AB013. OA02.04: MRI for the follow-up of treated thymic epithelial malignancies

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Background: Thymic malignancies are routinely followed by CT. ITMIG guidelines suggest alternating some of these follow-ups with MRI to decrease radiation exposure. The purpose of our study was to assess the accuracy of MRI follow-up as compared to CT.

Methods: We retrospectively reviewed all patients with a thymic epithelial malignancy (TEM) diagnosis between 2011 and 2018 that had both chest CT and MRI for follow-up. Patients were identified by a computerized search of our radiology database for the word thymoma or thymic carcinoma in chest MRI or CT interpretations, as well as a pathology database search for patients with tissue diagnosis of TEM. We compared the detection of recurrence and metastatic disease between the CT and MRI scans in each of these patients.

Results: Twenty-two treated patients for histologically confirmed TEM had both CT and MRI follow studies. The mean age at diagnosis was 44.4 years (range, 20–66 years), of these, 12 (55%) were women and 10 (45%) were men. Twenty-one patient had sternotomy and 1 patient had robotic surgery for a thymectomy attempt. The mean interval between CT and MRI was 5.2 months (range, 0.5–13 months). TNM stages at diagnosis were: I (n=5), IIa (n=7), IIb (n=4), III (n=5), IVa (n=0), IVb (n=1). WHO classification was: A (n=0), AB (n=2), B1 (n=3), B2 (n=14), B3 (n=1), thymic cancer (n=2). Patients were followed for a mean of 6.2 years (range, 0.7–17.7 years). Resection types were RO (n=14), R1 (n=6), R2 (n=2). Fifteen patients had no recurrence of disease, 5 patients had recurrence of disease after a R0 or R1 resection, 1 patient had no progression of disease after a R2 resection and 1 patient had progression of disease after a R2 resection. CT and MRI performed equally in the identification of pleural spread (n=5), lymphadenopathy (n=4) and pulmonary metastases (n=1). Sternotomy wires caused artifacts prohibiting close evaluation of up to 18mm posterior to the sternum. There were two patients with retrosternal recurrence, which was large enough and thus identified by MRI despite these artifacts. Bone involvement and extension of disease into the thecal sac was identified earlier and more readily by MRI. No incidental pulmonary nodules ≥5 mm were identified by CT and MRI. Pulmonary metastasis ≥5 mm were seen on both modalities. Three patients had an indeterminate mediastinal finding on CT that was confirmed to be a benign cyst or pericardial fluid collection by MRI.

Conclusions: MRI is an alternative option to follow patients after treatment for TEM. However, for those with sternotomy wires, we recommend alternating the follow-up with CT as well.

Keywords: Thymoma; thymic epithelial neoplasm; follow-up; MRI

doi: 10.21037/med.2018.AB013

Cite this abstract as: Kerpel A, Marom EM. MRI for the follow-up of treated thymic epithelial malignancies. Mediastinum 2018;2:AB013.