CQ16: Is teleradiology useful for interpreting postmortem imaging?

Recommendation Grade: C1

Teleradiology can be extremely useful for interpreting postmortem imaging, particularly when qualified experts are not available on site, and consultation with experienced specialists in postmortem imaging is possible.

Explanation ───

● **Background**

Teleradiology refers to the interpretation of medical images based on the transmission of digital images and related information between multiple institutions via network systems.

At present, one of the primary purposes of teleradiology is to improve the quality of medical care by enabling radiology specialists to provide diagnostic expertise in environments where on-site expert interpretation is not feasible[1].

The number of diagnostic radiologists is limited, and in clinical practice involving imaging of living patients, teleradiology already plays an important role. Its usefulness is increasingly recognized, though various issues have also been pointed out[1]. These issues often stem from the nature of remote interpretation, including limited access to sufficient clinical information, questions surrounding liability for interpretation, and the fundamental issue of what qualifications are required to interpret images remotely. Whether in clinical or postmortem imaging, there is little debate that consulting a qualified expert is beneficial when such expertise is not available at the imaging facility.

In clinical imaging, qualifications such as board certification by the Japan Radiological Society exist. However, there is currently no formal certification system for postmortem imaging specialists, making it difficult to define what constitutes an "expert" in this field.

Nonetheless, it is evident that the number of specialists in postmortem imaging is far smaller than that of clinical radiologists. From the standpoint of efficient use of human resources—and setting aside cost-effectiveness—providing postmortem imaging experts with appropriate working environments, access to image data, and contextual information (e.g., findings from external examinations) is considered to be beneficial.

● **Postmortem Image Interpretation and Teleradiology**

Since around 2009, the use of postmortem CT and remote image interpretation has been proposed as a method for identifying disaster victims[2,3]. In the positional statements issued by working groups on victim identification using postmortem CT[4,5], it is recommended that CT images be interpreted and reported either directly or remotely by qualified experts. Specifically, there are reports in which teleradiology was successfully applied in the identification of victims of large-scale fires[6].

In Japan, the Kagawa Medical Internet eXchange (K-MIX), a regional medical cooperation network, has been used to facilitate bidirectional sharing of postmortem image interpretation and autopsy findings between the departments of forensic medicine at Kagawa University and Chiba University. Studies evaluating diagnostic accuracy and practical utility in this remote setting have demonstrated the usefulness of such an approach[7].

○ Literature Search Strategy and Selection (as of July 9, 2023)

【PubMed】

#	Search formula	Number of articles
1	((((((((("postmortem") OR "post-mortem") AND "post mortem")) AND "imaging")) OR ((((("postmortem") OR "post-mortem") AND "post mortem")) AND "CT")) OR ((((("postmortem") OR "postmortem") AND "post mortem")) AND "computed tomography")) OR ((((("postmortem") OR "post-mortem") AND "post mortem")) AND "MR")) OR ((((("postmortem") OR "post-mortem") AND "post mortem")) AND "magnetic resonance")	5,700
2	#1 and remote	19

【医中誌 Ichushi-Web (Japan Medical Abstracts Society Database)】

#	Search formula	Number of articles
1	(((死後/AL) and ((FT=Y) and AB=Y and PT=会議録除く)) or ((死亡時/AL) and ((FT=Y) and AB=Y and PT=会議録除く))) and ((((画像診断/TH or 画像診断/AL)) and ((FT=Y) and AB=Y and PT=会議録除く)) or (((X 線 CT/TH or CT/AL)) and ((FT=Y) and AB=Y and PT=会議録除く)) or (((MRI/TH or MRI/AL)) and ((FT=Y) and AB=Y and PT=会議録除く)))	2,016
2	#1 and 遠隔	20

●Additional Sources Not Captured by the Search Strategy

References ［1］, ［3］, ［4］

■**References**

1）日本放射線科専門医会・医会遠隔画像診断ワーキンググループ （理事長 井田正博），日本医学放射線学会電子情報委員会（委員長 金澤右）：遠隔画像診断に関するガイドラ

イン 2018

2) Rutty GN et al：Fimag： the United Kingdom disaster victim/forensic identification imaging system. J Forensic Sci 2009；54：1438-1442（level 6）

3) Nuzzolese E：VIRDENTOPSY： Virtual dental autopsy and remote forensic odontology evaluation. Dent J 2021 ； 9 ： 102（level 6）

4) Morgan B et al：Use of post-mortem computed tomography in disaster victim identification： positional statement of the members of the Disaster Victim Identification working group of the International Society of Forensic Radiology and Imaging； May 2014. J Forensic Radiol Imaging 2014； 2：114-116（level 6）

5) Hofman P et al：Use of post-mortem computed tomography in disaster victim identification. Updated positional statement of the members of the disaster victim identification working group of the International Society of Forensic Radiology and Imaging； July 2019. J Forensic Radiol Imaging 2019；19：100346（level 6）

6) Rutty GN et al：Remote post-mortem radiology reporting in disaster victim identification： experience gained in the 2017 Grenfell Tower disaster. Int J Legal Med 2020；134：637-643 （level 5）

7) 原 量宏ほか：地域医療連携ネットワークを活用した Ai －かがわ遠隔医療ネットワーク（K-MIX）の活用．INNERVISION 2014 ； 29 ： 84-88（level 6）