CASE STUDY

CHALLENGING CLINICAL CONSIDERATIONS

Dr Simon Prowse

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EXTREMITY IMAGING

Considering the utility of extremity CT in preference to x-ray.

Radiology in Australia is constantly evolving to keep up with patient expectations, technology and Medicare indications. Our aim is to stay up to date, and provide the most effective and efficient imaging solution to help manage patients in our local community.

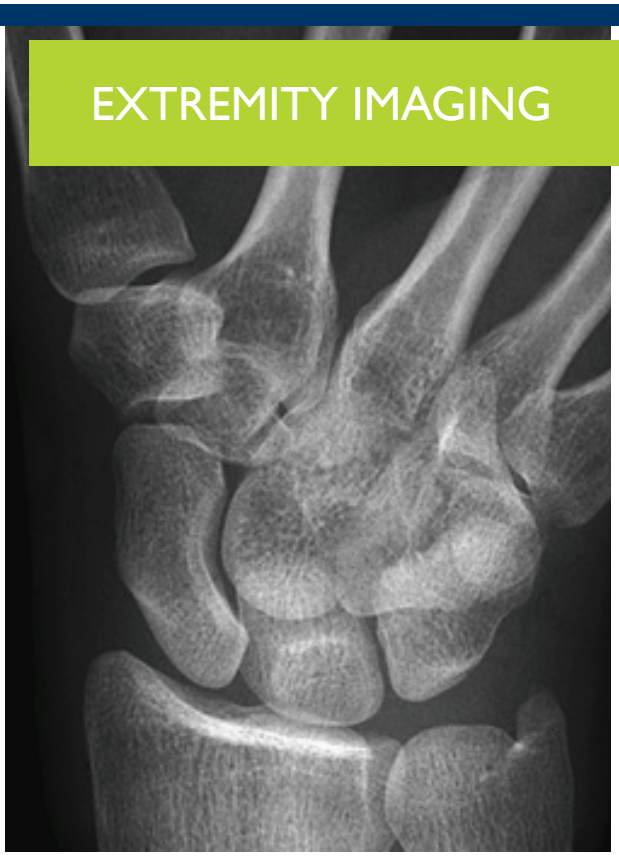
In this article we consider the utility of extremity CT in preference to x-ray.

Today's CT scanners use less radiation to achieve a high-quality diagnostic image than ever before. For example a CT of the wrist produces a radiation dose of 0.15mSv[1] which is equivalent to 15 days of normal background radiation (unequivocally small), and therefore the benefit of a conclusive examination will almost certainly outweigh any concern about radiation.

A published analysis of Foot injuries in the American Journal of Roentgenology showed the sensitivity of xray for detecting midfoot fractures of only 25% and detection of talar fractures at a more respectable, but still relatively low, 78%.[2]

CT can also more accurately identify foreign bodies location, and may allow for review of tendons and may identify tendon ruptures.

CT is similarly more accurate when assessing the shoulder, elbow, wrist and hand, as well as pelvic/femur fractures in older patients.



Pictures right;
A - X-ray
B - CT [Occult fractures missed on xray but easily visible on CT]

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CASE STUDY

CHALLENGING CLINICAL CONSIDERATIONS *continued...*

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Referring for a CT of an extremity is exactly the same as referring for an x-ray. CT scans are rebatable and therefore we are able to bulk bill pensioners, and health care card holders. For all other patients, the Gap fee for CT is $140.

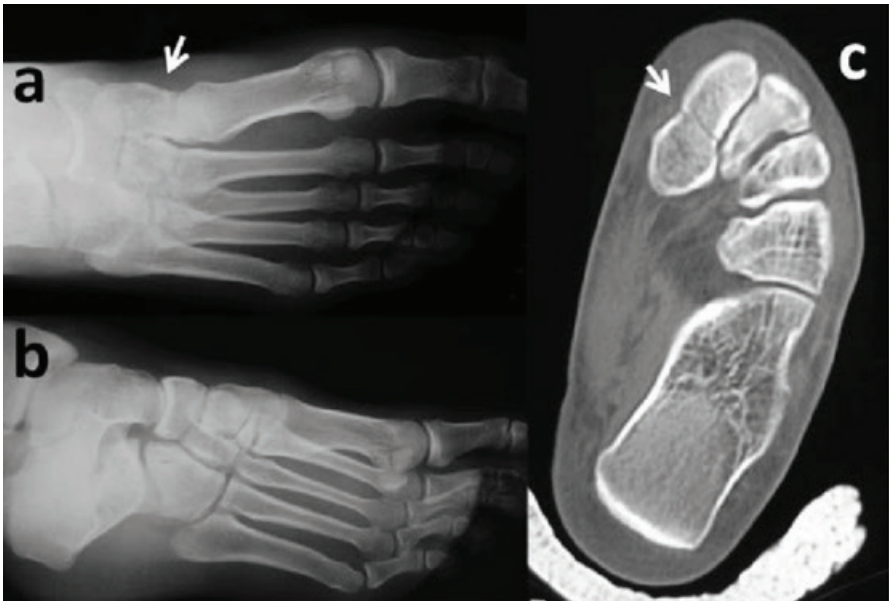
When investigating wrist, foot, ankle or elbow joint trauma in a patient over 16 years, consider requesting an "Xray + CT if Xray is normal".

In cases of knee trauma in patients under 50 years of age, a rebatable MRI knee could be considered if the xray is inconclusive.

Summary;

- The radiation dose when imaging extremities on modern CT scanners is extremely low.
- The vastly superior sensitivity and specificity CT, will result in more accurate diagnosis with less ambiguity in assessment and treatment of upper and lower limb pathology compared with xray imaging.

As always, a clear clinical question ensures that the radiologist employs the appropriate modality and protocols to provide you with the clinical answer.



Pictures above;
A & B - X-ray
C - CT [Occult fractures missed on xray but easily visible on CT]
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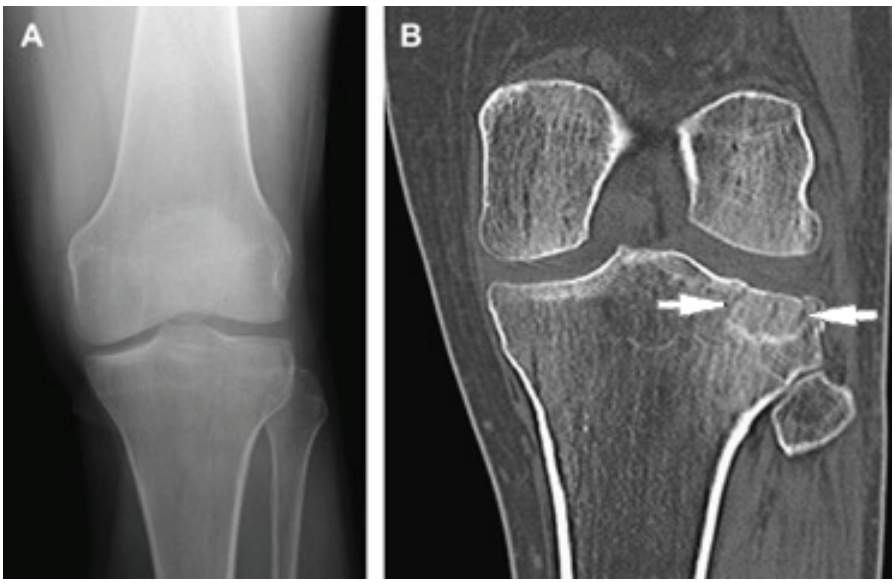
B - CT [Occult fractures missed on xray but easily visible on CT]



References:
1. Radiation Exposure From Computed Tomography Of The Upper Limbs, Acta Orthop Belg 2017 Dec;83(4):581-588.
2. Ankle and Foot Injuries: Analysis of MDCT Findings. Journal of Roentgenology. 2004;183: 615-622. 10.2214/ajr.183.3.1830615

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T: 8402 0202
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CONTACTS

Medical Liaison Officer: Lorne Klassen
M: 0422 422 331
E: lorne.klassen@radiologysa.com.au