

A 7-Year Analysis of Trifecta Outcome for Open Partial Nephrectomy for Renal Cell Carcinoma and the Associated Factors

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Introduction

- Partial nephrectomy is recommended for clinical T1 renal cell carcinoma in international guidelines with the advantages of good oncological control, minimal renal tissue damage and acceptable complication risk.
- Negative resection margin, early renal function recovery and low complication rate are commonly used to measure if favourable outcome is achieved (Trifecta achievement) after partial nephrectomy

Aim

- To analyse the trifecta achievement of Open Partial Nephrectomy (OPN) for renal cell carcinoma (RCC), which is defined in our study as achieving all 3 outcomes (1)+(2)+(3):
 1. Resection margin is not involved by tumor cell (Negative resection margin)
 2. At least 90% eGFR is preserved at 6 months after OPN ($\geq 90\%$ eGFR recovery)
 3. Absence of Clavien-Dindo (CD) Grade 3 or above complication
- To find out the associated clinical and surgical factors which may predicate this achievement

Method/ Design

- From Jan 2015 to Dec 2022 in Tuen Mun Hospital, 102 cases of OPN for RCC was studied retrospectively
- Patient's demographics, clinical & surgical parameters, and pre- & post-operative renal function were analysed
- SPSS Statistics was used to assess variables for achieving trifecta outcome

Result

- Mean age: 62 (range 32-78)
- Male : Female = 73:29
- Median tumour size: 3.5cm (IQR 2.3-4.4)
- Median R.E.N.A.L. Nephrometry Score: 7
- Median operative time: 218 mins (IQR 199-246)
- Median ischaemic time:
 - Cold: 42 mins (IQR 35-52)
 - Warm: 11 mins (IQR 7-15.5)
- Type of ischaemia:
 - Zero: 19% (n=19)
 - Cold: 77% (n=79)
 - Warm: 4% (n=4)
- Trifecta outcome achievement rate (1)+(2)+(3): 31.4% (n=32)
 1. Negative resection margin: 99% (n=101)
 2. $\geq 90\%$ eGFR recovery in post-op 6months: 35.3% (n=36)
 3. Absence of CD Grade 3 or above complication: 87.3% (n=89)
- Predictors favourable for trifecta outcome achievement:
 - Zero ischaemia (OR 10.9, p=0.004)
 - Tumour size ≤ 4 cm (OR 4.78, p=0.029)

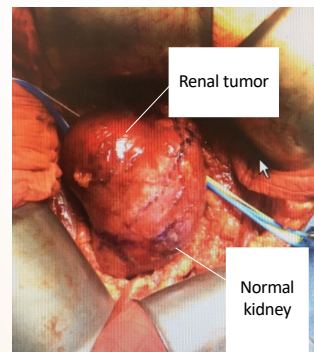


Fig. 1 Renal tumor is identified with its margin demarcated

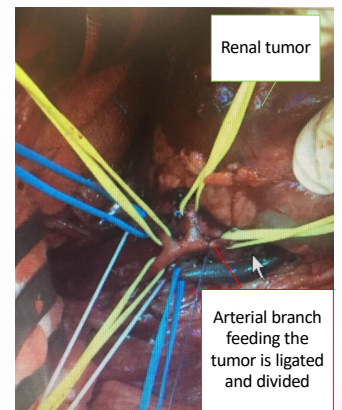


Fig. 2 Renal vasculature and blood supply to the renal tumor are identified and slinged individually

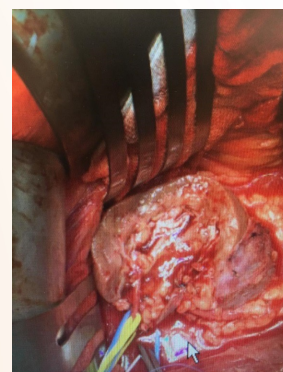


Fig. 3 Tumor is excised, while other arterial branches supplying healthy renal tissue are well preserved

Conclusion

- OPN for RCC can achieve satisfactory trifecta outcome
- Zero ischaemia and tumour size ≤ 4 cm are favourable predictors for trifecta achievement