INTRODUCTION

Welcome to the 16th edition of READ. One of the great pleasures of chairing the READ panel is not only receiving all the interesting cases that are submitted to the newsletter but also the stream of fascinating correspondence sent to READ from radiologists all over the UK on matters regarding elements of the learning from discrepancy process. It is clear from the survey sent out to Fellows of the RCR at the end of 2016 that virtually all radiologists have embraced the concept of learning from discrepancy and value their local learning from discrepancy meetings (LDMs) highly. There is considerable variation in how meetings are held and it is always interesting to hear about innovative approaches adopted by different departments.

In this special issue of the newsletter we have departed from the normal format to deal with a problem raised by more than one LDM convenor: how does a convenor deal with a request from management to reveal individual radiologist error rates? A recent example is illustrated using a problem page format where the initial enquiry from Dr X has been sent to two senior radiologists who are not members of the READ panel for their advice and we hope you will find their responses illuminating. If you have further advice for Dr X or another ‘learning from discrepancy’ problem, then please get in touch with us at read@rcr.ac.uk

The remainder of the newsletter is devoted to a superb piece of work produced by the Leeds LDM, known locally as an educational meeting, superb piece of work produced by the Leeds LDM, which has given their permission for it to be published by READ. This is a terrific example of how the shared learning and improving practice and thus many departments are changing the name of their ‘learning from discrepancy’ meetings to ‘quality improvement’ or ‘educational’ meetings.

Dr Mary Roddie
Consultant Radiologist Imperial College Healthcare NHS Trust and Chair of READ panel

LDM CONVENOR DILEMMA

Dear READ,

I am convenor of my local learning from discrepancy meeting (LDM) and for the last year I’ve been keeping a robust database on radiologist reporting errors (discrepancies). I set it up for general educational purposes but perhaps inevitably (and it is probably naive of me not to have anticipated it) my clinical director has asked me to compare individual radiologists’ error rates. Aware of the political and psychological implications, I want to do this accurately and sensitively and therefore limit my analysis to one question: are any of us in need of re-training or other action? I want to use statistics to ensure differences in error rate are not due to random chance and to identify significant outliers. I do not have access to a statistician and I wondered whether you know of any department that has gone through a similar process and what statistical method they used?

Yours, Dr X

Dear Dr X,

I would refuse to have anything to do with your clinical director’s proposal – the outcome of any discrepancy analysis should always be about learning and improving practice and thus many departments are changing the name of their ‘learning from discrepancy’ meetings to ‘quality improvement’ or ‘educational’ meetings.

As soon as you start judging people, it diminishes the educational aspect of the process. Even subtle judgements like ranking the degree of error or the act of breaking anonymity affects the dynamic of the whole process, from the willingness to report errors through to the meeting outcomes. The nervous and timid disengage; the robust and extrovert start to dominate.

Furthermore, reporting error rates depend so much on factors other than radiologist competency such as case mix, reporting load, modality spread, workflows, ergonomics, interruptions and working patterns. Your statistical exercise will, at best, erode trust between colleagues, reduce any learning from error, make everyone much more conservative, non-committal and defensive and generally ruin department dynamics. At worst, it may be responsible for General Medical Council (GMC) referral, colleague dismissal and subsequent court cases.

It may be that your clinical director is young and naive but you should be firm in your refusal to go along with his/her proposal to go through your LDM database.

Yours sincerely, Dr A

Dear Dr X,

I’m afraid your proposal is naive and dangerous in the extreme. Databases should not be kept following LDMs and, furthermore, scoring or grading of discrepancy is not supported by The Royal College of Radiologists. Notes with anonymised summaries of cases discussed, learning and action points should be produced promptly and circulated to those who attend the meetings but to no one else. Once these notes are produced, the details of the cases discussed should be deleted. Serious Incidents should be reported to DATIX promptly and dealt with in the normal way and should not be delayed until the next LDM. Serious errors should already have been communicated to the referrer, the original reporter and, if necessary, the patient well before a case is used for shared learning in the LDM.

This is not to say that we should ignore the issue of poorly performing colleagues, but a radiologist is blind or blinkered if serious concerns about a colleague were to become apparent only via a LDM or quality improvement meeting.

Yours sincerely, Dr B

Reference

INTRODUCTION

Multidisciplinary team discussions (MDTs) provide bespoke patient-centred care plans that contribute to improved patient outcomes including overall survival.

They can also be a useful way of identifying errors in radiology reporting. The emphasis of the RCR in recent years has been to try and use these discrepancies in a more beneficial way for education rather than for blame. Many cancers, including melanoma, now have more effective systemic treatments available. These can improve survival for radiologically detected advanced, metastatic or recurrent disease, giving reporting accuracy more clinical significance.

Over seven years, a single radiologist in one of the largest cancer centres in Europe has prospectively recorded all the discrepancies he has noted in the melanoma MDT he attends. Most of these were discussed in the educational meeting run in Leeds. A review of the 43 discrepancies has revealed a pattern of common mistakes made when reporting imaging of melanoma. These are described here.

1. WE MISS METASTASES

What these cases taught us:

- Using a systematic method to screen the large data sets reduces mistakes.
- Satisfaction of search (SOS) is the most common error observed.
- Using coronal reformats may reduce false negative observation.
- Be aware of uncommon sites such as bowel, muscle, heart, orbits and subcutaneous tissue.
- Although common, these errors are not often clinically significant in widespread disease, but can have clinical implications (see Case 1e).

Case 1a

**Error:** Missed right external iliac node (arrow).

*Educational point:*
- Careful inspection along the external iliac vessels is required to detect nodes.

Case 1b

**Error:** Missed vertebral body metastasis in the context of oligo-metastatic disease (arrow).

*Educational points:*
- The bones are a review area.

Case 1c

**Error:** Missed retro-orbital metastasis (arrow). Other metastases including left cerebellar metastasis correctly reported.

*Educational points:*
- The retro-orbital region is a review area.
- Additional clinical information (such as proptosis in this case) facilitates radiological detection.
Case 1d

Error: Missed psoas metastasis (arrow). Other metastases correctly reported.

Educational points:
- The muscles are a review area.

Case 1e

Error: Stomach metastasis missed on initial reporting. Other metastases correctly reported. When picked up in the multidisciplinary team meeting (MDTM), anaemia successfully treated by irradiating stomach lesion.

Educational points:
- Take clinical scenario into account when looking for unusual sites for metastases.
- Beware satisfaction of search.
- Some errors have clinical implications even in disseminated malignancy.
- The gastrointestinal (GI) tract is a review area.

Case 1f

Error: Incidental gall bladder metastasis missed on initial reporting.

Educational points:
- Beware unusual sites.
- The GI tract including biliary tree is a review area.

Case 1g

Error: Subcutaneous metastasis missed on initial reporting.

Educational points:
- Review subcutaneous tissue in coronal plane.
- Include subcutaneous tissue in your systematic review.

Case 1h

Error: Small bowel metastases missed on initial reporting.

Educational points:
- The GI tract is a review area.
2. WE GET CONFUSED BY POSTOPERATIVE CHANGES

What these cases taught us:

- An understanding of the surgical procedure and postsurgical anatomy is helpful.
- Multidisciplinary review with the operating surgeon helps characterise postoperative changes.
- Asymmetry post surgery causes difficulty with reporting.
- Metastatic disease should be differentiated from post-surgical scarring, for example well circumscribed enhancing nodules around the dissection field are suspicious.

Case 2a

Error: Residual dissected pectoralis muscle mistaken for recurrent nodal disease (arrow). Normal surgical void with increased density of fat posterior to pectoralis major and adjacent to the axillary vein and artery (circle).

Educational points:

- The dissected pectoralis muscle insertion at the coracoid may be mistaken for recurrence.
- The stump of the resected pectoralis muscle is a symmetrical structure.
- If in doubt, review the case with the surgeon who completed the operation.

Case 2b

Error: 2 sub-cm nodules incorrectly reported as post-surgical change, later confirmed to be metastases.

Educational points:

- Well-circumscribed enhancing nodules within sub-cutaneous tissue around the nodal dissection field are typical for in-transit subcutaneous metastases.
- The presence of extensive ilio-inguinal post-surgical change (*) may bias the reporter into incorrect characterisation of adjacent solid nodule.

Case 2c

Error: Breast nodule metastasis correctly reported. Additional chest wall metastases and axillary node unreported.

All three recurrent sites of disease confirmed on positron emission tomography-computed tomography (PET-CT).

Educational points:

- Beware satisfaction of search – the most common error we observed.
- Systematic interrogation of large data-sets using coronal reformats may minimise false negative observations.
- Chest wall muscle, sub-cutaneous tissue and axillary nodes are review areas.

Case 2d

Error: Normal contralateral left submandibular salivary gland (SMG) reported as metastasis.

Educational points:

- A SMG may be mistaken for nodal disease following neck dissection.
3. WE MISTAKE BENIGN DISEASE FOR METASTASES (ESPECIALLY IN THE LIVER)

What these cases taught us:

- Beware benign disease masquerading as cancer, and cancer that looks like benign disease.
- Beware over calling benign sub-centimetre liver lesions.
- Be conscious of the clinical implications of over-staging and use further imaging such as PET-CT, magnetic resonance imaging (MRI) or interval CT to characterise indeterminate lesions.

Four cases of benign hepatic lesions mistaken for metastases

Case 3a

Error: Focal fatty change adjacent to the falciform ligament incorrectly characterised as a metastasis confirmed on PET-CT. Node positive disease correctly reported.

Educational points:
- Focal fatty liver change may mimic a metastasis.
- Additional imaging with either contrast enhanced MRI (CE-MRI) or PET-CT can help in lesion characterisation.
- Most sub-cm liver lesions in cancer patients are benign haemangiomas, cysts or Von-Meyenburg complexes.

Case 3b

Error: Liver lesions reported as metastatic. MRI and interval CT characterised them correctly as benign haemangiomas in the context of extra-hepatic metastatic disease (arrows).

Educational points:
- 80% of sub-cm liver lesions in patients with a cancer history are benign.

Case 3c

Error: Foregut ciliated liver lesion confirmed at surgery, thought to be a metastasis on preoperative CT and MRI with high signal on the fat saturated T1 suggestive of melanin. Fluorodeoxyglucose negative at PET.

Educational points:
- High signal on the T1 is not specific to melanin and can be found in benign liver lesions.
- CT, MRI and PET-CT are complimentary in characterising liver lesions and sometimes contradictory.

Case 3d

Error: Liver lesion reported suspicious for metastasis. Focal nodular hyperplasia (FNH) on MRI.

Educational points:
- Incidental haemangiomas, cysts, Von-Meyenburg complexes, focal fatty sparing and FNH may mimic liver metastases.
- CE-MRI is an accurate method of characterising liver lesions.

Case 3e

Error: Splenulci incorrectly reported as metastases.

Educational points:
- Well demarcated homogeneously enhancing nodules are typical of splenulci.

Case 3f

Error: Left chest wall complex mass reported as a metastasis. Surgery confirmed benign neural tumour.

Educational point:
- A smooth tubular/lobular morphology is atypical for melanoma metastasis.
- Preoperative PET-CT or biopsy may have helped correctly characterise this lesion as benign.
- Correct preoperative characterisation can avoid unnecessary surgery.

Case 3g

Error: Complex cystic mass thought to be cystic metastasis. Interval CT and PET-CT confirmed this lesion to be stable over four years and most likely a benign duplication cyst.

Educational points:
- Complex lesions on CT can be correctly characterised using PET-CT or interval scanning.

Case 3h

Error: Small mesenteric cyst reported as metastases.

Educational point:
- A well circumscribed purely cystic lesion with no enhancing wall is benign.
4. WE MISS OR INCORRECTLY CLASSIFY THROMBOEMBOLIC DISEASE

What these cases taught us:

- Beware missing other important disease such as thrombo-embolic disease or other synchronous cancers (not seen in this series, but important to remember).

- Incidental thromboembolic disease occurs in 5% of cancer CT scans.

Case 4a

Error: False negative left femoral vein deep vein thrombosis (DVT) confirmed on ultrasound (US).

Educational points:

- The veins and pulmonary arteries are review areas.

- Streak artefact from right total hip replacement (THR) reduces imaging quality.

Case 4b

Error: Missed left atrial metastasis and left lower lobe endo-bronchial metastases with distal atelectasis incorrectly reported as pulmonary emboli.

CONCLUSION

It is hoped that colleagues might find these cases useful in illustrating how to avoid common pitfalls in melanoma reporting. More importantly, they demonstrate how, in any radiology specialty, the use of discrepancies as educational cases can be beneficial in identifying recurrent patterns of errors and improving future reporting accuracy.

References


Continue READing

READ supports our capability to learn and as such is now an important part of a radiologists commitment to improving the safety of patients in England and across the UK. It has to be driven by radiologists for radiologists. The local learning from discrepancies meeting is a rich source of learning that can also be shared with the wider radiology community. Every case discussed should be considered for submission to READ and don’t forget, each story submitted will attract continuing professional development (CPD) points.


READ Review Panel:

- Dr Mary Roddie (Chair)
- Dr Sri Priya Suresh (Programme Director)
- Dr Mark Bratby (Medical Member, BSIR Representative)
- Dr Anoma Lalani Carlton Jones (Junior Medical Member)
- Dr Sam Chakraverty (RCR Patient Safety Adviser)
- Dr Ram Chittal (Medical Member)
- Dr Dominic Fay (Medical Member, BSIR representative)
- Dr Emma Owens (Medical Member)
- Mrs Moira Heath (Lay Member)
- Dr Paul Spencer (Medical Member)