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The Accuracy of Surgeon-Performed Preoperative Parathyroid Ultrasound Localization for Renal Hyperparathyroidism Patient

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Abstract
INTRODUCTION: Parathyroid surgery for renal hyperparathyroidism (RHPT) is indicated when patients have a progressive disease despite optimal medical therapy. The success of total parathyroidectomy in RHPT lies in accurate localization and excision of all PTGs. Recently, surgeon-performed ultrasound (SPU) has been increasingly used for the preoperative localization of PTGs in the intent of focused approach and reduce morbidity. Thus, we conducted a prospective observational single-center study to determine the accuracy of SPU for PTG localization in RHPT and the factors affecting its accuracy. MATERIALS AND METHODS: This is a prospective, observational, single-center study conducted in University Kebangsaan Malaysia Medical Centre between March 2018 and March 2019. The patients' preoperative demography, clinical data, and relevant blood laboratory results, including calcium, phosphate, alkaline phosphatase, and intact parathyroid hormone, were recorded. Preoperative USG and surgery were performed by the same endocrine surgery consultant. RESULTS: SPU localization had an overall accuracy of 78.1%, sensitivity of 81.0%, and specificity of 30.0% with a positive predictive value of 94.8% and a negative predictive value of 10.5%. The SPU gland localization rate was significantly higher in patients without goiter (median=0.88, IQR=0.63–1.00) than in those with goiter (median=0.50, IQR=0.25–0.75) (p=0.028). CONCLUSIONS: SPU localization of the PTG in RHPT had an accuracy comparable with that in previous literature with the additional advantage of identifying concurrent unknown thyroid nodules. Considering the high prevalence of concomitant nodular thyroid disease in our RHPT population, we advocate the routine use of preoperative neck ultrasound for RHPT patients undergoing parathyroid surgery.

Author Keywords
Accuracy; Renal hyperparathyroidism; Surgeon-performed ultrasound

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