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Editorial

Recent trends in Neurosurgery and Bangladesh perspective

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Neurosurgery is a very special field among the many branches of medical science. It is filled with challenges and excitement. Looking back into the history, it seems that the trephination was performed approximately 5000 years ago. Skulls are found in Europe, Oceania, and Tibet; some of these have a sharp-edge hole in them. However, the actual instruments used by the aboriginal people and their reasons for drilling a hole in the cranium require further exploration. Unfortunately, no formal historical record exists.

After neurosurgery entered the computed tomography era in the early 1970s, the diagnosis of neurological diseases became much easier and more precise, thus greatly promoting the advancement of neurosurgery. In the 1980s, the emergence of MRI and advancement in microsurgical skills doubtlessly improved neurosurgical practice. Today, several "high-tech" diagnostic and therapeutic modalities, such as functional MRI, open MRI, neuronavigation, and artificial intelligence (Robotic surgery), are used in many neurosurgical centers in Japan, China and other developed Western countries. There are no longer so-called forbidden areas in brain surgery in the 21st century, the "century of the brain."

With the widespread intraoperative use of the microscope in the late 1980s, the mortality and postoperative complications in patients with some common cerebrovascular diseases decreased markedly. For example, with improvements in computed tomographic angiography, magnetic resonance angiography, and three-dimensional digital subtraction angiography for diagnosis, as well as improved microsurgical skills, the operative mortality of aneurysm surgery decreased significantly. Use of the combination method of intraoperative embolization and resection in the treatment of patients with giant AVMs, brought better results.

Micromachines and Micro-electromechanical Systems (MEMS) are terms that are new to neurosurgeons but certain to become "household terms" in neurosurgery in the near future. These new terms serve as an introduction to a New World of sensors, actuators, and "smart systems" that will change the ways in which neurosurgeons interact with their environment. Through the use of microelectronics and micromachining technologies, MEMS will allow neurosurgeons to perform familiar tasks with greater precision, perform tasks that previously were not done at all, and monitor physiological and biochemical parameters more accurately and with greater safety.

It should be stressed, however, that most of the Bangladeshi population, especially in rural areas, still does not have access to effective neurosurgical services. The number of neurosurgeons in Bangladesh is inadequate, and in different areas of the country an imbalance exists with regard to the availability of neurosurgeons. In the future, it will be necessary to train many more young doctors in neurosurgical practice by sending

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them not only to foreign countries to gain advanced skills but also to rural areas for further practical experience.

According to recent data, the foundation of the neurological and neurosurgical departments of the Massachusetts General Hospital in Boston provides $55 million/year for scientific research. Without sufficient financial support, it is understandable why there has been little creative work in this field in a developing country like Bangladesh.

Neurosurgery faces many future challenges. The development and acquisition of new technology naturally leads to higher costs. Already, these issues are evident in cases where the state of the art dictates multimodal therapy while patients must choose between, for example, radiosurgery and microsurgery. Furthermore, postoperative follow-up of large numbers of patients can be difficult, making problematic the translation of clinical experience into clinical research. Resource availability issues will become even direr as continued economic development of our country increases the population's standard of living and further elevates the public's expectations.

Despite these challenges, the evolution of neurosurgery in Bangladesh from the recent past to its current status is indeed encouraging. It has begun to develop, and it will advance further in future.

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