Diagnosis and management of multi-synchronous lung adenocarcinoma

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BACKGROUND

J.K is a 55-year-old woman with no smoking history and a negative familial history of lung cancer.

On her routine health check-up, she presented with abnormal chest X-ray findings of suspicious nodular opacity.

She did not have any respiratory symptoms or recent weight loss.

Due to the abnormal chest X-ray that revealed a nodular lesion at the right middle lung zone, she was recommended to undergo a chest CT.

LEARNING GOALS

Goal 1: Understanding the diagnostic flow and clinical staging of patients presenting with multiple lung nodules that are suspected of multi-synchronous lung adenocarcinomas.

Goal 2: Recognizing how to distinguish multi-synchronous lung cancers from lung-to-lung metastasis clinically.

Goal 3: Choosing which lung cancer to treat first and which treatment modality should be administered with consideration of further management of other multiple lesions.

Goal 4: Understanding multi-disciplinary management and staged treatment strategies for curative intent.
Multifocal subsolid nodules (up to 10) in both lungs. The largest nodule was 1.8 cm at the right upper lobe (RUL) with mixed solid proportions and minor fissure retraction (Figure 1a). The second largest nodule was located at the left upper lobe (LUL) with a total size of 1.5 cm with 6 mm solid portions (Figure 1b). Other subsolid nodules varied in size and solid portions ranging from 6 mm without any solid portion to 10 mm with 4 mm of solid portion. No enlarged mediastinal lymph nodes were detected.

OVERALL DIAGNOSIS
Probable multi-synchronous early-stage adenocarcinomas and multifocal pre-cancerous lesions in both lungs.

TESTING
CT SCAN: CHEST
Findings:

- Multifocal subsolid nodules (up to 10) in both lungs.
- The largest nodule was 1.8 cm at the right upper lobe (RUL) with mixed solid proportions and minor fissure retraction (Figure 1a).
- The second largest nodule was located at the left upper lobe (LUL) with a total size of 1.5 cm with 6 mm solid portions (Figure 1b).
- Other subsolid nodules varied in size and solid portions ranging from 6 mm without any solid portion to 10 mm with 4 mm of solid portion.
- No enlarged mediastinal lymph nodes were detected.

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CURRENT PRESCRIPTIONS
- none

COMORBIDITIES/MED HX
- none
Revealed mild uptake of the right upper lobe nodule (max SUV 1.5) and subtle uptake of the left upper lobe nodule (max SUV 0.8). No abnormal FDG uptake was observed in other multifocal subsolid nodules in both lungs or mediastinal lymph nodes (Figures 2a-b).
In this case, the gestational age is 28 weeks (trimester 3). Given minimal risk to the fetus, contrasted CT Thorax and CT brain with abdominal shielding were performed to help stage the patient's cancer.

**STAGING CONSIDERATIONS**

**STAGING SCANS**

Scan showed an irregular soft tissue mass measuring 9.3 x 4.7 x 7.1 cm seen centered in the upper lobe abutting the mediastinal pleura, involving the left perihilar region and superior segment of left lower lobe with multiple satellite nodules scattered in both lungs. Small left pleural effusion. There are also enlarged mediastinal, left hilar and left supraclavicular lymph nodes.

Imaging modalities that are safest in pregnancy: Ultrasound and MRI (without contrast). PET CT and CT pelvis are contraindicated with the highest fetal radiation dose. Iodinated contrast could cross the placenta in animal studies but did not show teratogenicity. Data in humans are however lacking. Gestational age also plays a key role, with the fetus being most-sensitive to radiation up to week 16, during which they are at risk of fetal malformations or CNS anomalies. When proper abdominal shielding is employed, imaging sary for oncological management of

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**CONTRASTED CT BRAIN**

Scan was normal.

**CONTRASTED CT THORAX**

Scan showed no evidence of enhancing brain metastasis.

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**BRAIN MRI**

No evidence of enhancing metastasis.

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**CONTRASTED CT THORAX**

Figure 2

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**VOTE FOR CASE 05**

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