



Feeling left right out?: A case report

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RaER Case #1

A GP sent a letter to the radiology department of a hospital asking for copies of films and report of a radiograph of an ankle performed on their patient 3 years previously, as he was now being referred to a specialist. The computed radiography (CR) films were retrieved. However, the radiographer noted that the requested films of the ankle were labelled right, but the imaging request form was for the left ankle.

The medical notes were obtained and these made mention of the right ankle, and the radiology report noted left and right sides on multiple occasions. After further analysis with a radiologist, it was determined that it was not possible to definitively state which side had been imaged on the available information, and the GP was notified.

RaER Case #2

Radiographs of the knees were requested and performed. The weight bearing view of the radiographic series was mislabelled by the radiographer (left instead of right) while the remaining images were correctly side-labelled. At the time of interpretation, a small osteochondral defect was noted involving the right knee (correct side) and this was correctly reported, although the mislabelling error on one of the images was not identified/corrected. Subsequent arthroscopy was performed on the left knee resulting in a medicolegal claim.

Discussion:

The issue of determination and labelling of correct "sidedness", and the associated error, is a complex, multifaceted one¹. As these cases illustrate, sidedness error can be initiated, propagated and detected at the many stages of the imaging test cycle, from clinical decision to image, through to clinical action (and even beyond). Often, there are multiple opportunities to correct the error, and the patient is an important participant. Resilient systems are able to detect and correct the error in a timely fashion prior to patient harm. The introduction of the Correct Patient, Correct Site, Correct Procedure (3Cs), and team timeout protocols is an example of a system improvement to build in such resilience².

One of the reasons that this is so important is that human error in relation to determining and labelling sidedness is a known risk and will continue to occur. In particular, it is recognised that some individuals do have some degree of self-reported difficulty in distinguishing left from right in themselves and others, resulting in confusion and error (perhaps around 10-15% of the population or even higher, and of variable severity)³⁻⁹. It is highly likely that the multiple individuals involved throughout the imaging testing cycle are not immune to this phenomenon, from requestor to administrative, technologist, nursing, reporter, and treating staffing groups.

This form of error can obviously have very serious ramifications and is highly relevant to medical imaging. The ability to discriminate right from left may require higher functions such as memory, visuospatial processing, language, integration of sensory information, and mental rotation⁹. Correct sidedness is a key safety issue, and may be made more challenging if, for example, the patient is in a non-conventional position (e.g. prone oblique), as can occur in the medical imaging department. The way (protocols) by which medical images are presented and

side-labelled, and subsequently used for interpretation and review/therapy, is also very relevant.

A recent study examined right-left discrimination among medical students⁹. About 11% reported poor or very poor perceived ability to discriminate right from left. The study found that medical students vary in their ability, and that about a third of students reported using techniques to help them discriminate right from left, and these students scored lower on the test. Healthcare professionals usually face patients in the front position. The results of the study indicated that medical students have greater difficulty in right-left discrimination in this position, possibly because mental rotation is required. The conclusions and implications of the study were that students should be educated in relation to the importance of correctly differentiating right from left, and that this function may be difficult for some people. Measuring the discriminatory ability of students who report such problems may improve vigilance and aid with development of strategies/forcing functions to reduce errors in clinical practice. It was suggested that further research could help clarify any associations between right-left discriminatory ability and patient safety, and whether this ability is influenced by fatigue or distraction (a focus on medical imaging would be an interesting project).

These case studies also illustrate the importance and growing role of human factors study and engineering in healthcare. Human factors issues are major contributors to adverse events in healthcare. Human factors is a discipline that seeks to optimise the relationship between technology and humans, applying information about human behaviour, abilities, and limitations to the design of tools, machines, systems, tasks, jobs, and environments for effective, productive, safe and comfortable human use. The health care system can be made safer by recognising the potential for error, and by developing resilient systems and strategies so as to minimise error occurrence and adverse outcomes¹⁰.

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