ENDOUROLOGY SOCIETY
2013 Summer Student Scholarship

The Endourology Society is pleased to announce the following recipients of this year's **2013 Summer Student Scholarship**:

1. Michael Glamore
   University of Miami Miller School of Medicine
   Mentors: Raymond Leveillee, M.D. and Nelson Salas, M.D.
   Project: "Development of a Thermal Model for Radiofrequency Ablation with Pyelo-Perfusion"

2. Alexandra Mecklenburg
   Asklepios Klinik Barmbek
   Mentor: Prof. Andreas Gross
   Project: "Percutaneous Nephrolitholapaxies – An Innovative System to Fill the Renal Pelvis Retrograd"

3. Taile Jing
   Shanghai Changhai Hopsital
   Mentor: Prof. Yinghao Sun
   Project: Removal of Ureteral Catheters with a Novel Noninvasive Device Safely and Economically"

Submitted by Alexandra Mecklenburg

Summer project 2013

Summary:

Percutaneous nephrolitholapaxies - an innovative system to fill the renal pelvis retrograd

During my summer project I analysed how the hospital in Barmbek fills the renal pelvis before the puncture during percutaneous nephrolitholapaxies and pointed out the advantages. I analysed in August 2013 in 20 patients this method.

In Barmbek they don't use an Uretercatheter to fill the renal pelvis. It's usual there to fill the pelvis retrograde with a Double-J-Catheter. At the beginning of the surgery the patient receives a permanent catheter. Then the bladder is filled with isotonic solution through this permanent catheter. When the bladder is filled, the solution ensues the way of the Double-J-Catheter and fills the renal pelvis. The bladder gets filled until the renal pelvis is acceptable dilated for the puncture. During the whohle surgery the patient is lies in the prone position.

With this project I want to bring out that this method is superior to the conventional method filling the pelvis. To bear this out, I analysed different parameters.
First, I analysed, if it's possible to fill the renal pelvis with a Double-J-Catheter. I saw that many people thought little stones may move next to the Double-J-Catheter in the ureter, I also analysed, if this is possible. I analysed, how much isotonic liquid I had to fill in the bladder until the renal calyx dilated enough for the puncture. During filling of the bladder I stopped after 200ml, 500ml, 750ml and 1000 ml to scale how much the renal calyx already dilated. After the dilation of the renal pelvis, I analysed how many trials of puncture the surgeon needs to succeed.
I also stopped the time of the surgery, to show if this method is faster. I saw that many patients already had a Double-J-Catheter praeoperativ, I also analysed how much time can be saved with an praeoperative Double-J-Catheter.
At least I analysed in how many cases complications happened. I analysed if the surgeon induces an influx, bleedings or perforations of neighbouring structures. I

also looked at postoperative changings, like creatinine or infections. Of course I also analysed, if the whole stone was removed.

I figured out that it is possible to fill the renal pelvis retrograde with a Double-J-Catheter. Not in a single case a stone fragment slided next to the Double-J-Catheter in the Ureter.

Averaged 585 ml were needed to fill the pelvis sufficiently for the puncture. With an empty bladder, the calix we wanted to tap was 0,26 cm dilated. After filling with 200 ml the calix were dileted by 0,65 cm. After 500 ml it was 1,03 cm dilated on average, and after 1000 ml was it 0,82 cm dilated. In one case the calix was filled sufficiently for the puncture dilated with 200 ml. In 13 cases 500 ml were needed, in four cases 750 ml and in two cases 1000 ml were needed for a sufficient dilation of the calix.

The surgery time on average was 70 minutes. The net surgery time was 45,05 minutes. Because not all of the patients had a preoperative Double-J-Catheter, we also compared the time from the ones, who already had a preoperative DJ-Catheter, with the ones who did not have. The surgery with a preoperative Double-J-Catheter took 63,64 minutes, the surgerys without a preoperative Double-J-Catheter took 69,17 minutes.

In one case we had a vascular complication. Although there was no intraoperative complication, the patient got a retroperitoneal haematoma. Another patient had an increase of creatinine from 1,3 to 4,1/H. The other interventions were free of comlications and infections.

60 percent of the patients, who underwent the new procedure, were primarily free of stones.

Experience:

My Summer Project in August 2013 was really an awesome experience for me. I have had a lot of fun doing this job. It was particularly terrific for me, to succeed with my project and to find what I wanted to bring out.

It was also fantastic for me to see a lot of other surgerys in August. It was a huge opportunity for me to step deeper into the urology and especially the endourology. I learned a lot and the project awaked my interest for the urology segment even more.