To the Editor,

The utilization of computed tomography (CT) and three-dimensional reconstructions of various systems in the animal body in veterinary practice has been increasing rapidly for teaching veterinary anatomy with these advanced technologies, especially in veterinary anatomy education.

This correspondence article explains the use of three-dimensional computed tomography (3D-CT) reconstruction and the creation of anatomical models to teach anatomy in veterinary institutes. The computed tomography images provide excellent details of relevant structures and serve as a tool for teaching anatomy to the budding veterinarians. Various scientific literature describes different methods to enhance anatomical teaching and learning through advanced imaging techniques such as computed tomography (CT) and three-dimensional reconstruction.

In one recent study, the authors have generated a complete three-dimensional reconstruction of the Ichthyornis dispar skull using high-resolution computed tomography [1] and proved that using these advanced technologies might fill a gap in teaching veterinary anatomy. Similarly, my first postgraduate (M.V.Sc.) student worked on the computed tomography of skull bones and their 3D reconstructions in barking deer and sambar deer skull [2], and I felt that the use of computed tomography is an advanced tool for better understanding the anatomical structure by its 3D reconstruction.

The computed tomography images can be obtained by the CT scan machine in a brief period of time and presented in front of the veterinary students for a better description of the anatomical structures. Transverse images can also be obtained using fifth-generation CT equipment. The DICOM files generated by computed tomography can be converted to 3D reconstruction images in STL files using various software such as ITK-snap, 3D slicer, ImageJ, TurtleSeg, InVesalius 3 etc. The current reconstruction of 3D images from DICOM (Digital Imaging and Communications in Medicine) files requires strict supervision for the reconstructed images to have the same metadata, including slice thickness, spacing between slices, and image resolution [3].

These 3D images can be printed as 3D anatomical models for a better understanding of the anatomy to veterinary students, which helps the anatomy students in enhanced learning and also helps them to diagnose and treat many anatomical disorders in the animal body. The 3D-CT images provided a better understanding of the anatomical CT cross-sections. The possibilities of 3D reconstructions have been demonstrated by generating virtual casts of specific areas from different specimens.

In conclusion, 3D computed tomography and reconstructed anatomical models may facilitate teaching veterinary anatomy to the students by realistically allowing the view of structures without superimposition of other structures, eliminating the difficulties of visualizing the extension of different types of lesions [4].

Ethical approval

This article does not require any human/animal subjects to acquire such approval.

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Author contribution

Om Prakash Choudhary: Conceptualization, Data Curation, Visualization, Writing - Original Draft, Writing - review & editing.

Consent

Not applicable.
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Guarantor

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None.

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