MIBI SPECT Scan and Ultrasonography in Preoperative Imaging of Primary

operative scintigraphy [13]. Some surgeons favor use of combined MIBI-SPECT and ultrasonography as a routine practice for all patients with primary hyperparathyroidism. Other surgeons use ultrasonography and reserve MIBI-SPECT for patients who have negative ultrasonography, or use MIBI-SPECT and reserve ultrasonography for patients who have negative MIBI-SPECT [14].

The purpose of this study was to assess the accuracy of ultrasonography and MIBI-SPECT parathyroid scan in detecting parathyroid adenoma at our hospital and to evaluate the potential benefit of the combined protocol of ultrasonography and MIBI-SPECT parathyroid scan in detecting parathyroid adenoma.

Materials and Methods

Patients

In this retrospective study, we enrolled 58 consecutive patients who had biochemical evidence of primary hyperparathyroidism and histopathologic correlation and who underwent preoperative ultrasonography and MIBI-SPECT within 6 weeks of each other for parathyroid localization between 2008 and 2012 at our university hospital. 23 patients under went MIBI SPECT-CT for exact localization of the MIBI uptake. This study carried out with the approval from our center research ethics board.

Imaging

Parathyroid ultrasonography: High resolution ultrasonography examination of the neck was performed in real time with a linear array transducer (7.5-15 MHz) (Philips iU22 XMATRIX, Philips Healthcare, Best, The Netherlands) (Siemens Sonoline Antares, Siemens Healthcare, Erlangen, Germany) that had good resolution for superficial soft tissue such as thyroid and parathyroid.

The MIBI-SPECT scan: After intravenous injection of 925 MBq (25 mCi) of Tc 99m MIBI, planar images were obtained in the supine position with a low energy, high resolution collimator. Dual-phase planar images for 5 minutes were obtained using a 256 × 256 matrix immediately and 120 minutes after MIBI injection. The SPECT and/or SPECT-CT were obtained 120 minutes after MIBI injection , where SPECT of the neck and upper thorax was acquired with a dual-head gamma camera for SPECT acquisition and 128 × 128 matrix and low-power dual-head CT scanner (Siemens Symbia T6, Siemens Healthcare).

Interpretation of the scintigraphic scans

All scans were interpreted by experienced nuclear medicine physicians. All scans showing persistent " tʌɔᴀᴰ Po immediaa (Siemens Symbiam M ᴰpᵐxᶠᴰᴀ 6 q ƀlᴰl¼ɑ̈ ᵠᵐlᵀM12 M energh cq ƀM ƙlᵐƀllɹM yrʟ M an ʿ ` " Mʻ scan in m ɣMᵀɣ corɳin ᴀɹᴀȳᴰpɔxᴶM> ɔ inẃᵀ

2 of these patients, MIBI-SPECT and ultrasonography were negative, and in 1 patient, MIBI-SPECT detected the bilateral adenoma but

MIBI-SPECT	Positive	20	11	0.328	NS
	Negative	3	9		
*N = 43 patients who had parathyroid adenoma. Abbreviation: MIBI-SPECT, technetium Tc 99m sestamethoxyisobutylisonitrile scan (sestamibi) scan combined with single photon emission computed tomography. †Kappa test. NS, not significant (P > .05).					

Table 4:

18.