

Neurosurgical Network in Sarawak State: A solution for remote urgent pediatric patients

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Aim:

Neurosurgical emergencies require urgent surgery to prevent death or neurological deficit. Sarawak's unique logistic and geographical situation poses significant challenges to patients requiring timely intervention. A neurosurgical framework has been established to overcome this obstacle. We aim to explore the impact of this network on children with acute neurosurgical conditions.

Methods:

Once there was only one neurosurgical center in the state at Kuching. To facilitate distant populations accessing neurosurgical care, neurosurgeons were placed in centers that do not normally offer neurosurgery: Sibul Hospital (since 2013) and Miri Hospital (since 2018). A retrospective review of children operated in all three centers from January 2019 to December 2021 was performed. We examined the diagnosis, distribution of cases, nature, and types of surgery performed.

Results:

A total of 526 patients were reviewed. The commonest diagnosis was hydrocephalus 249 (47%), followed by 105 (20%) trauma, 70 (13%) tumors, 35 (7%) infection, 31 (6%) congenital, and 24 (5%) vascular. Majorities were emergency surgeries 387 (74%); more than half 226 (58.4%) were done in smaller centers: 138 (35.7%) in Sibul, 88 (22.7%) in Miri. Previously, patients traveled 402km (6 hours by land) from Sibul, or 805km (13 hours by land) from Miri to access neurosurgical services in Kuching. Distance and time to access neurosurgery were significantly reduced with the availability of neurosurgical services in Sibul and Miri. Forty (32.8%) emergency surgeries for hydrocephalus in those centers were due to shunt malfunction. Troubleshooting shunt failure in children with shunt dependence is time-critical and challenging. The framework in place allowed this group of children to receive timely evaluation and intervention by trained personnel.

Conclusion:

The proportion of children requiring acute neurosurgery in Sarawak is high. The neurosurgical network in place shortens travel distance and time to surgery, allows timely evaluation by trained personnel, and promotes equity in accessing essential neurosurgery.

(300 words)