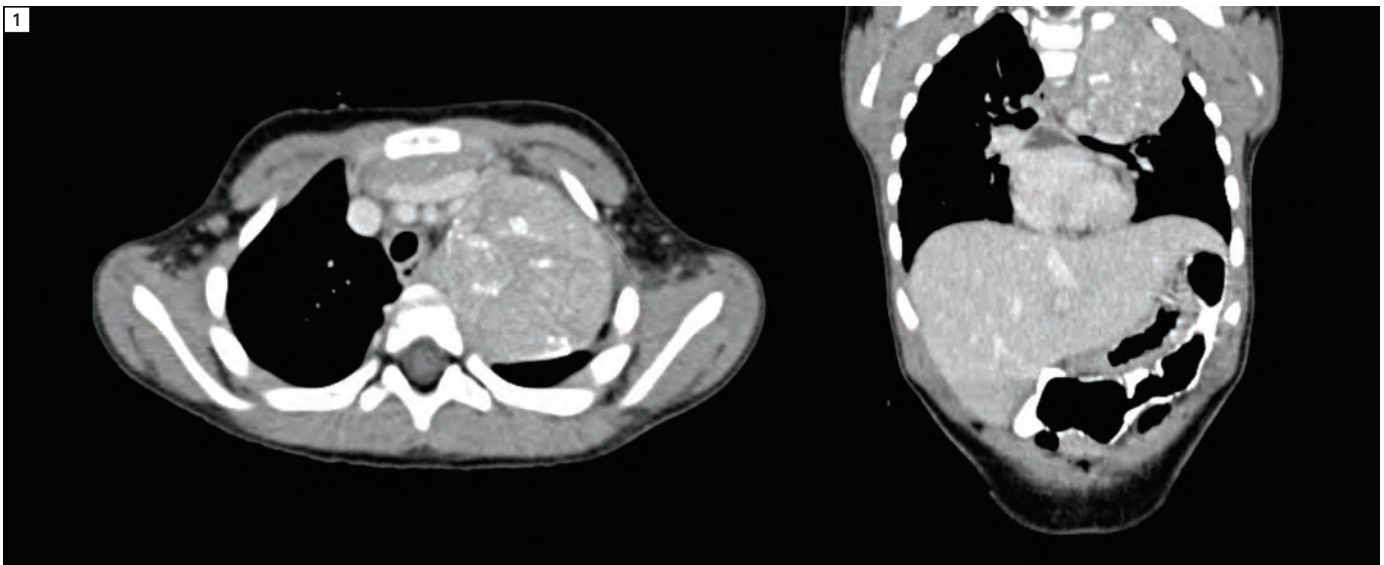


Case Gh Xm

Neuroblastoma: Post-surgical ^{123}I MIBG SPECT/CT Study Demonstrating Residual Tumor

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Case study data provided by University of Minnesota, Minneapolis, MN, USA



1 Contrast CT in a 4-year-old boy with neuroblastoma shows large mass in left upper lobe of lung with focal calcification.

HISTORY

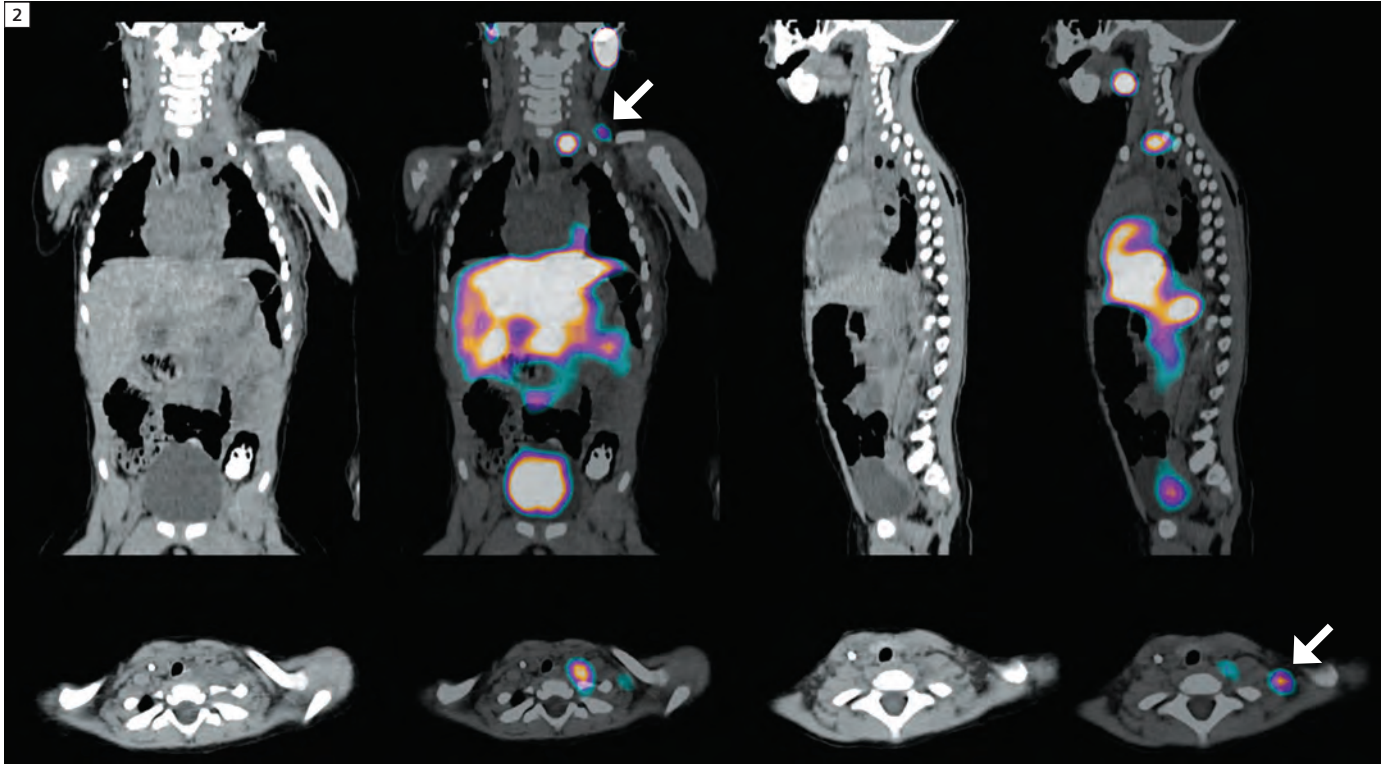
A 4-year-old boy presented with respiratory distress. Routine chest X-ray showed mass in left upper lung. A CT scan was performed to evaluate the lung mass.

FINDINGS

The CT study showed a large mass in the left upper lobe of lung with multiple foci of intratumoral calcification. There was no other lesion suggestive of metastases. Histopathology suggested primary neuroblastoma.

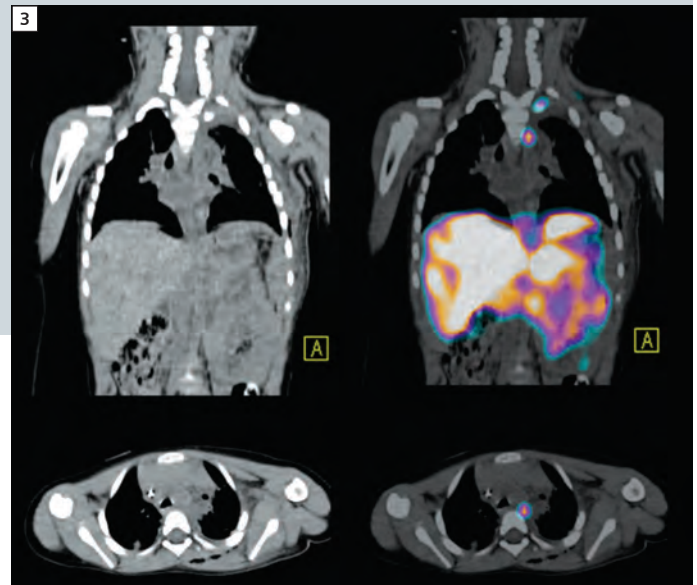
Patient was subjected to surgery for removal of primary tumor. Within 2 days of surgery, the patient was referred for ^{123}I

MIBG SPECT/CT study for detection of residual tumor and functioning metastases. Patient was injected with 4.2 mCi ^{123}I MIBG. After 24 hours, whole-body planar and SPECT/CT study was performed on a Symbia™ T6 system. Diagnostic CT including thorax, abdomen and pelvis was performed prior to SPECT/CT study as an integrated procedure.



2 SPECT/CT study demonstrates foci of increased tracer uptake in the soft-tissue mass at the left paratracheal region at the thoracic inlet as well as a small foci of uptake in the left supraclavicular region (white arrow). These foci represent residual tumor. Post-operative changes related to recent resection of the lung mass are evident in the CT images.

3 A smaller foci of increased uptake also is visualized in the left paratracheal region at the level of the aortic arch at the resected tumor bed which also represents residual tumor. No other well-defined functioning metastases visualized. Bilateral adrenal glands showed high tracer uptake probably reflecting adrenal hyperplasia. Liver and spleen show normal uptake of ^{123}I MIBG.



COMMENTS

Diagnostic CT integrated with ^{123}I MIBG SPECT was critical in this patient for accurate localization and characterization of residual tumor tissue, exclusion of metastatic foci and planning of further therapy. Presence of residual tumor tissue related to partial resection of primary tumor would require radiation therapy including ^{131}I MIBG therapy. Exact determination of the extent of residual tumor tissue and its relationship to surrounding structures (in this case the trachea and great vessels at the thoracic inlet and mediastinum) helps plan and follow up after MIBG therapy.