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Reply to Maxine G. Tran, Ravi Barod, and Axel Bex's Letter to the Editor re: Philip S. Macklin, Mark E. Sullivan, Charles R. Tapping, et al. Tumour Seeding in the Tract of Percutaneous Renal Tumour Biopsy: A Report on Seven Cases from a UK Tertiary Referral Centre. Eur Urol. In press. <http://dx.doi.org/10.1016/j.eururo.2018.12.011>

We thank Tran and colleagues for taking an interest in our recent report of seven cases of tumour seeding in the tract of percutaneous renal tumour biopsy (RTB) [1]. We agree that RTB can provide important diagnostic information to determine optimal management for patients presenting with small renal masses and for patients with metastatic disease who may be offered systemic therapy. We also agree that our small case series provides insufficient evidence to subvert current guidelines and we do not advocate deviation from these.

However, this series highlights the possibility that tumour seeding into the biopsy tract may be more common than the current literature suggests, although the clinical significance of this remains uncertain. As Tran and colleagues have indicated, local recurrence of tumour was seen in only one patient within our series. We appreciate that in this case there was recurrence centrally within the renal sinus fat, presumably related to the prior positive surgical margin. However, this appeared to be radiologically distinct from the site of recurrence within the renal bed. While this recurrence could have resulted from intraoperative implantation or tumour spillage, it is not possible to be certain of this, and therefore it cannot be excluded that this was related to RTB.

As discussed in our paper, there are a handful of other published cases of histologically proven RTB tract seeding and a previous case report of histologically proven local recurrences within the biopsy tract, abdominal wall, and psoas muscle [2]. There are also a small number of other published reports of suspected RTB tract seeding and local recurrence that have not been corroborated histologically. Furthermore, a recent review of 24 548 cases of clinical T1a renal cell carcinoma within the National Cancer Data Base in the USA reported an association between RTB and upstaging due to perinephric fat involvement (2.1% among patients who had undergone RTB vs 1.1% among those who had not; $p < 0.01$) and that upstaging was associated with poorer overall survival [3].

We wished to highlight in our paper the possibility that seeding of tumour into the perinephric fat at the site of a prior RTB is under-recognised by pathologists. Our awareness of macroscopic and microscopic pathological features led to more focussed scrutiny of subsequent surgical resection specimens. We feel that greater awareness of the pathological

features may provide further data concerning the prevalence and potential clinical significance of RTB tract seeding.

While the occurrence of RTB seeding appears to be rare, this must be balanced against the clinical benefits of diagnostic RTB, which have been outlined clearly by Tran and colleagues. RTB remains an important tool, but optimisation of imaging in conjunction with RTB may be of additional value in the future. The recent paper by Kim et al [4] discusses the potential of utilising magnetic resonance imaging in combination with RTB to reduce benign pathological findings after partial nephrectomy. Furthermore, in view of our own observations and those from previously published cases that papillary renal cell carcinoma (pRCC) appears to be more commonly associated with RTB tract seeding than other renal tumours, we feel that focus on the identification of potential radiological features that can aid in the prediction of pRCC could be particularly useful.

Conflicts of interest: The authors have nothing to disclose.

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