Clinical note

Extrahepatic visualization in the distribution of falciform artery in posttreatment Bremsstrahlung images after radioembolization with 90Y microspheres

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\begin{abstract}
We report the case of a 39-year-old female with metastatic colorectal cancer. Pretreatment SPECT/CT imaging revealed extrahepatic tracer accumulation along the falciform artery distribution. Prior to the administration of 90Y microspheres, hepatic arterial anatomy was evaluated angiographically. It was not possible to identify the hepatic falciform artery so that no coil-embolization was performed. The patient tolerated the treatment well with only mild pain around the umbilicus during the procedure that spontaneously abated. As far as we know, this is the first report of Bremsstrahlung SPECT/CT images that has clearly shown that the microspheres accumulation in the anterior abdominal wall corresponds to hepatic falciform artery distribution on CT.
\end{abstract}

\begin{Palabras clave:}
Yttrium-90
Bremsstrahlung
SPECT/CT
Extrahepatic
Falciform artery
Microspheres
\end{Palabras clave:}

\begin{RESUMEN}
Se presenta el caso de una paciente de 39 años con cáncer de colon metastatizado al hígado. La imagen SPECT/TC pretratamiento mostró acumulación extrahepática del radiotrazador a lo largo de la distribución de la arteria falciforme. Previa a la administración de las 90Y microsferas, la anatomía arterial hepática fue evaluada angiográficamente, pero la arteria falciforme no fue identificada y, por tanto, no se realizó embolización de la misma. La paciente toleró bien el tratamiento mostrando solamente dolor periumbilical durante la realización de la técnica que cedió espontáneamente. En nuestro conocimiento esta es la primera publicación que muestra la visualización en imágenes de Bremsstrahlung de depósito extrahepático de 90Y microsferas en la arteria falciforme.
\end{RESUMEN}
around the umbilicus during the procedure which resolved shortly after the patient left the interventional suite. 99mTc Bremsstrahlung SPECT/CT images obtained using our standard 54–284 keV window, a medium energy collimator, 300 s acquisition, 40 s/frame over a total of 25 min confirmed extrahepatic tracer accumulation along the falciform artery (Fig. 1D and E).

Discussion

Ahmadzadehfar et al. reported that 56% of the patients who had visualization of the falciform artery distribution on 99mTc MAA scan also were positive on Bremsstrahlung imaging. Non-targeted radioembolization to duodenum has been previously reported by Gupta et al. But we believe this is the first imaging report of visualization of extrahepatic 99mTc microspheres in the falciform artery distribution.

While epigastric pain, purpuric rash and skin necrosis have been demonstrated with chemoembolization due to a patent hepatic falciform artery, the need for prophylactic embolization of falciform artery before 99mTc microspheres remains controversial. Liu et al. recommended prophylactic embolization of the patent hepatic falciform artery before treatment. Self limiting radiation dermatitis has been reported after radioembolization in the setting of a patent hepatic falciform artery.

Ahmadzadehfar et al., in their series, reported a 9.3% incidence of 99mTc-MAA uptake in the anterior abdominal wall. Out of 18 such patients, hepatic falciform artery was identified and embolized only in one patient. In other patients, authors proceeded with radioembolization and observed no side effects except mild, self limiting pain in one patient. In another study, 99mTc-MAA uptake was observed in four out of 341 patients, but embolization of the falciform artery was feasible only in one patient.

Although Leong et al. and Ahmadzadehfar et al. have reported 99mTc-microspheres uptake in the falciform artery distribution on Bremsstrahlung images, this is the first report of Bremsstrahlung SPECT/CT images that clearly shows that the microspheres accumulation in the anterior abdominal wall corresponds to hepatic falciform artery distribution on CT. A post contrast CT image obtained two weeks before treatment clearly shows contrast flowing in the falciform artery (Fig. 1F).

Our case demonstrated 99mTc-MAA uptake along the patent hepatic falciform artery and although the falciform artery could not be identified similar distribution was noted on the Bremsstrahlung SPECT/CT. Similar to previous series, the patient tolerated the procedure well with only self limiting, short duration pain around the umbilicus.

Conflict of interest

The authors declare no conflict of interest.

References