

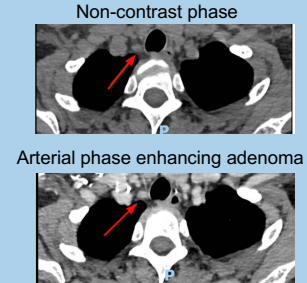
**PATIENT BENEFITS OF PARATHYROID ADENOMA LOCALISATION WITH 4D-CT AFTER NON-CONCORDANT ULTRASOUND AND SESTAMIBI IMAGING**

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**INTRODUCTION**

- Parathyroid adenoma is the most common surgically curable cause of primary hyperparathyroidism (pHPT)
- Traditional pre-operative localisation of parathyroid adenoma with Ultrasound (US) or Sestamibi (Mibi) imaging are inconclusive in up to 40%.
- 4DCT utilizes perfusion characteristics for preoperative localization of parathyroid adenoma. Traditionally, it is reserved for reoperative cases.
- However, 4DCT is increasingly utilized as primary localization study.



**RESEARCH QUESTION**

**Does 4D-CT improve perioperative and postoperative outcomes in patients with discordant US and Mibi results?**

**CONCLUSION**

**4D-CT can benefit patients who require further surgery for persistent or recurrent disease.**

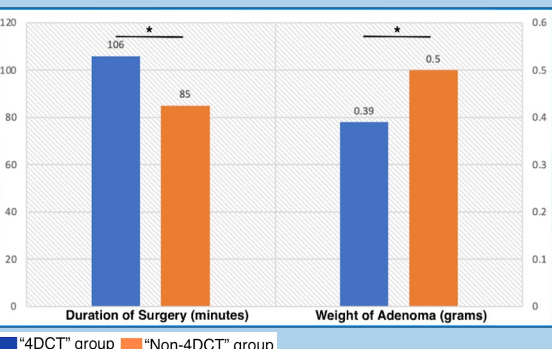
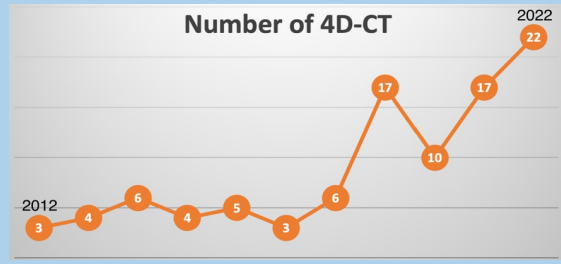
**4D-CT can facilitate localisation despite discordant US and Mibi results.**

**4D-CT can improve postoperative outcomes, especially when parathyroid adenomas are small in size.**

**RESULTS**

**Table 1. Baseline characteristics**

	4DCT	Non-4DCT	p
Number of patients	99	271	
Male (%)	20 (20%)	76 (28%)	0.13
Median Age, years (IQR)	68 (58,74)	66 (55,75)	0.76
Aetiology			
Primary	91 (92%)	265 (98%)	0.02
Persistent/Recurrent	8 (8%)	6 (2.2%)	
PTH (pmol/L)	13 (10,18)	13 (9,19)	0.89
cor Ca (mmol/L)	2.8 (2.7,2.9)	2.8 (2.7,2.9)	0.25
Vitamin D (nmol/L)	62 (48,79)	64 (43,86)	0.75



**Table 2. Peri and postoperative findings**

	4DCT	Non-4DCT	p
Technique (%)			
Unilateral & MIP	40 (40%)	110 (41%)	0.89
Bilateral exploration	59 (60%)	161 (59%)	
Duration of surgery (minute)	106 (69,145)	85 (63,116)	0.02
Surgical localisation of lesions (%)	96 (98%)	264 (98%)	0.72
Concordant with imaging (%)	52 (53%)	129 (48%)	0.70
Adenoma weight (g)	0.39 (0.2,0.62)	0.5 (0.25,1.0)	0.04
Length of biochemical follow-up (month)	9 (4,24)	8 (3,24)	0.40
Persistence & Recurrence (%)	4/97 (4.1%)	31/267 (11.6%)	0.03

**METHODS**

- Retrospective study design including surgical pHPT patients with non-concordant US and Mibi results.
- Data analysis with routine statistics (PRISM 9.0)
- Ethics Approval: The Alfred (633/22)
- Patient Groups: "4DCT" (n=99) vs "non-4DCT" (n=271)
- Comparisons: accuracy of pre-operative localisation of parathyroid adenoma, biochemistry, duration of surgery, and postoperative outcomes.