



UNIVERSITY OF LEEDS

This is a repository copy of *Optimal Use of Preoperative Imaging in Primary Hyperparathyroidism..*

White Rose Research Online URL for this paper:
<http://eprints.whiterose.ac.uk/126686/>

Version: Accepted Version

Article:

Collins, E, Vaidyanathan, S and Scarsbrook, A orcid.org/0000-0002-4243-032X (2018)
Optimal Use of Preoperative Imaging in Primary Hyperparathyroidism. *JAMA Surgery*, 153 (4). pp. 393-394. ISSN 2168-6262

<https://doi.org/10.1001/jamasurg.2017.5563>

© 2018, American Medical Association. This is an author produced version of a paper published in *JAMA Surgery*. Uploaded in accordance with the publisher's self-archiving policy.

Reuse

Items deposited in White Rose Research Online are protected by copyright, with all rights reserved unless indicated otherwise. They may be downloaded and/or printed for private study, or other acts as permitted by national copyright laws. The publisher or other rights holders may allow further reproduction and re-use of the full text version. This is indicated by the licence information on the White Rose Research Online record for the item.

Takedown

If you consider content in White Rose Research Online to be in breach of UK law, please notify us by emailing eprints@whiterose.ac.uk including the URL of the record and the reason for the withdrawal request.



eprints@whiterose.ac.uk
<https://eprints.whiterose.ac.uk/>

Optimal Use of Preoperative Imaging in Primary Hyperparathyroidism

Authors

Emma Collins FRCS¹

Sriram Vaidyanathan MD FRCR²

Andrew Scarsbrook FRCR²

1. Department of Endocrine Surgery, Leeds Teaching Hospitals NHS Trust, Leeds, UK

2. Department of Nuclear Medicine, Leeds Teaching Hospitals NHS Trust, Leeds, UK

Corresponding author:

Emma Collins

Department of Endocrine Surgery

St James's University Hospital

Leeds Teaching Hospitals NHS Trust

Beckett Street

Leeds

LS9 7TF

Email: emma.collins123@nhs.net

To the Editor,

We read with interest the recently published paper 'Factors Associated With Discordance Between Preoperative Parathyroid 4-Dimensional Computed Tomographic Scans and Intraoperative Findings During Parathyroidectomy'¹.

In this study, the authors reported a discordance rate of 29.9% using 4D-CT as the sole pre-operative imaging modality in primary hyperparathyroidism (25% if surgeon-led ultrasound (US) and 4D-CT were combined). In addition, they conducted a thorough analysis of putative factors contributing to this inaccuracy.

We feel that this discordance rate is high compared with other pre-operative imaging strategies and have previously published data demonstrating a 91% accuracy in localizing parathyroid adenomata using a combination of specialist US and ^{99m}Tc-labelled Sestamibi SPECT-CT². The authors refer to the superior performance of 4D-CT compared to US and Sestamibi SPECT but do not make reference to SPECT-CT. A recent review concurs with our approach and posits a similar accuracy of Sestamibi SPECT-CT and 4D-CT but with less radiation burden³. Whilst there remains a lack of consensus in the literature of the objective superiority of one technique over another the combination of functional and structural imaging afforded by SPECT-CT offers distinct advantages in reducing discordant results. Other centres have shown that using 4D-CT as a second-line problem solving technique, if US and SPECT-CT show localisation discordance, is more cost-effective than any other technique⁴. Our experience over the past decade of first-line imaging using Sestamibi SPECT-CT combined with specialist US has shown this to be a highly accurate approach in localizing parathyroid adenomata. It is therefore felt that 4D-CT might best be reserved for use as a second line imaging⁵.

References

1. Sho S, Yuen AD, Yeh MW, Livhits MJ, Sepahdari AR. Factors Associated With Discordance Between Preoperative Parathyroid 4-Dimensional Computed Tomographic Scans and Intraoperative Findings During Parathyroidectomy. *JAMA Surg.* August 2017. doi:10.1001/jamasurg.2017.2649.
2. Patel CN, Salahudeen HM, Lansdown M, Scarsbrook AF. Clinical utility of ultrasound and ^{99m}Tc sestamibi SPECT/CT for preoperative localization of parathyroid adenoma in patients with primary hyperparathyroidism. *Clin Radiol.* 2010;65(4):278-287. doi:10.1016/j.crad.2009.12.005.
3. Treglia G, Trimboli P, Huellner M, Giovanella L. Imaging in primary hyperparathyroidism: focus on the evidence-based diagnostic performance of different methods. *Minerva Endocrinol.* June 2017. doi:10.23736/S0391-1977.17.02685-2.
4. Wang TS, Cheung K, Farrokhyar F, Roman SA, Sosa JA. Would scan, but which scan? A cost-utility analysis to optimize preoperative imaging for primary hyperparathyroidism. *Surgery.* 2011;150(6):1286-1294. doi:10.1016/j.surg.2011.09.016.
5. Day KM, Elsayed M, Beland MD, Monchik JM. The utility of 4-dimensional computed

tomography for preoperative localization of primary hyperparathyroidism in patients not localized by sestamibi or ultrasonography. *Surgery*. 2015;157(3):534-539. doi:10.1016/j.surg.2014.11.010.