Anatomical Variation Quality Assessment Tool (AVQAT)

The Anatomical Variation Quality Assessment Tool (AVQAT) was developed to guide in reporting and evaluating anatomical variation case reports. Recognizing the importance of accurately reporting rare anatomical variations, AVQAT provides a structured framework divided into two sections with nine domains. Section A emphasizes the technical and descriptive aspects, and Section B focuses on interpretative and contextual factors. Each domain features targeted questions answered systematically with “Yes”, “No”, or “Not applicable”.

Section A

Domain 1: General Aspects		
1	Is the title self-explanatory and followed by the words “case report”?	☐ Yes ☐ No ☐ NA
2	Were two-to-six keywords relevant to the content of the case report provided?	☐ Yes ☐ No ☐ NA
3	Was either structured or nonstructured abstract summarizing the key findings provided?	☐ Yes ☐ No ☐ NA
4	Was the text structured so that it provides brief rationale and uniqueness of the case, independent section describing the case, and discussion of relevant scientific literature with clear conclusions?	☐ Yes ☐ No ☐ NA

Domain 2: Specimen Characteristics		
1	Were the type and origin of the specimen clearly specified (e.g., cadaver, living patient, volunteer)?	☐ Yes ☐ No ☐ NA
2	Was the ethnicity or relevant population background of the subject reported?	☐ Yes ☐ No ☐ NA
3	Were the key subject characteristics provided (e.g., age, sex, side, anatomical region)?	☐ Yes ☐ No ☐ NA

Domain 3: Anatomical Definition		
1	Was the clear anatomical definition of the main variation provided?	☐ Yes ☐ No ☐ NA
2	Were all concomitant anatomical variations explicitly described and defined?	☐ Yes ☐ No ☐ NA
3	Was the normal or reference anatomy clearly described and referenced for comparison?	☐ Yes ☐ No ☐ NA
4	Was the standardized anatomical terminology used consistently throughout the text?	☐ Yes ☐ No ☐ NA
5	Were the definitions used consistently in the text and in agreement with the figures and legends?	☐ Yes ☐ No ☐ NA

Domain 4: Methods of Visualization

1	Were the primary method(s) used to identify and document the variant explicitly stated (e.g., dissection, imaging, intraoperative findings, histology)?	☐ Yes ☐ No ☐ NA
2	Were any secondary or confirmatory methods listed where applicable?	☐ Yes ☐ No ☐ NA
3	Was it stated whether the contralateral side or additional specimens were examined for comparison?	☐ Yes ☐ No ☐ NA
4	Were the technical details sufficiently described? - *Select relevant heading*	
	a. Perioperative Findings	
	Was the surgical procedure during which the finding was made described?	☐ Yes ☐ No ☐ NA
	Was the surgical approach specified?	☐ Yes ☐ No ☐ NA
	Was the patient's position during the procedure specified?	☐ Yes ☐ No ☐ NA
	Were perioperative adjuncts described if used (e.g., C-arm, tourniquet, magnification,…)	☐ Yes ☐ No ☐ NA
	b. Dissection	
	Were the fixation method and condition of the cadaver described?	☐ Yes ☐ No ☐ NA
	Was the context of the finding stated (e.g., incidental finding during a teaching course vs. targeted search)?	☐ Yes ☐ No ☐ NA
	Was the dissection approach described?	☐ Yes ☐ No ☐ NA
	c. Imaging	
	Were the imaging modality and key parameters/protocol described (e.g. slice thickness, sequences, segmentation, reconstruction)?	☐ Yes ☐ No ☐ NA
	Was the software or workstation used for visualization and measurements specified?	☐ Yes ☐ No ☐ NA
	d. Histology	
	Were tissue processing methods (fixation, embedding) and staining protocols described?	☐ Yes ☐ No ☐ NA
	Were magnification and microscopic techniques specified?	☐ Yes ☐ No ☐ NA
	Were the histological features relevant to the anatomical diagnosis clearly reported?	☐ Yes ☐ No ☐ NA

Domain 5: Quantitative Description & Measurements

1	Were all the measurements clearly defined (including reference points and planes)?	☐ Yes ☐ No ☐ NA
2	Were relevant dimensions reported (e.g., length, diameter, thickness, distances, angles)?	☐ Yes ☐ No ☐ NA
3	Was the methodology of measurement clearly described (including instruments and software used)?	☐ Yes ☐ No ☐ NA
4	Were appropriate units and numerical precision used consistently?	☐ Yes ☐ No ☐ NA
5	Were potential sources of measurement bias or error identified and clearly stated?	☐ Yes ☐ No ☐ NA

Domain 6: Quality and Use of Figures		
1	Was the key anatomical finding clearly documented in at least one appropriate figure (photographs, imaging slice, 3D reconstruction, etc.)?	☐ Yes ☐ No ☐ NA
2	Were the figures in sufficient resolution and clarity to identify the relevant structures?	☐ Yes ☐ No ☐ NA
3	Were the figures clearly labelled, with consistent terminology matching the text?	☐ Yes ☐ No ☐ NA
4	Were figure legends sufficiently detailed (modality, side, orientation, key structures) to allow understanding without extensive reference to the main text?	☐ Yes ☐ No ☐ NA
5	Were orientation markers and/or scale bars provided?	☐ Yes ☐ No ☐ NA

Section B

Domain 7: Differential Diagnostic Considerations		
1	Were the main differential diagnostic possibilities explicitly mentioned?	☐ Yes ☐ No ☐ NA
2	Was the distinction between the final interpretation and alternative possibilities clearly explained and justified?	☐ Yes ☐ No ☐ NA
3	Were available clinical, imaging, or histological correlations used to support the final interpretation?	☐ Yes ☐ No ☐ NA

Domain 8: Identification and Integration of Previous Studies		
1	Was the rationale behind rarity of the case report described?	☐ Yes ☐ No ☐ NA
2	Were relevant previous studies (including systematic reviews or meta-analyses, if available) identified or a clear statement provided that none exist?	☐ Yes ☐ No ☐ NA
3	Was a clear comparison with previously reported variants or findings provided (similarities and differences)?	☐ Yes ☐ No ☐ NA

Domain 9: Ethical and Regulatory Considerations		
1	Was a statement on ethical approval explicitly provided (e.g. institutional review board, ethics committee)?	☐ Yes ☐ No ☐ NA
2	Was is stated whether informed consent for publication (for living patients) or appropriate authorization for use of cadaveric material was obtained in accordance with local regulations?	☐ Yes ☐ No ☐ NA
3	Was the anonymity and confidentiality of the subject(s) ensured in text and figures?	☐ Yes ☐ No ☐ NA
4	Was the inclusion of donor(s)/patient(s) appropriately acknowledged?	☐ Yes ☐ No ☐ NA