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Lung Cancer After Successful Treatment of Hodgkin's Lymphoma: Early Detection on Follow-Up CT

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Aim/Background

Hodgkin's lymphoma (HL) is a B-cell malignancy. The evolution of combined modality therapy (CMT) has improved cure and survival rates of HL patients.

However, this comes with an increased risk of secondary malignancies such as lung cancer (LC). Incidental findings on follow-up scans for HL survivors can help early detection.

Here, we report the presentation and imaging findings of four patients who developed LC after successful treatment of HL.

Methods

The electronic health records of HL survivors who developed LC were queried.

Subjects who had undergone one or more CT scans with lung lesions interpreted as incidental findings before the LC diagnosis were included. Patients who had a HL relapse were excluded.

Relevant data including demographics, clinical presentation, time from incidental findings to biopsy confirmed LC diagnosis, and lesion characteristics were summarized.

Results: Demographics and Clinical History

Two males and two females met the eligibility criteria. All patients received 4-6 cycles of AVD based therapies for HL, and two received radiotherapy in addition. Median age at HL diagnosis was 66 (52-75), and at LC diagnosis was 74 (54, 79).

The indications of CT scans were follow-up for HL recurrence except for one patient who undergone low-dose CT lung cancer surveillance due to history of smoking.

Three of the patients had LC within four years of HL treatment, while one patient was diagnosed after 13 years.

Results: Imaging findings

The earliest presentation of LC in all patients was sub centimeter solid pulmonary nodule(s) detected on follow-up chest CT.

The Median time from first incidental CT findings and lung biopsy was 14 (12, 34) months (Figure 1 and 2).

Histopathology of lung lesions revealed adenocarcinoma in all patients except for one having SCC.

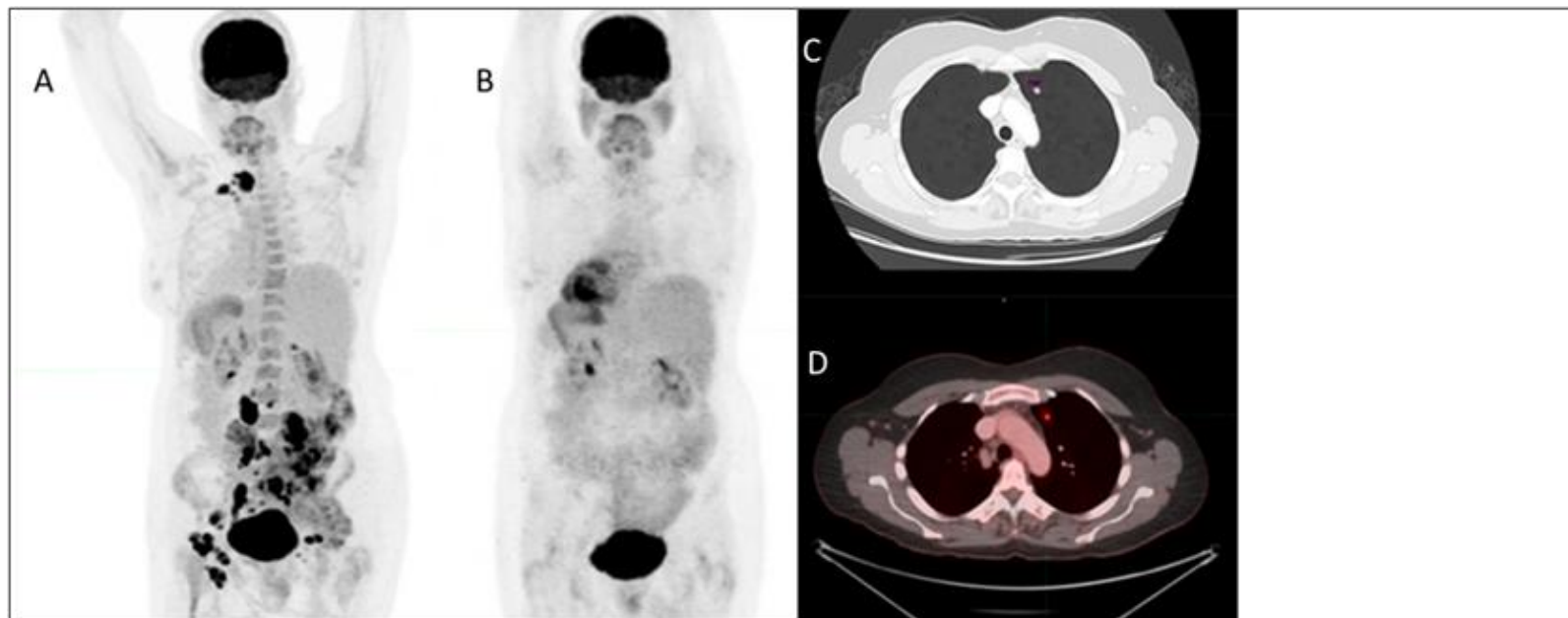


Figure 1: Images of 52 years old female with HL who subsequently developed lung cancer after treatment. **A:** Baseline PET scan showing multifocal hypermetabolic lymphadenopathy above and below the diaphragm. **B:** end of HL therapy PET scan showing complete response. **C:** A follow up axial CT chest after 1 year with IV contrast showing: subcentimeter pulmonary nodule in the left upper lobe which was later confirmed to be adenocarcinoma. **D:** An axial PET CT fusion showing an FDG-avid 0.8 cm left upper lobe pulmonary nodule with SUV of 5.5.

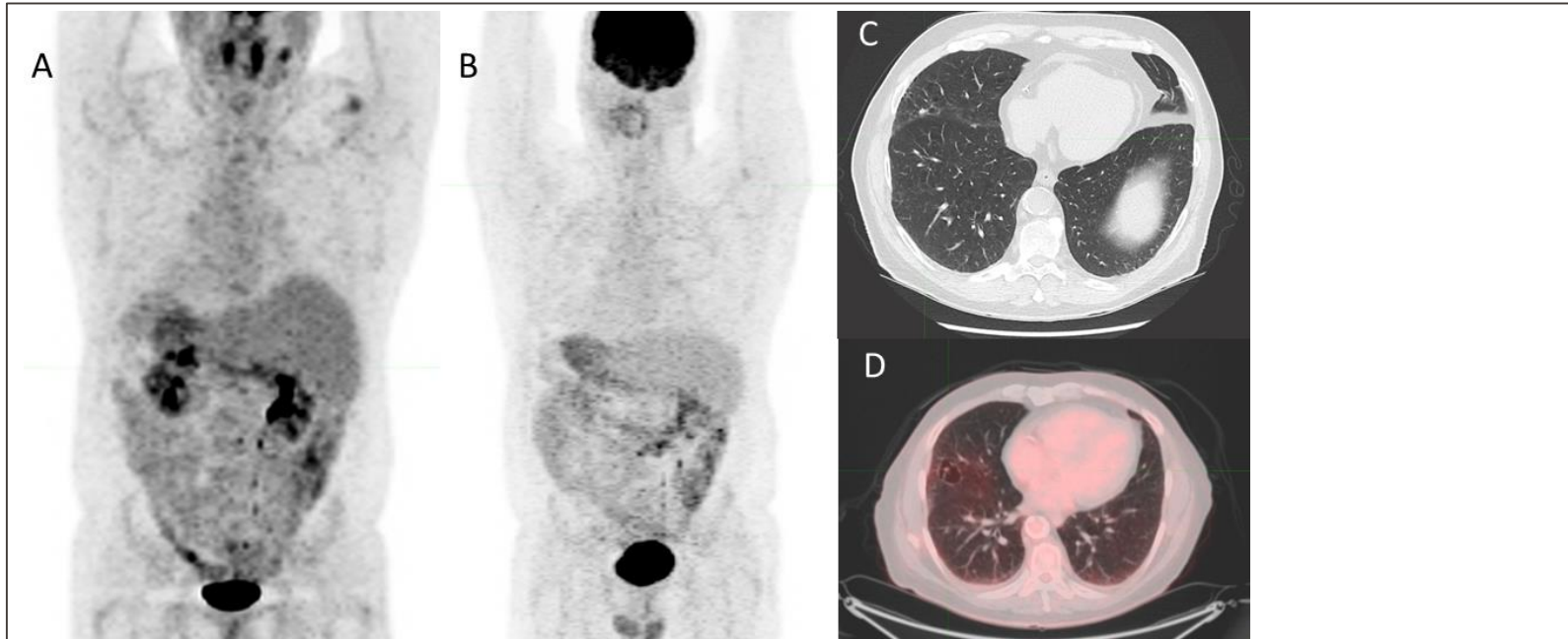


Figure 2: Images of 62 years old male with HL who subsequently developed lung cancer after treatment **A:** Baseline PET scan showing FDG-avid uptake in right-sided level II cervical nodes. No other nodal or extranodal FDG-avid lesions identified on the current scan. **B:** post treatment PET scan showing no evidence of FDG-avid disease. **C:** A low dose CT chest without contrast after 13 years showing new 6 mm nodule in the middle lobe **D:** An axial cut of PET CT fusion showing middle cavity associated nodule that was biopsy-proven to represent tumor is not FDG avid.

Conclusion

HL survivors with history of smoking are at increased risk of developing LC.

Special attention should be paid for incidental lung findings in this population.

In addition, screening and awareness programs should be developed for this high-risk population to ensure early detection and treatment of LC.

References

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