Interesting images

Application of $^{99m}$Tc-denatured red blood cells scintigraphy in the evaluation of post-traumatic spleen auto-transplantation

Utilización de la gammagrafía con $^{99m}$Tc-hematíes desnaturalizados en la evaluación del auto-trasplante post-traumático de bazo

M. Daliri$^{a}$, S. Shafiei$^{b}$, S.R. Zakavi$^{b}$, V.R. Dabbagh Kakhki$^{b}$, R. Sadeghi$^{b,*}$

$^{a}$ Surgical Oncology Research Center, Imam Reza Hospital, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhahd, Iran

$^{b}$ Nuclear Medicine Research Center, Imam Reza Hospital, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

A R T I C L E   I N F O

Article history:
Received 15 September 2012
Accepted 26 September 2012
Available online 13 November 2012

Fourteen-year-old male patient was admitted to the emergency due to falling from the height and blunt abdominal trauma on December 2010. The patient had abdominal tenderness and distension. Abdominal sonography showed free fluid in the abdominal cavity. The patient also had decreased hemoglobin level (Hg = 11 mg/dL). Abdominal exploration was done and a traumatized spleen (stage V) was identified. Splenectomy was done and due to patient’s young age auto-transplantation of the splenic tissue (3 cm $\times$ 3 cm $\times$ 1 cm pieces) in the omentum was performed. The patient was discharged from the hospital 3 days post operation. One year post operation, the patient was referred to the nuclear medicine department for evaluation of splenic auto-transplantation function, $^{99m}$Tc-denatured (heat damaged) autologous red blood cells (RBC) scintigraphy was considered for this purpose. Twenty min after injection of 5 mCi radiotracer, planar imaging was done from the abdominal area using a single head gamma camera (ADAC) equipped with low energy high resolution collimator (5 min/frame). The scan showed viable functional splenic auto-transplantation tissues in the abdominal area which confirmed success of the surgery for preserving splenic tissue (Fig. 1).

To decrease the risk of postsplenectomy infections, splenic tissue auto-transplantation is recommended especially in young patients after splenectomy due to traumatic injuries of the abdomen. For evaluation of spleen in general and auto-transplanted splenic tissue function in particular, nuclear medicine can play a pivotal role. $^{99m}$Tc-sulfur colloid (SC) as well as $^{99m}$Tc-denatured RBC scintigraphy have been used for this purpose. $^{99m}$Tc-SC is accumulated in the reticuloendothelial tissue which is abundant in liver and spleen, $^{99m}$Tc-heat damaged RBCs (denatured RBCs) are captured in the splenic tissue and are more sensitive for detection of spleen remnants and splenosis. Our case shows the utility of $^{99m}$Tc-denatured RBC scintigraphy in the follow up of splenic auto-transplantation.
Fig. 1. $^{99m}$Tc-denatured RBC scintigraphy which shows auto-transplanted splenic tissue in the abdomen (arrows).

Financial support

No financial support was provided.

Conflict of interest

The authors declare no conflict of interest.

References

