

Visit report	
Country visited	Tanzania, KCMC
Institution or workshop	Stone Workshop
Dates of visit	1 st July – 12 th July
Team members	Subu Subramonian Aasem Chaudry Danielle Whiting Suzie Venn

In July 2024 we travelled to KCMC in Moshi Tanzania to deliver a stone workshop. The faculty consisted of urology consultants Subu Subramanian, Aasem Chaudry and me as the trainee (Danielle Whiting). We were also accompanied by Suzie Venn for the duration of the workshop.



**UROLOGY PERCUTANEOUS
NEPHROLITHOTOMY WORKSHOP**
(Kambi ya Upasuaji wa Kuondoa Mawe Kwenye Figo)



Hospitali ya Rufaa ya Kanda ya Kaskazini KCMC kupitia Idara ya Vibofu na Njia ya Mkojo ikishirikiana na madaktari kutoka Uingereza itaweka kambi ya upasuaji wa kuondoa mawe kwenye figo kwa njia ya Matundu Madogo.

Kutakua na Uchangiaji wa Gharama

Kwa Mawasiliano:
0713 863733 - Dr. Orgeness Mbwambo
0767995969 - Dr. Eliphilus Asila

01 - 12 Julai
Siku za Kazi

03:00 Asubuhi - 9:00 Alasiri.

Idara ya Vibofu na Njia ya Mkojo - KCMC

www.kcmc.ac.tz

📍 kcmc1971 📍 Kilimanjaro Christian Medical Centre



General

Travel

Travel was arranged independently with various options available dependent on where you are travelling from in the UK and where you transit. I flew with Qatar Airways via Doha to Kilimanjaro. Some airlines will offer the option of 2 bags whilst others are only 1 bag. Especially if you are taking any equipment with you it would be worthwhile seeking a 2 bag option.

Prior to travel it is necessary to apply for a business visa. This can be done online at the current cost of \$250. In order to apply, in addition to your identity documents, you require a letter from KCMC about the purpose of the visit. After submission my application came back within 2 weeks. You should print the confirmation off as this will help when you arrive to make a smooth transit through immigration.

KCMC organized a minibus to collect us from the airport and transported us each day to and from the accommodation, whilst not staying in the doctors compound. Travel from Kilimanjaro airport to KCMC is 45-60 minutes.

Accommodation and locality

During the first week the faculty stayed at Ameg lodge and for the second week I moved into the KCMC doctor's compound.

Ameg lodge is a very pleasant, safe and secure hotel with a fitness room and outside pool. It is about a 5–10-minute drive from KCMC. It can be booked online directly with the lodge or via booking.com. As with any accommodation early booking is recommended to avoid price rises. The rooms included air conditioning, a safe, hot shower and reliable Wi-Fi. Some rooms also had a fridge. On site breakfast was included with the room with a huge variety on offer to set you up for a busy day. The restaurant at Ameg lodge was also available in the evenings with a varied, very well priced menu and excellent quality food.

Around the corner from Ameg lodge (10-15 minutes' walk) there is Woodland's supermarket. Suitable and safe to walk to during daylight hours but not recommended after dark.

The KCMC doctors' compound is a 5–10-minute walk to the main hospital which is very safe to walk to during daylight hours. They have security for the doctors compound which is safe and secure. Accommodation will vary depending on exactly where you stay. We stayed in B22 which has two bedrooms, one double and one twin room. Showers were hot and it has the added benefit of kitchen facilities. There is no Wi-Fi at the doctors compound and usually not switched on within the hospital. If you need internet access the best thing to do is buy a local sim card data package.

In both accommodations it can get noisy overnight particularly on the weekends and earplugs might be useful. There are plenty of restaurants in Moshi these are some of the ones we ate at: Ameg lodge, Indoitaliano, Maembe Garden and Kitchen Flavour. All very reasonably priced and excellent quality food. For transport to any of these you can either get a taxi or call for a bajaj. Be sure to check the price before travelling. George is a local bajaj driver who can organize transport for you via WhatsApp (+255712023973). He will tell you the name of the person coming to collect and description of the vehicle. For all transfers around Moshi he was charging 3000 TZS.

There are ATMs at the airport, hospital and in Moshi town centre. Most will charge a fee for withdrawals which is set regardless of how much money you withdraw. You can only get TZS in country and it is helpful to have some although many places will accept the USD.

Workshop

Pre-visit planning

A lot of planning went in to making this workshop a success to ensure the appropriate equipment was available. A grant from BAUS endourology was fundamental in securing the c-arm which arrived at the hospital in May 2024. There were two planning calls to check equipment and cases in the months prior to the visit.

Orgeness Mbwambo, consultant urologist at KCMC, who would be running the new stone service had been in South Africa for a fellowship but had limited experience with PCNL. Prior to the stone workshop at KCMC all stone surgery was performed using an open approach. The workshop was advertised regionally and patients collected in preparation. The residents put the cases and scan details into presentations. As is standard for their pre-operative patients they were due to arrive at the hospital in the days prior to the start of the workshop. Prior to the visit we highlighted the importance of them all having bloods and urine cultures taken on arrival so that the results would be available prior to any surgery.

It is important to note that theatre shoes and scrubs need to be bought with the surgeon and if you are going for a stone workshop, it would be worth considering bringing your own lead gown as currently there is limited availability.

Clinical interactions

Day 0

Asem Chaudry and I arrived at Kilimanjaro airport at a similar time and were met by Orgeness Mbwambo on arrival at the airport on Sunday 30th June. After travelling to the accommodation and a short break we went into KCMC to review patients and equipment.

Based on the presentations already prepared for the patients we selected two potential patients for day 1. The aim was to complete 1 patient but have a reserve patient in case of any problems. It became apparent on arrival that the patient we had initially selected was not medically fit and therefore wouldn't be suitable for the following day and a different patient was chosen. Consent was undertaken by the residents and Orgeness Mbwambo.

The main operating theatre is large and very suitable for stone work in terms of space required for equipment. However, there are glass windows along one side of the theatre where equipment is stored. If the theatre is to be used for laser in the future it will require measures such as blinds to make it laser safe. There is a working air conditioning unit within the theatre which is turned on as required.

We set up the new operating table and made sure we were all familiar with its functions to enable smooth patient set up. We also trialed the C arm and lithoclast to confirm they were working prior to any cases. We reviewed the available equipment which we repeated again the following day to make sure everything was available prior to any anaesthetic.



Week 1 - Day 1

Each workshop day had a similar set up with a case presentation by the residents and lecture by faculty first thing in the morning followed by theatre cases. Throughout the workshop post-operative cases were reviewed in the mornings and where required at other intervals during the day.

On the first day a presentation on an overview of PCNL was given. The residents proceeded to present all stone patients that were currently admitted to the hospital. This was an extremely helpful process enabling group discussion of cases but also highlighting patients with concerns or needing additional tests. There were a few patients with medical problems needing addressing. This included 2 patients with hypercalcemia that after further testing were found to have primary hyperparathyroidism. There were a number of patients with urine infections, all with difficult resistance patterns such as the patient below who required treatment with Vancomycin.

BACTERIAL SUSCEPTIBILITY		ENTEC
Ampicillin		[R]
Ciprofloxacin		[R]
Erythromycin		[R]
Nitrofurantoin		[S]
Tetracycline		[I]
Penicillin		[R]
Vancomycin		[S]

ENTEC = Enterococcus species

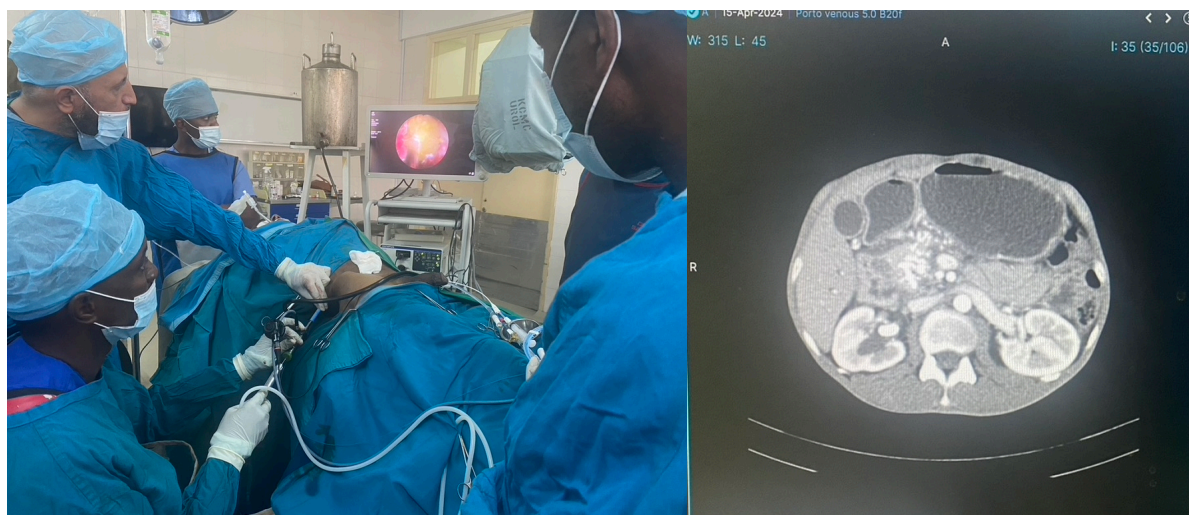
[S]usceptible [R]esistant [I]ntermediate

Entered 29/06/24 10:49 Ezekiel B. Gamuya (Intern Medical Lab Scientist)
 Authorised 29/06/24 12:31 Kelvin Jordan (Medical Laboratory Scientist)

CULTURE : URINE

CULTURE RESULT
 Pathogen Identified Enterococcus species

Once initial plans were formulated for all patients, we then proceeded to the operating theatre to start the first case, a 2cm right renal pelvis stone. As in all cases extensive teaching was given before during and after the case to help guide best access and tips during stone disintegration. The residents were, in general, freed from their normal activities and all came into theatre eager to learn. The case went well, the patient was stone free at the end of the case. He had a ureteric stent inserted and went home day 2 post-operatively with follow up in place to have the stent removed after 2 weeks.



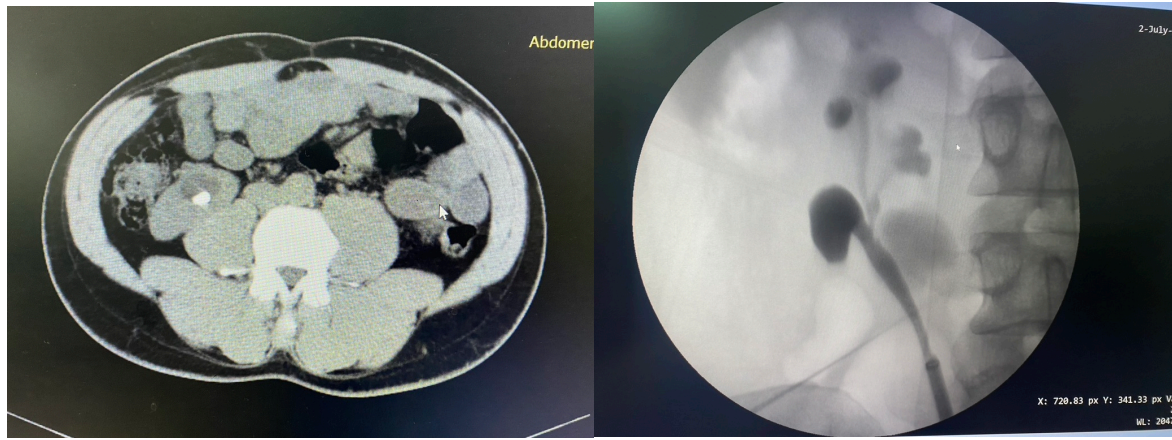
Week 1 - Day 2

Again the day started with a presentation on an overview of stone management from the faculty. The residents then presented the planned cases for that day.

The first, a left PCNL for a lady with multiple left renal stones which were largely removed using a basket. The case was uneventful no drainage was required. She was fit to go home day 1 post-operatively and opted to go home on day 2.

The second case was that of a 2cm right renal stone in a mal-rotated kidney. The access in this case was significantly more challenging and not an ideal training case. However, a decision was made to

proceed with this earlier in the week than originally hoped due to outstanding medical issues with other patients. The procedure was successful with stone clearance achieved. The patient had a nephrostomy inserted which was removed on day 3 and he went home day 4 post-operatively.



Week 1 - Day 3

The day started with a lecture on PCNL access followed by case presentations for the cases that day. The first case was a 2cm left renal pelvis stone who had been referred from another centre where there had been an attempt at open stone removal which was unsuccessful. She had an infection which was treated pre-operatively. The PCNL was successful, a nephrostomy was inserted which was removed prior to discharge and the patient went home day 2 post-operatively.

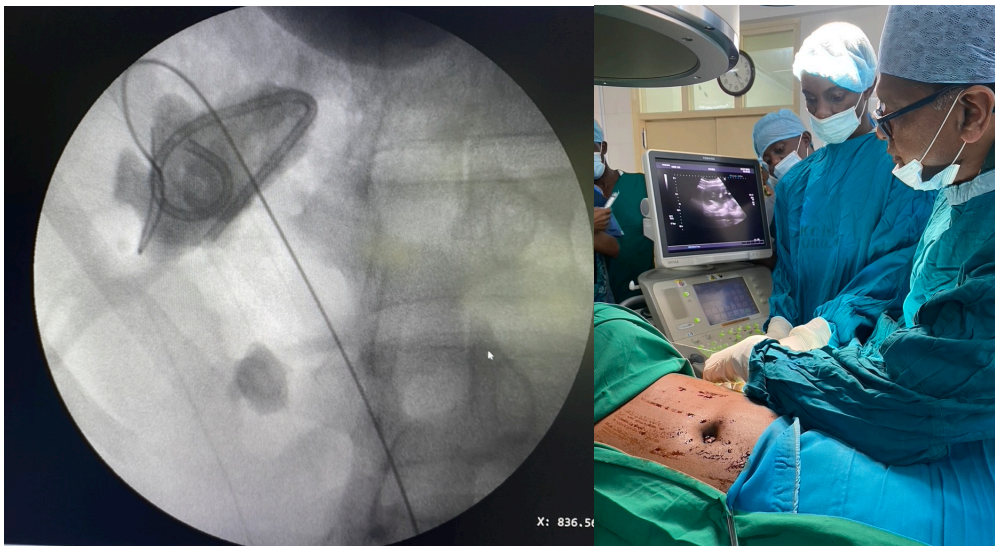
The team were asked to assist in a case for an emergency ureteric stent insertion in a 14-year-old nearly 2 weeks post pyeloplasty who had high drain output, proven to be urine. At the time of the pyeloplasty it had not been possible to pass a ureteric stent distally. The child was found to have a VUU obstruction, stent insertion was challenging but ultimately successful. He was observed, the drain around the anastomosis completely dried up, he had his catheter and later drain removed and was discharged home. He is planned to come back in 6 weeks for retrograde studies.

Our second planned PCNL patient for the day had a 2cm renal pelvis stone. Unfortunately, shortly after she was anaesthetised the patient had an asthma attack on table prior to any start of surgery. In combination with the anaesthetist a decision was made that it was not safe to proceed. Although she had been seen by a medical doctor prior to the surgery a further review happened and more optimisation was planned. This case highlighted some of the challenges faced at KCMC. Many of the anaesthetics are carried out by trained technicians but there are limited resources and back up when things don't go to plan. It is therefore vital that cases are selected carefully.

Week 1 - Day 4

The day started with lectures on how to prevent and manage complications of PCNL. There were then case presentations for the two planned cases.

The first case was that of a 30-year-old male who 15 years prior had open stone surgery. We were informed that 3 years ago he reattended and had a foreign body removed which with the history was presumed to be a ureteric stent. There was no information available on how successful this was. He was presenting with a right staghorn stone and our assumption was that this was likely to relate to a retained portion of stent. This proved to be correct and was clearly visible on the fluoroscopic images. The PCNL was successful with stone and retained stent removed completely. The patient had a nephrostomy inserted. He had infection pre-operatively which was treated and he continued on antibiotics. There were no fevers post-operatively but he had some difficulties with nausea and vomiting. This settled and he went home after the nephrostomy was removed on day 5 post-operatively.



The second case was planned for an emergency nephrostomy after presenting with a 1.4cm left proximal ureteric stone with signs of infection. He had a urine culture which had grown heavily resistant E.Coli only sensitive to Tazocin. Nephrostomy insertion was successful and drained thick pus. He remained in hospital for 1 week on Tazocin and then went home with the nephrostomy on free drainage. He is planned to come back for a PCNL.

Week 1 - Day 5

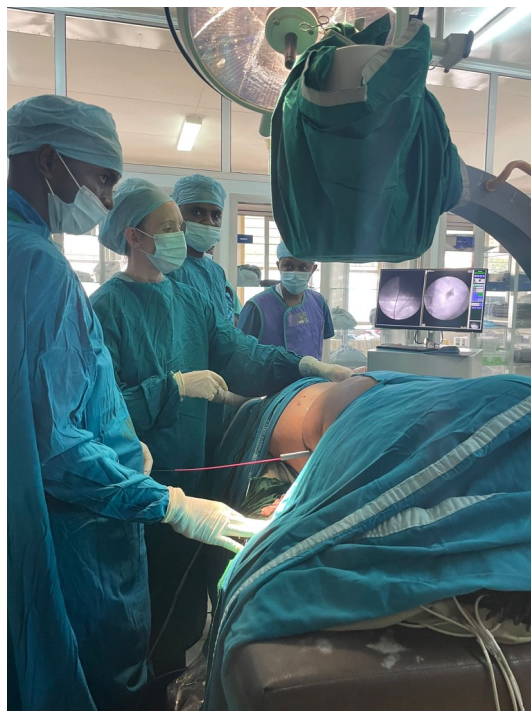
One of the residents had collated all of the steps, tips and tricks learnt throughout the week to perform PCNL and gave a thorough presentation on this. We were all extremely impressed by how much information they had all picked up not all of which was given as direct teaching.

The final PCNL for the week was a left partial staghorn stone which was successfully completed. A nephrostomy was inserted which was removed on day 3 and the patient went home day 4. A second case was attempted unfortunately not long after starting the case there was an error displayed on the c arm about overheating and it wasn't possible to use x-ray. We had an attempt at a

nephrostomy insertion under ultrasound guidance but the views were poor, in part due to patient body habitus, and we therefore decided to abandon the case. After the case we spent further time speaking with the engineers and tech support and the problem appeared to spontaneously settle.

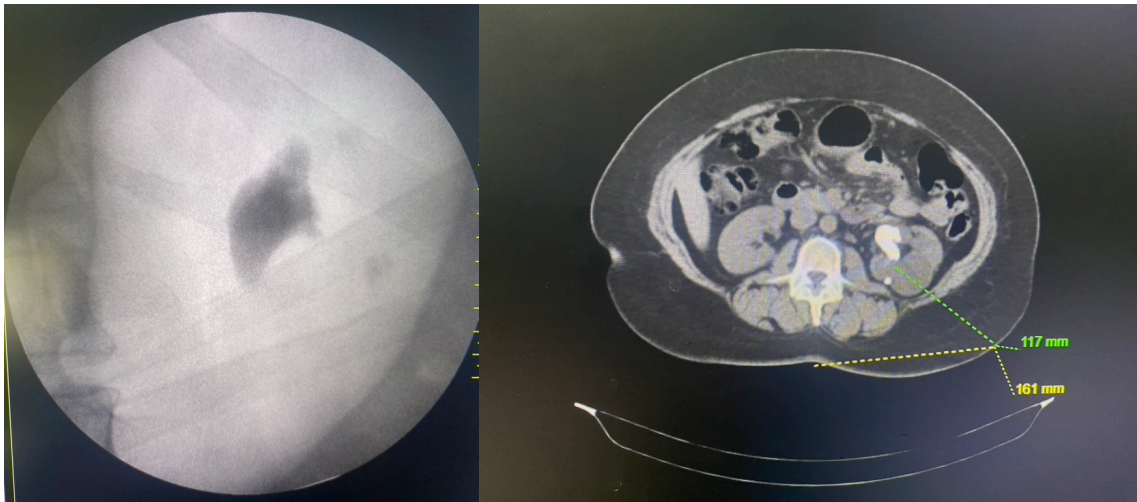


Week 2



The main stone workshop was planned over the first week. In the second week we opted to proceed with a couple of remaining cases and some further stone lectures (specifics of equipment for both residents and scrub nurses, radiation protection and metabolic stone management). I spent the rest of my time observing the day-to-day activities at KCMC and providing additional teaching for the residents including VIVA practice for the final year residents who had exams coming up.

Prior to proceeding with any further stone cases we checked the c arm before the start of each case. The first case on Monday was that of a partial duplex with a complete staghorn stone in the lower moiety. The case went well with complete stone clearance achieved a ureteric stent was placed with follow up planned for stent removal. The patient went home day 1 post-operatively.



The final planned PCNL case was due to happen on the Thursday, unfortunately the c arm came up with the same error message in the middle of the procedure prior to dilating the tract. Again, the tech support team and engineers were contacted. After some troubleshooting a decision was made to abandon the procedure. Following this procedure further investigations into the c arm took place and a replacement part is due to be sent.

Other clinical activities observed during this week included ward rounds, clinics and elective operating lists. A few observations were made during that time.

- **Ward rounds**
 - Intern would present each case at the bedside, where required with assistance from residents
 - Consultant would be present, and decisions were made about the patients care that day
- **Clinics**
 - In general, were faced with similar clinical problems to that that we see in the UK, raised PSA, urinary incontinence and male LUTS
 - Raised PSA
 - It seemed all patients would proceed to a finger guided transrectal prostate biopsy performed irrespective of age or co-morbidities
 - The majority of patients with advanced disease will have bilateral orchidectomy with hormones not readily available to patients.
 - Catheters and self-catheterisation in general were not acceptable management options for most patients.

- **Elective operating lists**

- Waiting lists for surgery were around 2-4 weeks
- All patients would be admitted at least 1 day prior to their planned surgery. They would be clerked in by an intern or resident, any investigations arranged and payment secured prior to proceeding with surgery.
- During our time other considerations included whether the patient was covered by insurance or not. Many of the patients had no insurance and were self-paying. We were informed a PCNL would cost a patient around \$300. If we asked for any additional scans or tests these would all come at a cost and each would need to be carefully justified.

Unfortunately, during my second week another theatre case highlighted the significant challenges that the team can be faced with. I observed a case where there was an intra-operative problem with delayed recognition of an unwell patient. Sadly, the patient died on the table. For the purposes of this report I have not gone into further detail about this case here but there were extensive discussions whilst in Tanzania and a clear need for training on recognition and management of a deteriorating patient from both anaesthetic and surgical sides.

Summary

In total the following procedures were performed. There were an additional 2 abandoned cases due to problems with the C-arm. Throughout these procedures local urologist Orgeness Mbwambo was being taught, and with further support will be continuing the new stone service.

Procedure	Number
PCNL	7
Emergency ureteric stent insertion	1
Emergency nephrostomy	1

KCMC has the required set up, enthusiasm and staff education to continue with a PCNL service. They are expected to continue with cases but to help support this monthly stone MDTs have been arranged between Orgeness Mbwambo and the faculty. This will be used to discuss PCNL cases and particularly focus on the approach to access. Further visits will be necessary to help support the learning curve and possibilities for this are being explored.

They also wish to progress with ureteroscopic stone surgery. To do this a laser will need to be acquired, the theatre will need to be made laser safe and further education relating to laser use will be necessary.

Finally, from observations I think training on recognition and management of the deteriorating patient would be of benefit. Stone patients particularly PCNL are at risk of infectious and bleeding complications which need to be readily detected and managed.

Acknowledgements

To KCMC for making all of us very welcome and their continuous enthusiasm to make this service work for their patients.

BAUS endourology who provided a grant to support the equipment for this project

Suzie Venn and all of the Urolink team who work tirelessly to make a success of this and similar projects

The Urology Foundation who provided me with a Urolink fellowship to be involved in this project