Alteration of the organ uptake of the 99mTc-MAA, induced by radiotherapy and chemotherapy

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Abstract
Several chemotherapeutic agents have been reported to alter the normal natural bio-distribution of radiotracers in the body, which may have certain implications in the interpretation of the results in the follow up of patients during and after chemotherapy. We present in this report an incidental detection of alteration of the organ uptake of the 99mTc-MAA, induced by radiotherapy and chemotherapy.

CASE REPORT
A 73-years-old man was referred to our department for a Ventilation-Perfusion scan due to suspicion of Pulmonary Embolism. His lung perfusion scintigraphy revealed an unusual picture. Besides visualization of the lungs, accumulation of Tc-99m macroaggregated albumin (MAA) was seen in salivary glands, liver, gall-bladder, intestines and urinary bladder. His medical history revealed that he was a known case of oesophageal carcinoma and had received 35 cycles of radiotherapy and 6 cycles of chemotherapy. His last cycle of chemotherapy was given 4 months back which included 5-FU and cisplatin. He had no evidence of intrapulmonary right to left shunt. In this case, we hypothesized that these adverse effect occurred because of the abnormally high delivery of the drugs to a particular normal tissue, resulting in exposure of the normal tissue to radiotherapy and an excessive dose of anticancer drugs and consequent injury. Because adverse effects were observed exclusively in the particular areas with intense 99mTc-MAA accumulation, tissue damage was considered to be produced by radiotherapy and excessive concentration of the anticancer drugs.

Figure 1
Figure 1: Whole body anterior and posterior views showing abnormal uptake of Tc-99m MAA in the salivary glands, liver, gall-bladder, intestines, urinary bladder, besides lungs.

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