

DESCRIPTIVE ABSTRACT:

ALEXANDER, Austin P., Kathryn NORTON, and Marsha D. RUTLAND. Department of Physical Therapy, Hardin-Simmons University, Abilene, TX, 79698, USA. Midsagittal Dissection of the Brain in Situ.

INTRODUCTION. As Doctor of Physical Therapy (DPT) students learn anatomy in the cadaver lab, internal and midline anatomical structures of the head/neck may be difficult for students to visualize. Anatomical models are commonly used for mid-sagittal anatomical identification.

This case study highlights the procedure to develop a mid-sagittal dissection of the brain in situ.

RESOURCES. A 66-year-old male embalmed cadaver (11-month postmortem) was dissected by first year DPT students. Occupation: farmer with causes of death including cardiovascular disease, diabetes, and hypertension.

DESCRIPTION. Initially, clearing of the skin, fascia, and subcutaneous tissue was performed off the midline of the face, nose, and occiput with a scalpel. Once the sagittal suture is exposed, the initial sagittal cut was made through the bone. A Craftsman oscillating multi-tool saw can be used to guide a midsagittal cut and control for depth of cut. To ensure the cut is in a true midsagittal section, recommendations are made to avoid cutting completely through the skull with the autopsy saw and finish with a chisel and hammer. The midsagittal cut should extend from the bridge of the nose to the foramen magnum. Utilizing a Stryker oscillating orthopedic bone saw or an oscillating multi-tool saw, the midline of the mandible and maxilla then can be cut. A retractor was used to separate the skull bones along the sagittal suture and expose the dura matter and superior sagittal sinus. The dura was cut with a scalpel to expose the falx cerebri. Using a twelve-inch knife, the midsagittal cut was made using one slicing motion to cut through the corpus callosum, diencephalon, brainstem, and cerebellum. With the retractor still in place, a manual saw or oscillating saw was used to cut through the cervical spine, sphenoid, ethmoid, and hyoid bones. A scalpel or larger knife then was used to cut through the midline of the larynx and esophagus. The head and cervical region was then reflected to expose a midsagittal dissection of the brain in situ.

SIGNIFICANCE. Utilization of the midsagittal dissection of the brain in situ allows students to identify midline structures of the brain, larynx, nasal cavity, and pharyngeal constrictors that are often difficult to identify as well as see the cranial nerve still intact and provides additional learning experiences.