

The ability of ^{67}Ga scintigraphy to detect the lesions of *Echinococcus multilocularis* infection: Preliminary results

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Aim: To assess the ability of ^{67}Ga scintigraphy to detect the lesions of *Echinococcus multilocularis* (EM) infection. **Materials and Methods:** An animal model of EM infection was developed. The infected tissues taken from stock infection were placed into the abdominal cavity of uninfected animals operatively. The success of implantation was controlled 20–25 days after implantation. Five infected and 2 healthy animals were studied. All of the animals were examined by ultrasound before the scintigraphic evaluation. After the injection of 7.4 MBq (200 μCi) ^{67}Ga citrate intravenously, static images from the whole anterior thorax and abdomen were obtained at 24, 48 and 72 hours. Visual and semiquantitative analyses were performed. In semiquantitative analysis, an irregular region of interest was drawn over the thorax as the background, excluding the heart and a second region of interest was drawn over the abdomen, excluding the liver and spleen. Abdomen/background ratios were calculated using the mean counts. **Results:** In the visual evaluation, it was noticed that there was considerably increased ^{67}Ga uptake in the abdomens of the infected animals. In infected animals, mean abdomen/background ratios at 48 and 72 hours (3.76 ± 1.04 , 4.13 ± 0.72 , respectively) were increased compared with mean abdomen/background ratios at 24 hours (2.94 ± 0.77). These increases in abdomen/background ratios were statistically significant at 72 hours ($p = 0.04$). Between the infected animals and control group, mean abdomen/background ratios were compared, and statistically significant differences were found in the images obtained at 48 and 72 hours. **Conclusion:** Imaging at 72 hours seems to be more suitable imaging time for the diagnosis of alveolar echinococcosis. ^{67}Ga scintigraphy may successfully demonstrate the lesions of EM infection localized intraperitoneally. The method of ^{67}Ga scintigraphy is useful because it is simple, non-invasive and relatively safe.

Key words: gallium scintigraphy, infection, *Echinococcus multilocularis*