

## **ELECTIVE (SSC5c) REPORT (1200 words)**

A report that addresses the above four objectives should be written below. Your Elective supervisor will assess this.

### **Introduction**

For my elective, I arranged a 6-week placement in the Neurosurgery department at Singapore General Hospital (SGH), a tertiary acute hospital in Singapore. Having interest in neurosurgery, I thought that this would be a good opportunity for me to experience this surgical specialty in my home country, Singapore. At the same time, I hoped to familiarise myself with the hospital setting in Singapore.

**Objective 1: What are some of the common neurosurgical conditions seen in Singapore and how do they differ from that in the UK?**

Being based in SGH, I have had a wide exposure to various neurosurgical conditions and procedures. These ranged from brain tumours, hydrocephalus, traumatic brain injuries (TBI) and intracranial haemorrhages, neurovascular pathologies, skull base surgeries and spinal conditions. In general, neurosurgical conditions seen in Singapore are similar to that in the UK.

Brain tumours, both high and low grade, are commonly encountered. Intraoperative MRI (IMRI) guided surgeries are often carried out to aid maximum possible resection of tumour. This was a new experience for me as I have not previously witnessed the process of IMRI. TBI presenting with intracranial haemorrhages is prevalent in Singapore. Trauma is one of the top 5 causes of death in Singapore,  $\frac{3}{4}$  of which is due to TBI. (1) In 2013, 10.5% of the total population was 65 years and above. (2) As mortality and morbidity from TBI is higher in the elderly (3), an aging population indicates a greater burden of TBI in Singapore.

Patients with haemorrhagic stroke are managed under neurosurgery in Singapore and may subsequently require surgical management of complications. Neurovascular pathologies such as cerebral aneurysms and arteriovenous malformations are encountered both in outpatient clinics or as emergency cases. Degenerative and neoplastic spinal pathologies requiring surgery are also prevalent in Singapore.

**Objective 2: How are neurosurgical services structured and made available to the people in Singapore and how is it different from that in the UK?**

Neurosurgical services are available both in the public and the private healthcare systems. Within the public healthcare system, the Singapore Health Services (Singhealth) and the National University Health System (NUHS) clusters provide neurosurgical services. The department of Neurosurgery in National Neuroscience Institute (NNI), a tertiary speciality centre under Singhealth, provides various neurosurgical services. Based at Tan Tock Seng Hospital and SGH, it also extends its services to other hospitals in Singapore. KK Women's and Children's Hospital provides paediatric neurosurgical services. (4)(5) Similarly, neurosurgical services are offered by both public and private healthcare in the UK. However, focusing on London, neurotrauma is mainly managed by 4 Major Trauma Centres

(MTCs) whereas non-emergency neurosurgery services can be accessed in various hospitals in the public system. (6)

Patients can access neurosurgical services via Emergency Departments or by attending a neurosurgery outpatient clinic for non-emergency cases. Patients can refer themselves to these specialist clinics in a public hospital or be referred by a GP clinic or a polyclinic. (7) This differs from the system in the UK where patients must be referred by their GPs in order to attend a neurosurgery outpatient clinic in a public hospital.

**Objective 3: Outline the management of patients presenting with Traumatic Brain Injury (TBI) in Singapore General Hospital (SGH).**

During the elective, I encountered several patients with TBI. Upon presentation to the emergency department, patients are resuscitated as necessary and a Computed Tomography (CT) scan of the head is obtained before neurosurgical input is requested. The on-call neurosurgery team decides on the management plan – neurosurgery intensive care unit (NICU) management with or without surgery as determined by the type of TBI. Emergency craniotomy for an extradural haematoma and burr hole evacuation for a chronic subdural haematoma are some of the procedures I have seen in SGH.

NICU is the mainstay for the patient with TBI. The goal is to prevent secondary injury to the brain and thus, neuromonitoring is conducted in order to recognise early signs of deterioration. Such monitoring may include intracranial pressure monitoring, correcting hypoxia and hypotension and others. (8) A Multidisciplinary Team (MDT) approach is taken involving the neurosurgery team, neurointensivists and trained nurses. Patient's family members are informed and family conferences may be arranged. The rehabilitation team reviews these patients and makes appropriate decisions. Subsequently, physiotherapists, occupational therapists and speech and language therapists are enlisted in the MDT to help the patient in the functional aspect.

**Objective 4: Reflect on the elective experience and whether it has helped in deciding a career in neurosurgery.**

My elective experience in SGH has exposed me to a wider field of neurosurgery than that in the UK. Building on my placements in London, I feel like I now have a better understanding of the management of neurosurgical patients. This elective has also helped me in understanding the hospital set-up at SGH and this will be valuable for the future, when I will return to Singapore to work as a doctor.

The neurosurgery department at SGH is an ideal place to learn and the friendly environment made it easier for me to become part of the team. A typical day for the medical officers may start as early as 6.30 am with pre-rounds. Following the progress of some patients on the ward convinced me of the life-saving nature of neurosurgical procedures, whereas there are others with unfavourable prognosis, especially in the context of brain tumours. As such, good communication skills to convey such information to patients is indispensable in this field and I hope to continuously build myself in this aspect.

Attending theatre was often the highlight of the day. I saw certain surgeries for the very first time in SGH, including transphenoidal pituitary adenoma resection and clipping of an aneurysm. Surgeries also provided an excellent opportunity to learn basic surgical skills and those specific to neurosurgery. It was thrilling to be part of the surgery when I scrubbed in, and this allowed me to be more accustomed to handling instruments.

Clinics allowed me to see patients in a more stable state and provided constant learning opportunities. It also emphasized on the importance of good communication skills and managing patients' expectations. Another good experience was following the on-call registrar or medical officer and seeing patients presenting acutely in the emergency department or acute deterioration of ward patients. I also attended the weekly journal clubs by the neurosurgery research team at NNI and presented in one of those meetings.

Being in Singapore where food is a significant part of the culture, the team would get together sometimes for breakfast or lunch. This was an equally enjoyable part of the elective experience as this allowed me get to know my team members better. I believe that this simple act strengthens the bond in the team, leading to good teamwork which ultimately reflects on the high standard of patient care.

Overall, this elective has been an eye-opener in several aspects. It has confirmed my passion in neurosurgery and has allowed me to witness the life of a neurosurgical trainee in Singapore. However, experiencing a specialty as a medical student is not equivalent to working in that specialty – thus, I plan on gaining work experience in neurosurgery to better understand the requirements of this surgical field of a doctor. I am hoping that the neurosurgery rotation in my Foundation Year 1 in the UK will provide me with valuable experience that I can utilize in the future when I return to Singapore. I understand that there is a steep learning curve ahead of me, both in terms of acquiring knowledge and skills, but I am willing to work hard and persevere in order to become a competent doctor, caring for patients with utmost sincerity.

(1180 words)

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