

Photomicrograph-Based Neuropathology Consultation in Tanzania; The Utility of Static-Image Neurotelepathology in Low- And Middle-Income Countries

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Abstract : Introduction: Since neuropathologic diagnosis in the developing world is hampered by limitations in technical infrastructure, trained laboratory personnel, and subspecialty-trained pathologists, the use of telepathology for diagnostic support, second-opinion consultations, and ongoing training holds promise as a means of addressing these challenges. This research aims to assess the utility of static teleneuropathology in improving neuropathologic diagnoses in low- and middle-income countries. Methods: Consecutive neurosurgical biopsy and resection specimens obtained at Muhimbili National Hospital in Tanzania between July 1, 2018, and June 30, 2019, were selected for retrospective, blinded static-image neuropathologic review followed by on-site review by an expert neuropathologist. Results: A total of 75 neuropathologic cases were reviewed. The agreement of static images and on-site glass diagnosis was 71% with strict criteria and 88% with less stringent criteria. This represents an overall improvement in diagnostic accuracy from 36% by general pathologists to 71% by a neuropathologist using static telepathology (or 76% to 88% with less stringent criteria). Conclusions: Telepathology offers a suitable means of providing diagnostic support, second-opinion consultations, and ongoing training to pathologists practicing in resource-limited countries. Moreover, static digital teleneuropathology is an uncomplicated, cost-effective, and reliable way to achieve these goals.

Keywords : neuropathology, resource-limited settings, static image, Tanzania, teleneuropathology

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