Photo atlas of inner skull base using digital single lens reflex camera

Sir,

Cadaver dissection has a pivotal role in shaping the initial learning curve of skull base neurosurgeons. At present, cadaver dissection is not formally practiced in India barring a few examples. It is limited to some conferences and research projects only. The reasons for the same are many including limited availability of cadavers, poor facilities for cadaver procurement and preservation, inadequate infrastructure, and financial constraints to name a few. Operating microscope is must for capturing high-resolution images. Due to nonavailability of a dedicated cadaver laboratory, we developed atlas of inner skull base using digital single lens reflex (DSLR) camera. A prior permission from institute’s authority was taken to conduct this study. The study was done in mortuary, where clinical and medicolegal autopsies are conducted. The current study was limited to exposure of fifth (V) and sixth (VI) cranial nerves. Right side of head of a fresh cadaver was used for dissection. The temporal bone was removed until middle cranial fossa base. The dura was stripped and interdural dissection was done to expose greater superficial petrosal and V nerves. After removal of brain and tent, VI nerve was traced from origin to Dorello’s canal. The Gruber’s ligament was cut, dura opened over cavernous sinus, and VI nerve was traced till superior orbital fissure. Finer anatomy such as cranial nerve pathway and relationship of the anterior clinoid process could also be adequately demonstrated.

The following gears were used for capturing the images: Cannon 550D® (18–55 mm 1:3.5–5.6 IS) and Nikon D100® (60 mm). The images were further edited with Adobe Photoshop CS2®. The images captured are

Figure 1: (a) Posterior fossa showing cranial nerves, (b) opening of dorello’s canal, (c) sixth nerve in cavernous sinus, (d) complete course of sixth nerve
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of high-quality and comparable to images obtained with operating microscope [Figures 1 and 2].

We use these photographs for teaching and training residents. These images when placed in a stepwise manner help in revising the complex neuroanatomy especially at the remote skull base locations. The limitation was that the blood vessels were not infused, hence not distinctly visualized. The images can be of better educational purposes with the availability of injected heads with demonstration of cerebrovascular structures.

The very basic motto of this attempt lies in the fact that the complexities of neuroanatomy and neurosurgical procedures can be demonstrated at any medical institute without the need of sophisticated and costly cadaver dissection set up and DSLR cameras can be used to take good quality photographs of skull base for educational purpose.

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Blunt orbital injury causing traumatic intracranial aneurysm in a child

Sir,

Traumatic intracranial aneurysms (TICAs) are rare lesions and account for <1% of all intracranial aneurysms. [1] Their management is different from that of a spontaneous intracranial aneurysm. We hereby present a case of posttraumatic distal cortical artery aneurysm of the right frontal lobe, in a girl child, and discuss its management.

Our patient was a 7-year-old girl meeting with an accident and being struck with a bicycle handlebar. The patient presented to us within 15 days of injury with the complaints of drowsiness, vomiting, and swelling of the left eye. On examination, her Glasgow Coma Scale (GCS) was 14/15, the vision was normal, and left sided eyeball movements were restricted in upgaze. Her computed tomography (CT) head revealed the intracranial hematoma along with a bony chip, as shown in Figures 1 and 2. Her CT angiogram brain showed a left-sided distal cortical artery aneurysm of a size of 12 mm × 7 mm × 5 mm and a bony chip lying beside it, as shown in Figure 3. Considering the presence of an intracerebral hemorrhage, the peripheral location of aneurysm and possibility of it being a pseudoaneurysm, patient was planned for surgical exploration, evacuation of clot, and clipping of the aneurysm.

During surgery, we chose a right sided interhemispheric approach, evacuated the hematoma, took out the bony chip and defined the aneurysm. Intra-operatively presence of bony chip was confirmed, as shown in Figure 4. While defining, it appeared to be very thin walled and having no neck, with its origin from a big rent in the cortical branch of the left distal anterior cerebral artery. It ruptured as soon as it was handled and we had to clip the artery and excise the aneurysm. The postoperatively patient had an uneventful course, her extraocular movements became normal, and her 5th day CT angiogram of brain showed normal distal flow in the anterior cerebral artery. The patient was discharged with a GCS of 15/15 and no neurological deficit. Her histopathological report showed a pseudoaneurysm as shown in Figure 5.

TICAs account for <1% of all intracranial aneurysms. [1] These are more common in children, [2] and may present as early as weeks to, as late as years after the injury.