



# Letter to the editor: Development of a simple nomogram to estimate risk for intraoperative complications before partial nephrectomy based on the Mayo Adhesive Probability score combined with the RENAL nephrometry score

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## To the editor:

Tan et al. [1] reported a simple nomogram to estimate the risk for intraoperative complications before partial nephrectomy (PN) by taking advantage of previously reported scoring tools. I read the article with great interest and I want to congratulate the authors on this contribution.

Although the concept of the study focused on predicting intraoperative complications of PN by use of a simple nomogram, other intraoperative parameters such as operation time, warm ischemia time, blood loss, and an important postoperative parameter, hospital stay, were not considered as predictive factors. The authors investigated these parameters in the study and found that warm ischemia time, operation time, and estimated blood loss were significantly higher in patients with intraoperative complications than in those without complications. These findings suggest to us that worse perioperative parameters may be indirectly associated with intraoperative complications. Therefore, predicting the potential for worse perioperative parameters could guide surgeons during the decision-making process for PN. Moreover, these three parameters may be associated with renal function after PN. Renal functional status or parameters affected by renal functional status could have been considered as other outcomes, as well. For instance, warm ischemia time has been accepted as an independent predictor of renal functional

impairment after PN by several authors in the literature [2,3]. One of the modifiable factors associated with postoperative renal functional impairment after PN is a longer duration of operative time independently of ischemia time [3]. Operative time affects surgical outcomes as well. Operative time can be associated with surgical and anesthesia-related complications and procedural cost-effectiveness [4]. On the other hand, most of the previously described nephrometry scores, such as the C-Index, PADUA classification, and RENAL score, failed to predict the operative time although they showed correlation with warm ischemia time [4]. In this regard, if the predictive role for Tan et al.'s [1] simple nomogram investigated those outcomes and reported success; to my knowledge, it would be the first in the literature. The other intraoperative parameter, blood loss, may affect renal function after PN, and the incidence of renal failure after PN could be minimized with minimal blood loss, especially in patients with an underlying renal disease [5]. In brief, inclusion of these parameters in the prediction model as outcomes would have enhanced the study.

Finally, I think the prediction of warm ischemia time, operative time, and blood loss helps to maximize the surgical and renal functional outcomes and reduces any perioperative complications during PN. Therefore, while predicting intraoperative complications directly, these parameters may

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contribute indirectly.

Respectfully.

## CONFLICTS OF INTEREST

The author has nothing to disclose.

## REFERENCES

1. Tan X, Jin D, Hu J, Zhang W, Zhou Y, Li Y, et al. Development of a simple nomogram to estimate risk for intraoperative complications before partial nephrectomy based on the Mayo Adhesive Probability score combined with the RENAL nephrometry score. *Investig Clin Urol* 2021;62:455-61.
2. Yu YD, Nguyen NH, Ryu HY, Hong SK, Byun SS, Lee S. Predictors of renal function after open and robot-assisted partial nephrectomy: a propensity score-matched study. *Int J Urol* 2019;26:377-84.
3. Rajan S, Babazade R, Govindarajan SR, Pal R, You J, Mascha EJ, et al. Perioperative factors associated with acute kidney injury after partial nephrectomy. *Br J Anaesth* 2016;116:70-6.
4. Ito H, Makiyama K, Kawahara T, Osaka K, Izumi K, Yokomizo Y, et al. The impact of gender difference on operative time in laparoscopic partial nephrectomy for T1 renal tumor and the utility of retroperitoneal fat thickness as a predictor of operative time. *BMC Cancer* 2016;16:944.
5. Jeldres C, Bensalah K, Capitanio U, Zini L, Perrotte P, Suardi N, et al. Baseline renal function, ischaemia time and blood loss predict the rate of renal failure after partial nephrectomy. *BJU Int* 2009;103:1632-5.

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**Received:** 17 July, 2021 • **Accepted:** 12 August, 2021

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<https://doi.org/10.4111/icu.20210277>

**The author's reply:**

We thank you for your interest in our article. We are glad that we share similar points of view.

It is true that patients who experienced intraoperative complications (eg, conversion to radical nephrectomy, main vessel damage) had higher warm ischemia times, operative times, and estimated blood loss, as we mentioned in our recent study [1] and as others have noted [2]. The authors suggested that we verify whether these adverse perioperative characteristics could be predicted by the RENAL nephrometry score (RNS) or the Mayo Adhesive Probability (MAP) score. Moreover, these three parameters may be associated with renal function after partial nephrectomy (PN).

Previous studies have revealed a strong connection between the RNS and ischemia time, as well as surgery time and renal function [3,4]. Theoretically, every patient will get a new baseline renal functional outcome, balanced among preoperative renal function, tumor characteristics, ischemia time and type, and surgical strategy [5]. It is widely accepted that three aspects eventually determine functional outcomes: quality of parenchyma, quantity of preserved parenchyma, and recovery from ischemic insult [6]. In this context, the prediction of renal function by use of a single or several anatomically related scoring systems may be partial. From our perspective, a predictive model containing a nephrometry score (ie, RNS) and patients' baseline characteristics (ie, age, sex, body mass index [BMI], baseline renal function, comorbidities) may be more comprehensive in a prospective setting. Moreover, the MAP score may result from an interplay of multiple parameters, such as age, sex, and BMI, whereas a simple combination of the RNS and MAP scores showed weak improvement with renal outcomes compared with the RNS alone in our analysis. A recent study also revealed a correlation between estimated blood loss and long-term chronic kidney disease [7]. Both the RNS and the MAP score are identified as risk factors for more blood loss intraoperatively [1]. But estimated blood loss is also known to result from multiple factors.

All these factors, serving as predictors, interacting variables, or as predictive results, may play their part in the surgical process. However, we need to focus on the main points, which are severe complications, significant decline in renal function, and excellent oncologic control. Some less important predictors or results seem to be negligible, and this is what we want to emphasize in our study.

**CONFLICTS OF INTEREST**

The authors have nothing to disclose.

**REFERENCES**

1. Tan X, Jin D, Hu J, Zhang W, Zhou Y, Li Y, et al. Develop-

ment of a simple nomogram to estimate risk for intraoperative complications before partial nephrectomy based on the Mayo Adhesive Probability score combined with the RENAL nephrometry score. *Investig Clin Urol* 2021;62:455-61.

2. Jin D, Zhang J, Zhang Y, Ren D, Xu G, Ge C, et al. A combination of the Mayo Adhesive Probability score and the RENAL score to predict intraoperative complications in small renal masses. *Urol Int* 2020;104:142-7.
3. Hu C, Sun J, Zhang Z, Zhang H, Zhou Q, Xu J, et al. Parallel comparison of R.E.N.A.L., PADUA, and C-index scoring systems in predicting outcomes after partial nephrectomy: a systematic review and meta-analysis. *Cancer Med* 2021;10:5062-77.
4. Tanaka H, Wang Y, Suk-Ouichai C, Palacios DA, Caraballo ER, Ye Y, et al. Can we predict functional outcomes after partial nephrectomy? *J Urol* 2019;201:693-701.
5. Porpiglia F, Amparore D, Checcucci E, Fiori C. Parenchymal mass preserved after partial nephrectomy and "global renal damage": two faces of the same coin. *Eur Urol Oncol* 2019;2:104-5.
6. Marconi L, Desai MM, Ficarra V, Porpiglia F, Van Poppel H. Renal preservation and partial nephrectomy: patient and surgical factors. *Eur Urol Focus* 2016;2:589-600.
7. Rosiello G, Larcher A, Fallara G, Basile G, Cignoli D, Colandrea G, et al. The impact of intraoperative bleeding on the risk of chronic kidney disease after nephron-sparing surgery. *World J Urol* 2021;39:2553-8.

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**Received:** 19 August, 2021 • **Accepted:** 6 September, 2021

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<https://doi.org/10.4111/icu.20210333>