

Routines for SPECT/CT as a complement to whole body bone scan

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NUCLEAR MEDICINE IN MALMÖ



We at Nuclear Medicine in Malmö have worked long time to improve our routines for various nuclear medicine examinations. The goal is to improve effectiveness while maintaining high quality, by making use of the competences of physicians and biomedical technologists in an optimal way. Written documentation of procedures, training and testing of personnel to perform a certain task are common building blocks in this process.



In our working group for skeletal examinations, we have been working to optimize various reconstruction parameters to whole body bone scan and SPECT/CT, so that it can be performed efficiently and with high quality. One project within this work, "When to add SPECT/CT imaging to planar bone scanning", was Asal Shafi's Master Thesis work. We are pleased and proud that Asal finished her Master Thesis and that she was recognized as "Best Oral Presentation in the Technologist Sessions" and also was awarded the "European Covidien Technologist Award 2011 "at the Annual European nuclear medicine congress in Birmingham 2011.

We introduced the new routine for SPECT / CT as a complement to whole body bone scan in early 2012. We are pleased to share our experiences, which we hope will be of value to other nuclear medicine departments. It is, however, important to note that these are the procedures we have in Malmö at this time, but they may be improved as we continuously follow up our routines and we can not take responsibility for them to be used in exactly the same way in other departments or hospitals.

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The routines that we introduced at the beginning of 2012 implies that the nuclear medicine technologists that performs a whole-body bone scan in most cases are able to decide whether a SPECT/CT is required or not. The routines are based on three parts that I worked with together with the physician responsible for bone scans at our department:

1) Criteria for when to add SPECT/CT to a whole body bone scan

We developed criteria for patients who performs whole body bone scan with known or suspected malignant disease. This is the predominant patient group for us. For other patient groups, the nuclear medicine physician decides whether a SPECT/CT is required or not. The criteria can be found on the next page.

2) Training cases for nuclear medicine technologist.

To illustrate how the criteria should be applied, we developed a training tool for the technologists to learn to take decisions if SPECT/CT is required after a whole body bone scan. The tool consists of customized software that the technologists can use to examine the whole body bone scan image, read the referral information and if the patient reported any pain when he/she was asked at the investigation. We selected 40 training cases from previously performed examinations. After examining a case and deciding whether a SPECT/CT is required or not – the technologist can click up the correct answer.

Nuclear medicine technologist who have gone through training cases, proceeds to step 3

3) Test case for nuclear medicine technologist

A test with 10 cases that are presented in the same way as the training cases with the exception that the correct answer is not displayed. When the answers are corrected and approved nuclear medicine technologists are able to take decisions regarding performing a SPECT/CT as a complement to a whole body bone scan in clinical routine.

My Master Thesis work "Biomedical Technologists are qualified to asses when to add SPECT/CT imaging to whole body bone scans with given criteria and educational cases" and my presentations at EANM 2011 and 2012 can be found here at:
<http://numema.se>

If you have questions or comments, I'll gratefully receive them by mail
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Criteria for when to add SPECT/CT to a whole body bone scan.

Criteria to be used by biomedical technologist at Skåne University Hospital in Malmö.

The criteria apply to patients suspected of having **metastatic disease**. For other indications, the nuclear medicine physician takes the decision.

A) Indications for NOT performing SPECT/CT after a planar bone scintigraphy

- Patient cannot participate in a SPECT/CT examination
- Widespread metastases disease
- A previous whole body bone scan is available and no new lesions are present

B) Indications for performing SPECT/CT after a planar bone scintigraphy

- Focal lesions in the spine or pelvis
- Patient reports newly developed pain from the spine or pelvis
- Prostate cancer patients with increasing prostate-specific antigen (PSA) or PSA >20 even though no metastatic lesions are present (SPECT/CT of lumbar spine and pelvis)
- Large urinary bladder covering sacrum and the patient has reported symptoms from this area

C) Indications for NOT performing SPECT/CT

- Normal whole body bone scan and no criteria from section B to perform a SPECT/CT are fulfilled

If you are unsure whether SPECT/CT should be performed, call a doctor.

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