

Review Article

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Patterns of Spine Cases in a New Neurosurgery Centre in Southeast Nigeria

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ABSTRACT

Background: The Imo State Specialist Hospital (IMSSH) commenced neurosurgical services in April 2021 and spine procedures in August 2021. The activities of the hospital with respect to surgical management of spine pathologies were audited.

Aims: Our aims were to look at the pattern of spinal pathologies surgically managed in the hospital including their age and sex distribution, the pathologies and procedures performed as well as immediate post operative outcomes.

Methods: The case files of all spine patients who had surgical procedures at IMSSH from August 2021 to April 2023 (21 months) were retrospectively reviewed.

Results: Seventy-two spine patients had surgical procedures during the study period (an average of 3 – 4 spine procedures per month). The mean age of patients was 55.4±16.1 years with a male-to-female ratio of 7: 5. The mean age for male patients was 53.86±17.83 years while that of female patients was 57.5±13.2years. The peak age range at presentation was in the 7th (n=23, 31.9%) decade. The highest frequency of procedures was performed in the lumbar/lumbosacral spine (56.9%), followed by cervical spine (29.1%), and thoracic/thoracolumbar spine (13.8%). Degenerative spine diseases (69.4%) accounted for the highest number of spine cases, followed by spinal trauma (20.8%) and Spinal tumours (6.9%). Mortality in the immediate post-operative period was 6.9% (n=5).

Conclusion: The study showed a male preponderance for spinal surgeries among our spine patients, with most cases being of degenerative spine pathology. We hope this would be helpful in formulating policies for the growth of this new Neurosurgical Centre.

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Introduction

The Imo State Specialist Hospital is a secondary health care centre in Owerri, Imo State, Southeast Nigeria. It is one of the two public hospitals currently involved in neurosurgical services in Owerri and serves an estimated 5.4million people (2016 estimate National Bureau of Statistics) Neurosurgical services started at the Imo State Specialist Hospital in April 2021 with the management of a child with congenital hydrocephalus. The management of the hospital decided to improve on its neurosurgical services to cater for the many patients who flock to the hospital seeking those services.

Methodology

Medical records of patients operated on for spinal pathologies from August 2021 to April 2023 were retrieved and data collected using a semi-structured proforma.

Ethical clearance was obtained from the Ethics Committee of the Imo State Specialist Hospital to carry out the research.

Analysis was performed using simple statistical methods.

Results and Analysis

A total of 72 patients had spinal surgeries during the period under review - a 21-month period, giving an average of 3-4 spine cases per month.

The Patient Characteristics are as Presented in The Table Below:

VARIABLES	FREQUENCY
Total patients	72
male	42 (58.3%)
female	30 (41.7%)
M:F	7:5
Mean age (years)	55.03
Age range for males (years)	26 - 81
Age range for females (years)	20 - 76
Peak age range	60-69 (n=23)

Table 1: Patient Characteristics Most Cases were Degenerative Cases, with a Corresponding Majority of Lumbar/Lumbosacral Spine Cases, as Seen in the Figures Below

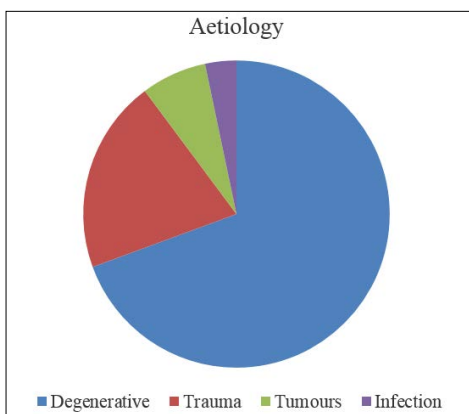


Figure 1: Aetiology of Spine Pathologies

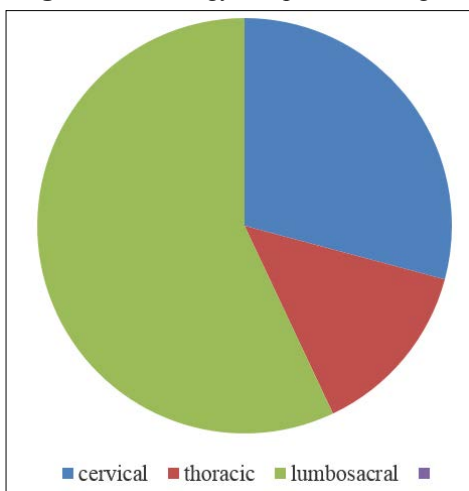


Figure 2: Location of Pathology/ Surgery Performed a Total of 5 Patients Died within 2 weeks of Surgery Making a Mortality of 6.9%

Discussion

To be able to commence spinal surgeries at the Imo State Specialist Hospital the following factors were considered:

1. Ability to get urgent radiological services including CT and MRI. CT and MRI services are not yet offered by the hospital. A diagnostic facility less than 10 minutes drive from the hospital provided CT services and had a patient transport vehicle to pick and drop patients. The hospital also has a patient transport vehicle system used to transport patients to the nearest Teaching hospital with a 1.5Tesla MRI scanner in a neighbouring state 94km away from the hospital.
2. Availability of an Intensive Care Unit/High Dependency Unit. The hospital opened a 6-bedded Intensive Care Unit, complete with patient monitors and ventilator. Nurses to man the unit were trained for a month by 2 qualified ICU nurses, one of which headed the ICU.
3. Accessibility to spinal implants. The hospital was able to get Indian-made titanium implants from a reputable company at less costs than the average European implants.
4. Availability of C-arm. A refurbished C-arm was purchased by the hospital.
5. Training of operating room nursing staff for neurosurgery. A trained Neurosurgery operating room nurse was engaged to step down training for our operating room nurses who were mainly newly graduated nurses.

A study from another part of Nigeria highlights these same steps in setting up a dedicated neurosurgical facility complete with a neurosurgery ward and trained neurosurgery nurses, neurosurgery operating room nurses, and other ancillary staff. It took them about 5 years to achieve this [1].

In another study detailing the set-up of a new neurosurgical practice in a rural setting, despite seeing a number of spine cases (40 traumatic spine cases, 3 spine tumours, and 5 degenerative spine), none had surgical intervention in that centre due to lack of needed manpower, lack of critical care services, and lack of appropriate surgical equipment [2].

In another study from a hospital in Papua New Guinea, over a 10-year period from the start of their neurosurgical service, the hospital was able to perform 51 spine procedures - most of which were for infections (20 cases), despite having over 280 spine patients that may have required surgical intervention. The reasons given for this include unavailability of appropriate diagnostic imaging facility and unavailability of specialized instruments and equipment [3].

Several other studies have also highlighted these and similar constraints in setting up neurosurgical facilities across LMICs [4-6].

Conclusion

Setting up a new neurosurgical service in the LMIC can be challenging, however thinking out of the box and drawing up a clear plan towards achieving specific goals in patient management will help in this regard.

In this public hospital in Southeast Nigeria, we have been able to set up a thriving spine practice and we recommend that the government allocate resources to this centre to help maintain and improve on the current practice.

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