

Is technetium-99m-MIBI taken up by the normal pituitary gland? A comparison of normal pituitary glands and pituitary adenomas

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Purpose: The aim of this study was to compare the behavioral uptake of a normal gland and a pituitary adenoma and to assess the ability to diagnose pituitary adenoma by means of technetium-99m-hexakis-2-methoxy-isobutyl-isonitrile (MIBI) single photon emission computed tomography (SPECT).

Methods: The study included 15 patients with pituitary adenomas (mean age = 44.0 years, range 19–63) and 15 control subjects (mean age = 50.7 years, range 20–67). SPECT was performed 15 minutes after an intravenous injection of MIBI 600 MBq. The shape and location of MIBI uptake were evaluated on a magnetic resonance (MR) imaging/SPECT registration image. The shape patterns and location were classified as follows: Shape C (circular); LO (longitudinal oval); T/R (triangular or rectangular) and location P (pituitary gland or adenoma); D/C (dorsum sellae and/or clivus).

Results: Analysis of the uptake showed that 10 (67%) adenomas were C, and 5 (33%) were LO. Of the controls, 5 (33%) were C, and 10 (69%) were T/R. With regard to location, all patients with pituitary adenomas were classified as P, and all control subjects (93%) but one showed uptake in the dorsum sellae and clivus (D/C).

Conclusion: MIBI was taken up in the dorsum sellae or clivus but not the normal pituitary gland and had a strong affinity for the pituitary adenoma. This result implies that MIBI SPECT may be a useful new auxiliary examination technique for the location diagnosis of pituitary adenoma.

Key words: adenoma, pituitary gland, technetium-99m-MIBI