) weighted image in an African boy who presented with seizures: neurocysticercosis

burden of tropical diseases. Chief among these is malaria, which causes coma in children and often leads to death. Other tropical disease common in Malawi include cysticercosis (fig2), tuberculosis, schistosomiasis and amebiasis.

One of the main impacts of the new MRI facility is in improving the research possibilities in the University of Malawi College of Medicine. In collaboration with Michigan State University the MRI is being used to investigate the CNS processes that lead to coma and death in children with malaria.

Long term CNS changes of malaria and their relationship to epilepsy, cognitive impairment and motor deficits are also being studied. An example of a fundamental issue which can be addressed with the Malawian MRI scanner is the etiology of non-traumatic paraplegia. In the absence of adequate neu-



■ Figure 3: Sag T2 image of the spine in a Malawian child with paraplegia. An epidural mass (arrow) is noted: Burkitt's lymphoma

roimaging, most clinicians in the developing countries empirically treat for schistosomiasis in most patients with paraplegia. Often this syndromic approach is inappropriate as other conditions can also cause paraplegia. Burkitt's lymphoma, a common tumour of the tropics (fig 3), and tuberculosis are examples of other potential etiologies.

The potential research advances and clinical improvements made possible through the Malawi MRI research facility are substantial. Efforts to obtain funding for enhancing the human resources to

support the MRI as well as acquire normative data in the Malawi population are ongoing.

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