Interesting image

Liver and lymph node metastases of prostate cancer visualized on post-therapy imaging after treatment with $^{188}$Re-HEDP

Metástasis hepáticas y linfáticas del cáncer de próstata en la imagen post-terapia con $^{188}$Re-HEDP

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A R T I C L E  I N F O

Article history:
Received 12 March 2013
Accepted 6 April 2013

A 76-year-old man with bone metastases of prostate cancer diagnosed a year ago was admitted for relief of bone pain (visual analogue scale: 90%) most markedly in cervical spine and upper extremities due to skeletal metastases. His serum prostate specific antigen level was markedly increased (351 ng/ml). After documentation of sufficient tracer uptake in multiple bone metastases on whole-body $^{99m}$Tc-MDP bone scan, we treated him with a single intravenous injection of 2.4 GBq $^{188}$Re-HEDP. Quality control of $^{188}$Re-HEDP was performed with TLC within 30 min prior to injection, radiochemical purity was $>95\%$, free rhenium and colloid ratios were less than 3%. For pain, he was taking Novalgin 30 drops t.i.d. and used Fentanyl patch 50 μg/72 h.

Fig. 1 shows increased activity localization in multiple bone metastases and the liver lesion after treatment with $^{188}$Re-HEDP, as well as on the whole-body scans obtained a week prior to treatment. This metastatic liver lesion was diagnosed on a conventional CT scan 6 months before treatment. The SPECT/CT study (obtained at 24 h after injection) shows tracer accumulation in the liver lesion, in abdominal lymph nodes (in the hepatoduodenal ligament) and in stomach (Fig. 2A and B). An abdominal section of the SPECT/CT study shows that the area of activity localization on right side of abdomen on whole body image corresponds to intestinal contents (Fig. 2C).

Liver metastases of various malignant tumors such as breast cancer have been reported to show accumulation on bone scintigraphy with $^{99m}$Tc-MDP. Limouris and Skulka reported $^{188}$Re-HEDP uptake in the stomach in two patients with osseous metastases because of prostate and breast cancer$^1$; however, we could not find any reports on visualization of lymph node metastases on post-therapy scan after administration of $^{188}$Re-HEDP. Accumulation of Rhenium-188 in stomach and bowel was not mentioned on the previous biodistribution studies.$^{2,3}$ This case demonstrates that tracer accumulation in soft tissue metastases persists 24 and 48 h after injection of $^{188}$Re-HEDP at a similar level as in bone metastases, which may exert an incidental therapeutic effect on these lesions as well as on bone lesions.

Fig. 1. (A) and (B) Post-therapy $^{188}$Re-HEDP whole-body scans obtained at 24 and 48 h after injection show accumulation of activity in multiple skeletal metastases, in the metastatic liver lesion (in left lobe, black arrow) and on left side of the abdomen (gastrointestinal activity, white arrows). (C) Whole body bone scintigraphy with $^{99m}$Tc-MDP obtained a week prior to treatment with $^{188}$Re-HEDP shows localization in multiple bone metastases and in the metastatic liver lesion (black arrow).

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Fig. 2. Transverse sections of the SPECT/CT study obtained at 24h after injection of $^{188}\text{Re}$-HEDP. (A) Tracer accumulation is noted in a lesion located in left lobe of liver, in enlarged abdominal lymph nodes (black arrows) and in stomach (white arrows). (B) A lower section shows activity localization in gastric lumen (white arrows). (C) An abdominal section shows activity localization in bowel (white arrows).

Conflicts of interest

The authors have no conflicts of interest to declare.

References

