

Deceased donor kidneys (DDK) with a small renal mass (SRM): proposed benching and biopsy techniques by NORS surgeons

Paper for National Retrieval Group

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Introduction

This paper is focussed on kidneys with SRMs (defined below), as selected organs have been shown to be safely utilised after SRM excision. Also, the presence of a SRM may influence the use of other retrieved organs e.g. liver. Therefore it is essential that NRG and the NORS teams have a consistent and oncologically-sound approach to kidneys with SRMs. It must also be noted that with increasing numbers of older donors, it is more likely that SRMs ($\leq 4\text{cm}$) will be identified in deceased donors.

Kidneys with lesions $>4\text{cm}$ in maximal diameter are far less likely to be implantable after mass excision, and are not discussed further in this document.

NRG are asked to consider this proposal.

Clinical Scenario

A DBD kidney was accepted for an 18 year old recipient, who had had 2 previous transplants, from a donor (134967, 90327, HN5114) in his 30s. The cause of death was intracranial haemorrhage and the donor had had Child C alcoholic cirrhosis. The eGFR was 90. The left kidney had been allocated for this recipient.

During the retrieval, the retrieval team identified a lesion on the right kidney. A decision was made to perform a biopsy before discussion with the accepting Centres – a skin punch biopsy was used leading to an incomplete resection. The biopsy was performed before the left kidney had been placed into bags. The frozen section of the renal lesion was reported as showing a renal tumour (with a differential diagnosis of a clear cell renal cell carcinoma or an epithelioid angiomyolipoma).

After discussion among the Transplant team and with the on-call Urology Consultant it was decided not to use the left kidney because of the potential risk of seeding of malignancy from the biopsy.

Both kidneys were discarded.

Background

SRM may be a renal cancer or benign renal lesion (e.g. oncocytoma, angiomyolipoma (AML), renal cyst). A SRM may be palpable on the surface of the kidney (exophytic) or non-palpable (endophytic). Exophytic palpable SRMs may be found at bench inspection of the deceased donor kidney(s) after retrieval by the NORS surgeons. Pre-morbid ultrasound or CT scan in a potential donor may identify an endophytic or exophytic SRM (routinely performed in France, but not UK).

Renal cancers are usually primary renal tumours although rarely can be a secondary deposit (e.g. from melanoma).

Primary renal cancers (especially from older donors) are usually sporadic renal cell carcinoma (RCC) of which there are 4 main sub-types

Clear cell RCC (ccRCC)

Chromophobe RCC

Oncocytic RCC

Papillary RCC

RCC are classified on the basis of size using TNM classification; SRM (≤ 4 cm in maximal diameter) = T1a

ccRCC are classified on the basis of grade using Fuhrman classification: F1 to F4

Diagnosis of a SRM and classification requires specialist histopathology diagnostics usually requiring rapid paraffin histology but occasionally frozen section histology techniques.

Recent systematic review suggests safe utilisation of DDK (after appropriate excision of SRM with confirmed histology) for transplantation into appropriately selected and counselled / consented renal failure patients (1). It also suggests safe utilisation of the unaffected contralateral DDK.

Oncologically safe excision of an SRM for diagnostic purposes requires a standardised technique. A standardised approach is suggested for NORS teams to adopt that will minimise concerns regarding use for transplantation of the affected and unaffected kidneys. Inappropriate biopsy technique by a NORS team member is likely to render the affected kidney unusable due to the risk of tumour spillage. Inappropriate benching technique raises the possibility of tumour seeding to the (unaffected) contralateral kidney.

The mechanisms by which kidneys with a SRM are offered, including fast-track, is important for utilisation but is outside the scope of this paper.

Proposed SOP for Excision of SRM by NORS team

Each kidney is carefully inspected on back table for possible SRM with appropriate removal of perinephric fat over parenchyma (but not hilum) to allow inspection for SRM.

If SRM is suspected in one kidney that kidney should be put to one side on the bench in cold slushed ice and the contra-lateral kidney should be carefully re-inspected to ensure no SRM in contra-lateral kidney – If no SRM in the contra-lateral kidney, it should then be bagged and placed in cold storage. This would avoid the risk of tumour seeding after SRM biopsy.

The kidney with the SRM should be photographed with clear marking and measurement of the SRM. This can be done by the SNOD using their iPad Genius app.

Discussion should be made with the SNOD to determine where the SRM histopathology assessment can take place. If possible, the NORS surgeon should speak with the pathologist to determine whether the SRM incision biopsy is placed in formalin or kept “fresh”.

A circumferential EXCISION (not incision) biopsy of the SRM should be performed with a scalpel obtaining a 2mm margin around the SRM and ensuring appropriate depth of excision biopsy so the SRM is excised in its entirety and not inadvertently incised at the deep margin.

The kidney should be photographed again to show the biopsy cavity and separate photograph taken of the SRM.

REPAIR of the kidney after excision of the SRM should NOT be attempted by the NORS team

The kidney (after excision of the SRM) should then be bagged and placed in cold storage in the normal manner.

The SRM excision biopsy should be placed in formalin or left "fresh" (as determined by discussion with the pathologist), appropriately labelled and couriered for urgent pathology review. A typed formal pathology report should be available for the SNOD / Duty office within a clinically appropriate time frame for offering of all organs from the deceased donor.

Inter-related work streams

SRM Utilisation – J Mehew, J Olsburgh, C Callaghan

SABTO / DORA guidelines – J Neuberger, C Watson, R Hilton

Clinical Governance – John Dark

24/7 Pathology services – John Dark

Duty Office – Mick Stokes

Reference

- 1) Hevia V, Hassan Zakri R, Fraser Taylor C, Bruins HM, Boissier R, Lledo E, Regele H, Budde K, Figueiredo A, Breda A, Yuan CY, Olsburgh J. Effectiveness and Harms of Using Kidneys with Small Renal Tumors from Deceased or Living Donors as a Source of Renal Transplantation: A Systematic Review. Eur Urol Focus. 2018 [Epub ahead of print]