

## Thallium-201 scintigraphy of neuroblastoma: Different results for primary tumors and skeletal lesions

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Thallium-201 scintigraphy was performed in 8 children with neuroblastoma, and uptake by the tumors was evaluated in comparison with the results of  $^{123}\text{I}$ -MIBG scintigraphy. No primary tumors or metastatic lymph nodes showed  $^{201}\text{Tl}$  accumulation, but in 4 cases of bone marrow metastases accompanied by focal cortical invasion, the metastatic lesion was demonstrated more clearly on the early image than on the delayed image. In another case of bone metastases infiltrating cortical bone revealed by  $^{123}\text{I}$ -MIBG scintigraphy and biopsy before treatment,  $^{201}\text{Tl}$  scintigraphy performed after chemotherapy showed abnormal accumulation in the tibia, but the second  $^{123}\text{I}$ -MIBG scintigraphy performed 1 week after the  $^{201}\text{Tl}$  scintigraphy showed no abnormal uptake.  $^{201}\text{Tl}$  does not appear to have good affinity for neuroblastoma, but it accumulates in metastatic skeletal lesions. A reactive hypermetabolic bone marrow, and/or inflammatory process and periosteal reaction due to the presence of metastatic foci may have induced the  $^{201}\text{Tl}$  accumulation. It seems that  $^{201}\text{Tl}$  is not useful for the diagnosis. Nevertheless, the discordance between  $^{201}\text{Tl}$  uptake in primary tumors and skeletal lesions allows speculation on the mechanism of  $^{201}\text{Tl}$  accumulation in skeletons.

**Key words:**  $^{201}\text{Tl}$  scintigraphy, neuroblastoma, skeletal lesion