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A Single Centre Experience with Posterior Retroperitoneoscopic Adrenalectomy (PRA)

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1 INTRODUCTION

- Minimally invasive surgery is widely practiced for adrenalectomy, particularly for benign adrenal tumours. [1-2]
- There are 2 approaches via transperitoneal (TPA) or posterior retroperitoneoscopic approach (PRA).
- PRA is the preferred approach and has few advantages [3-7]
  - Reduced post-operative pain
  - Reduced length of hospital stay
  - Less blood loss
- Both adrenal glands have different anatomical features [8-9]
- The right adrenal gland is partially retrocaval, drains directly to the IVC through short central vein while the left adrenal gland drains into IVC via left renal vein
- Thus, it is postulated that there is greater risk of bleeding on the right side.

2 OBJECTIVES

- Primary objective: To describe our experience with PRA
- Secondary objective: Comparison between the right and left PRA in operating time and post-operative length of stay

3 METHODS

- Study site: Hospital Sultanah Nur Zahirah, Terengganu, Malaysia
- Retrospective cohort study
- Inclusion: All patients underwent PRA between Jan 2012 to March 2024
- Exclusion: tumour >6cm, malignancy and phaeochromocytoma
- Data collected on operating time, conversion rates, complications, and length of stay (LOS)
- Statistical analysis: SPSS ver. 29.0

4 RESULTS

- Total cases performed was 27
- Demographic data as per Table 1
- Indication for operation:
  - Aldosterone-producing adenoma (74%)
  - Cortisol-producing adenoma (15%)
  - Incidentaloma (7%)
  - Primary malignancy (4%)
- Left and right PRA comparison as per Table 2
- One case required conversion to open adrenalectomy due to difficulty getting the plane
- Complications
  - Subcutaneous emphysema (2 cases)
  - Pneumothorax (1 case)

5 DISCUSSION

- PRA requires steeper learning curve because of unfamiliar anatomic localization
- Consistent with another study[11] which shows no difference between right and left PRA
- Table 3 showed mean operation time of our centre versus published data in other centres.
- Most studies shown that operating time is similar for right and left TPA but there are also data that shows operating time is longer on the left[7]

6 CONCLUSION

- PRA is safe and is the preferred surgical approach for benign adrenal tumours at our institution
- No differences in operating time and length of stay between right and left PRA
- Limitation of the study:
  - Small sample size
  - Useful to have multicentre data collaboration

Characteristics	Value	Range
Age (year) Mean (SD)	41.20 ± 2.27	14.6 – 66.5
Gender Female (n, %)	24 (88.9%)	
Weight (kg) Median	63	48 - 108
BMI (kg/m^{-2}) Mean	27.46 ± 4.59	20.78 – 38.67
Laterality (n, %) Right Left	14 (51.9) 13 (48.1)	
Tumour size (cm) Median	2.2	1.2 – 5.7
Operating time (min) Mean (SD)	100 (± 1.35)	
Postoperative LOS (days) Median	2	2 – 3

Table 1: Demographic data of the study

	Right side (n=14)	Left side (n=13)	p-value
Age Mean (SD)	42.29 ± 10.55	40.03 ± 13.35	0.657
Weight Mean (SD)	63.43 ± 11.60	70.72 ± 18.40	0.226
BMI Mean (SD)	26.81 ± 3.13	28.22 ± 5.92	0.449
Tumour size(cm) Median (Range)	2.35(1.20-5.70)	2(1.60 – 4.10)	0.560
Operating time (min) Median (Range)	93.50 (61-223)	107 (70-166)	0.616
Postoperative LOS (Day) Mean±SD	2.36±1.21	2.62±2.41	0.701

Table 2: Comparison between left and right PRA

Studies	Mean operation time (min)	Number of procedures
Our centre	100	27
Walz et al[9]	67	560
Kook Yoonwon et al[10]	83.65	391
Cho Rok Lee et al[3]	87.2	17
Cabalag et al[12]	70.5	50

Table 3: Comparison mean operation time with other centres

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