Congress Introduction

Congress Review

Review of the South East Robotic Urology Surgeons (SERUS) Meeting 2026

Location:	Istanbul, Türkiye
Date:	19th July 2026
Citation:	EMJ Urol. 2026;14[Suppl 1]:6-12. https://doi.org/10.33590/emjurol/GWA4W68I

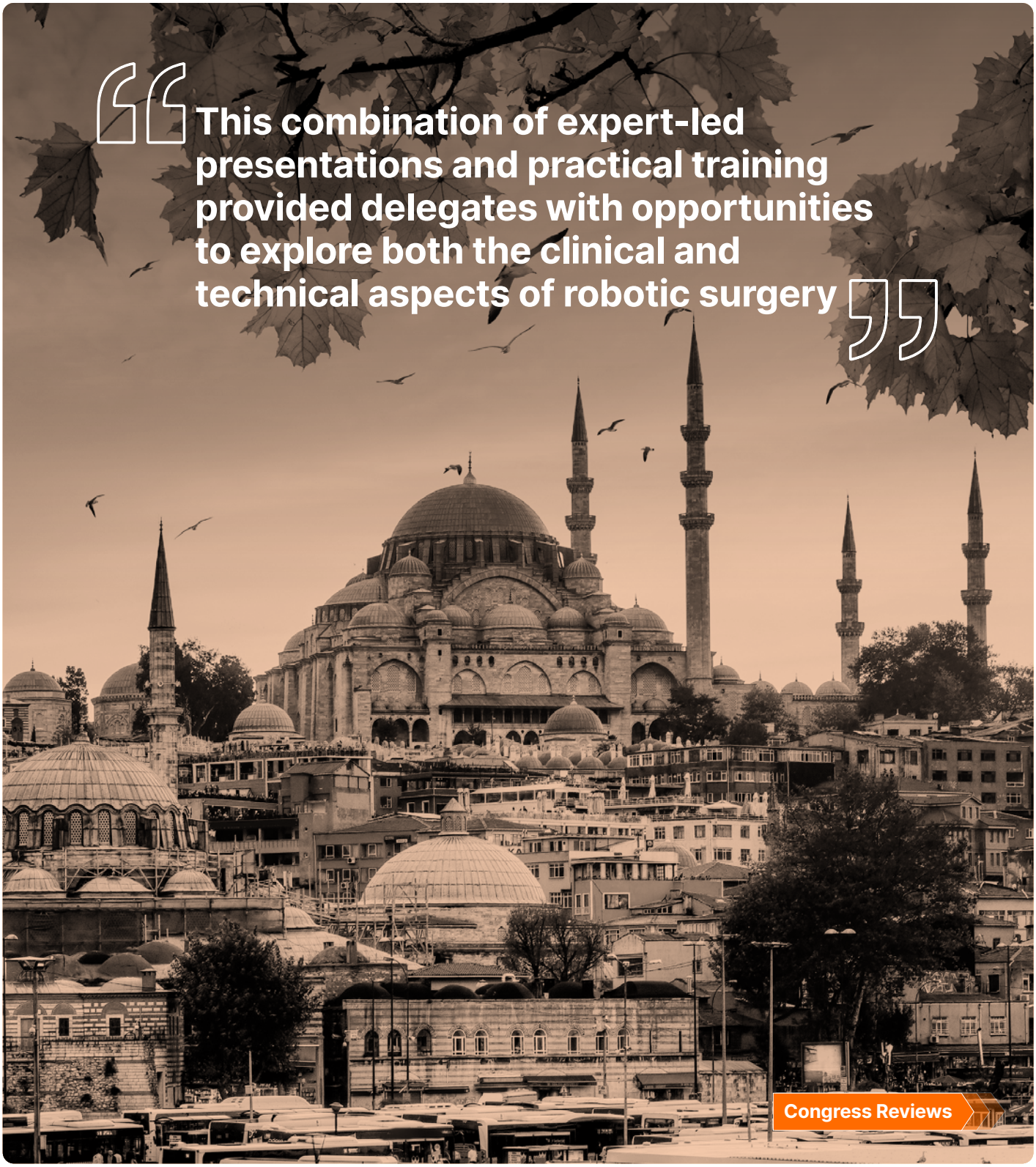
THE SOUTH East Robotic Urology Surgeons (SERUS) Meeting, hosted by Erdem Canda at the Rahmi M. Koç Academy of Interventional Medicine, Education, and Simulation (RMK AIMES) Surgical Training Facility in Istanbul, Türkiye, brought together specialists from Southeast Europe and beyond to share perspectives on developments in robotic urology.

Held in Istanbul, a city connecting Europe and Asia, the meeting provided a fitting setting for discussions centred on collaboration and innovation. The scientific programme on 19th July 2026 spanned a broad range of topics in robotic urology, with specialists presenting their experiences, techniques, and perspectives on the evolving role of robotic surgery.

The following day featured a hands-on robotic surgery workshop, giving delegates the opportunity to practise new techniques and apply the concepts discussed during the scientific sessions. This combination of expert-led presentations and practical training provided delegates with opportunities to explore both the clinical and technical aspects of robotic surgery.

This congress review highlights two presentations from the meeting. Kaloyan Davidoff, University Multiprofile Hospital for Active Treatment (UMHAT) Sofiamed, Sofia, Bulgaria, presented on 3D perfusion mapping in robotic partial nephrectomy, exploring how patient-specific vascular mapping could support more precise surgical planning and renal preservation.

Mudhar N. Hasan, Mediclinic City Hospital, Dubai, United Arab Emirates, discussed the application of robotic surgery in paediatric urology, focusing on how robotic techniques can be adapted to the anatomical and reconstructive challenges of paediatric surgery.



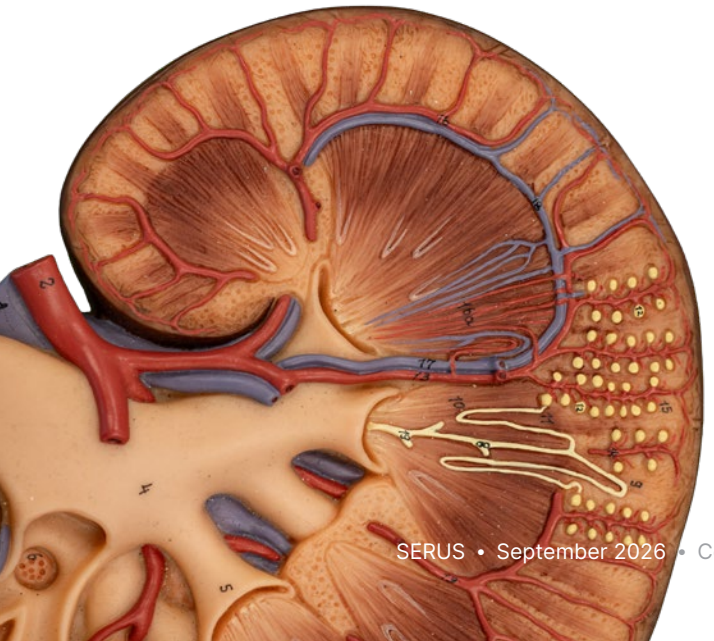
Integration of 3D Perfusion Mapping with Robotic Partial Nephrectomy Shows Potential

Authors: Kaloyan Davidoff,[1] Nikola Tzvetkov,[1] Kristiyan Krastev,[1] Koray Ibrahimov,[1] Nikola Stoyanov,[1] Ivan Gospodinov[1]

1. Urology Clinic, University Hospital "Sofiamed", Sofia, Bulgaria

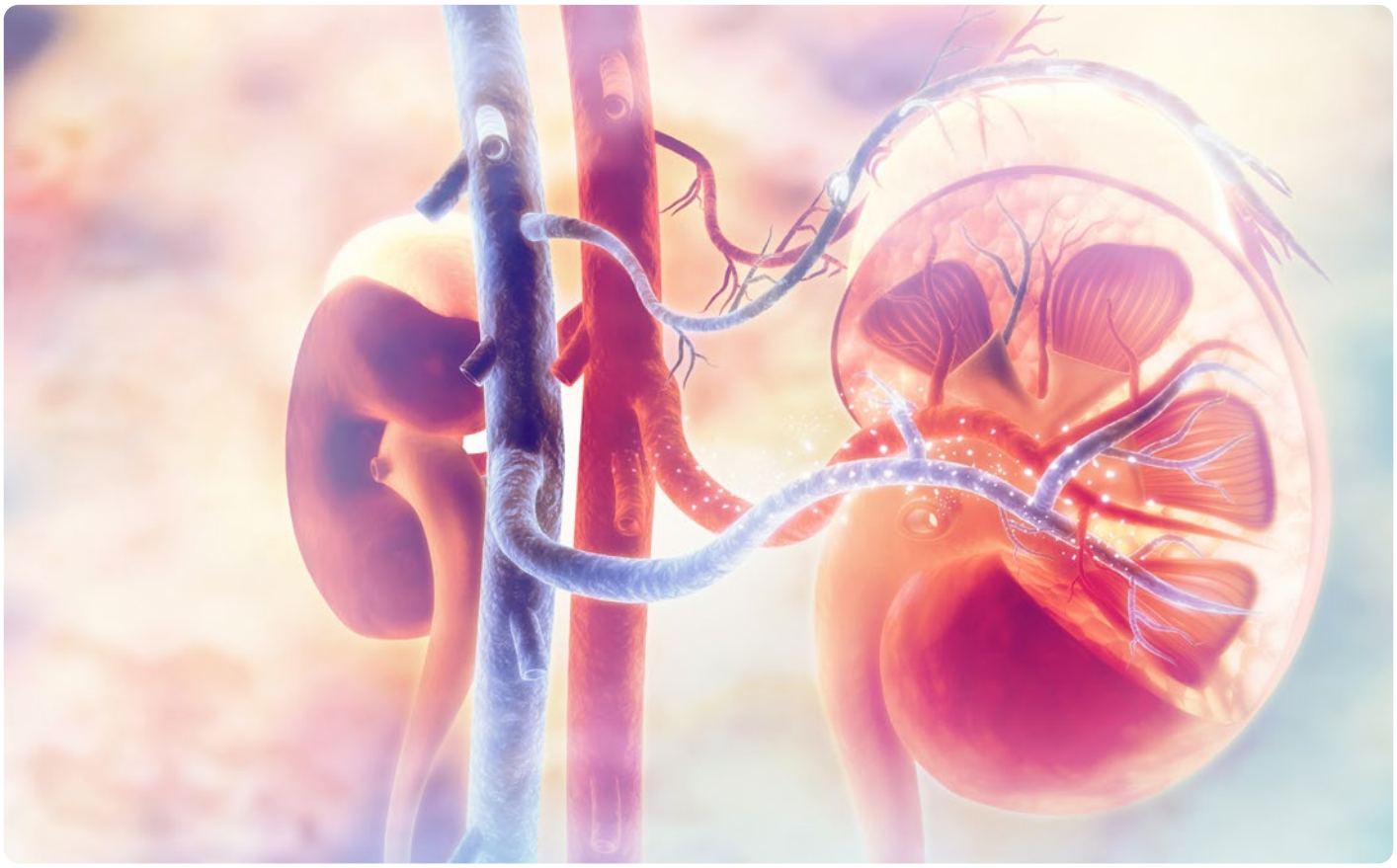
KALOYAN Davidoff, UMHAT Sofiamed, Sofia, Bulgaria, delivered an innovative presentation on the 'Integration of 3D Perfusion Mapping in Robot-Assisted Partial Nephrectomy' to a room of delegates, following on from previous presentations highlighting novel technological development in robotic nephrectomy surgery. He explored how patient-specific 3D vascular mapping could potentially support more tailored surgical planning and help surgeons balance effective tumour excision with maximal preservation of healthy renal parenchyma.[1]

Although main artery clamping provides a reliable and bloodless field for tumour excision, it exposes the entire kidney to ischaemia. Postoperative renal function following partial nephrectomy is influenced by baseline renal function, the amount of preserved functional parenchyma, and ischaemic injury.[2,3] Selective arterial clamping aims to minimise unnecessary ischaemia by restricting vascular occlusion to the tumour-bearing territory while maintaining perfusion to the remaining kidney.[4-8]



Whilst conventional CT angiography and 3D reconstruction demonstrate renal arterial anatomy, they do not directly identify the parenchymal territory supplied by each arterial branch.[2,3] This distinction is clinically important because renal arterial anatomy can be highly variable between patients, and simply identifying the location of an arterial branch does not necessarily indicate precisely which portion of the renal parenchyma it supplies. Davidoff described how Navigation of Vascularity (NaVa) uses a mathematical allocation algorithm and AssistoAR to convert patient-specific arterial anatomy into color-coded renal perfusion territories to support preoperative selective-

> **Whilst conventional CT angiography and 3D reconstruction demonstrate renal arterial anatomy, they do not directly identify the parenchymal territory supplied by each arterial branch**



The remaining renal parenchyma maintained visible fluorescence, supporting preservation of perfusion outside the targeted territory

clamping planning. The technology therefore provides an additional layer of anatomical information by linking the renal arterial tree to its predicted functional perfusion territories. This allows the surgeon to visualise the individual arterial branches providing blood to the tumour region and the healthy parenchyma tissue.

In the case presented by Davidoff, NaVa mapping dentified the perfusion territory containing the tumour and the corresponding arterial branch selected for clamping.

Following selective arterial clamping, intraoperative indocyanine-green imaging demonstrated spatial correspondence between the predicted perfusion territory and the observed ischaemic field.

The remaining renal parenchyma maintained visible fluorescence, supporting preservation of perfusion outside the targeted territory.

Importantly, the procedure and reported short-term postoperative course were uncomplicated. Negative surgical margins were observed and renal function was preserved.

Davidoff discussed how, at this stage, NaVa should be regarded as a patient-specific tool that supports decision-making to avoid unnecessary loss or devascularisation of healthy renal tissue. However, further prospective validation is required to determine whether this approach provides a consistent long-term renal functional benefit.

Overall, Davidoff's presentation highlighted the potential of integrating computational 3D perfusion mapping with robotic surgery. The approach illustrates how patient-specific vascular and perfusion information could contribute to more personalised partial nephrectomy, and could be incorporated into surgical planning rather than relying solely on conventional anatomical imaging. While further clinical validation is required, the presented case demonstrated how this technology may help surgeons achieve precise tumour excision while minimising unnecessary ischaemia to healthy renal parenchyma.

Robotic Surgery Shows Promise in Paediatric Urology, but Complexity Remains

Author: Mudhar N. Hasan[1]

1. Department of Urology, Mediclinic City Hospital, Dubai, United Arab Emirates

ROBOTIC surgery could offer particular advantages in paediatric urology, where surgeons must perform complex reconstructive procedures within small and anatomically confined spaces, according to Mudhar N. Hasan, who presented the experience of the paediatric and adult robotic urology programme at Mediclinic City Hospital, Dubai, United Arab Emirates.[9]

Speaking from the perspective of an adult robotic surgeon, Hasan described how the Mediclinic team has adapted robotic expertise to paediatric procedures, while emphasising the anatomical and technical differences involved in operating on children.

Unlike adult urology, where robotic surgery is often used for extirpative procedures, paediatric urology is predominantly reconstructive, Hasan noted. 3D visualisation, tremor filtration, and wristed instruments may be particularly valuable for delicate intracorporeal suturing in confined spaces.

> Pyeloplasty was presented as one of the most favourable applications of robotic surgery in children

However, paediatric robotic surgery is not simply a smaller version of adult surgery. Hasan highlighted the need to adapt port placement to the limited abdominal space of infants and children. The presentation also described the use of trans-abdominal hitch sutures to provide tissue retraction without requiring an additional robotic arm.

The Mediclinic programme's experience spans upper- and lower-tract procedures, including pyeloplasty, partial and radical nephrectomy, and robotic-assisted laparoscopic ureteral reimplantation.

Pyeloplasty was presented as one of the most favourable applications of robotic surgery in children. Hasan reported 22 robotic pyeloplasties within the programme's experience.

More complex reconstruction remains challenging. Augmentation cystoplasty, which involves incorporating bowel into the urinary tract, was described as particularly

Unlike adult urology, where robotic surgery is often used for extirpative procedures, paediatric urology is predominantly reconstructive, Hasan noted

demanding, with an average operative time of 441 minutes and estimated blood loss of 71 mL. The presentation reported a 32% rate of high-grade complications for bladder reconstruction, highlighting the importance of preoperative videourodynamics, surgical experience, and long-term follow-up.

Hasan argued that these complications reflect the biological and procedural complexity of reconstruction rather than the robotic platform itself. While robotic technology can enhance surgical precision and dexterity, it does not remove the learning curve associated with complex paediatric procedures.

A key feature of the Mediclinic approach is its collaborative model, bringing together adult robotic expertise and paediatric anatomical expertise. The programme was launched in March 2021, with Hasan describing the model as a way of combining experience with robotic instrumentation and 3D visualisation with specialist knowledge of paediatric anatomy.

The centre's reported outcomes were favourable. Among 25 patients, Hasan reported a high surgical success rate, no major complications or returns to theatre, and hospital stays of 1–2 days. These figures were presented as favourable compared with global benchmarks, although they represent the centre's own reported experience.

The presentation concluded that age alone should not be considered a barrier to robotic pyeloplasty. Hasan reported comparable outcomes across age groups, alongside lower postoperative pain and substantially lower narcotic requirements in children than adults.

Overall, the presentation suggested that robotic technology can expand minimally invasive options in paediatric urology, but that successful implementationdepends on appropriate patient selection, specialist expertise, and close collaboration between adult robotic and paediatric surgeons.

References

1. Davidoff K et al. Integration of 3D perfusion mapping in robot-assisted partial nephrectomy. Presentation. SERUS Meeting, 19 July, 2026.
2. Secin FP et al. Importance and limits of ischemia in renal partial surgery: experimental and clinical research. Adv Urol. 2008;2008:102461.
3. Kwon O et al. Backleak, tight junctions, and cell- cell adhesion in postischemic injury to the renal allograft. J Clin Invest. 1998;101(10):2054-64.
4. Amparore D et al. Robotic-assisted partial nephrectomy with minimal surgical impact after 3D virtual planning for the treatment of small renal masses. Eur Urol Open Sci. 2023;55(Suppl 2):S220.
5. De Backer P et al. A novel three-dimensional planning tool for selective clamping during partial nephrectomy: validation of a perfusion zone algorithm. Eur Urol. 2023;83(5):413-21.
6. Marconi L et al. Renal preservation and partial nephrectomy: patient and surgical factors. Eur Urol Focus. 2016;2(6):589-600.
7. Mir MC et al. Parenchymal volume preservation and ischemia during partial nephrectomy: functional and volumetric analysis. Urology. 2013;82(2):263-9.
8. Vangeneugden J et al. Three-dimensional perfusion-zone models allow more selective clamping during robot-assisted partial nephrectomy: brief report on a retrospective analysis. Eur Urol Open Sci. 2025;82:128-30.
9. Hasan MN. Bridging worlds: insight into pediatric robotic urology from an adult robotic surgeon's perspective. Presentation. SERUS Meeting, 19 July, 2026.