

patients with "steinstrasse" after ESWL. In these patients no ureteral stent was placed prior to the procedure.

**Conclusions:** PCNLT is the first line treatment option for staghorn lithiasis. It provides high stone-free rate with short postoperative hospital stay and low complications rate. SWL is successfully used as a secondary procedure for complete debulking of residual calculi.

### S103

#### **Outcome of percutaneous management of staghorn calculi: can the access number be predicted?**

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**Introduction and Objectives:** To investigate the outcome of percutaneous nephrolithotomy (PCNL) in the management of staghorn calculi and to assess whether we can predict the required access number for success or not.

**Material and Methods:** Between October 2002 and January 2009, the records of 413 patients with staghorn calculi who underwent percutaneous nephrolithotomy were reviewed retrospectively. Of the 413 patients, 223 (54%) had complete and 190 (46%) partial staghorn calculi. Intravenous urography and/or CT were performed in all patients. A total 244 (59%) patients were managed by single access (group 1), and 169 (41%) patients underwent multiple accesses, the number ranging from 2 to 6 (group 2). Both groups were compared in terms of per-operative findings and post-operative outcomes. Patients and stone-related factor affecting the number of accesses performed were analyzed.

**Results:** The mean number of percutaneous access was  $2.42 \pm 0.74$  (range 2-6) in group 2. Mean duration of fluoroscopy and operation times were significantly longer in group 2 ( $p < 0.002$ ,  $p < 0.0001$ , respectively). Supracostal access was required in 30.7% in group 2, and in 6.9% in group 1 ( $p = 0.001$ ). Success was achieved in 70.1% in group 1 and in 81.1% for group 2 after one session of PNL ( $p = 0.012$ ). The most common complications were bleeding for both groups and it is higher in group-2 ( $p < 0.0001$ ). Neither the stone size nor the degree of hydronephrosis could predict the number of accesses but the incidence previous open surgery was higher in group 2 ( $p < 0.008$ ).

**Conclusions:** PCNL with multiple accesses is a highly successful alternative with considerable complication rates in the management staghorn calculi. Our results further indicated that only the history of previous open surgery predicted the need for multiple accesses.

### S104

#### **Nomogram for prediction of fever after PCNL**

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**Introduction and Objectives:** The exact mechanism of fever and urosepsis after percutaneous procedures has not been established. This research studied the frequency of fever after percutaneous nephrolithotomy (PCNL) and the risk factors.

**Material and Methods:** In this prospective study, 150 patients have been included. In all patients, after standard diagnostic workup and according to guidelines, PCNL was done. All patients received antibiotic treatment between day 1 and day 2. Before scheduled PCNL all patients had sterile urine. Age of the patient, previous urinary infection, type of stone, presence of nephrostomy tube and number of tracks have been analyzed.

**Results:** The frequency of fever after PCNL was 14% ( $n = 21$ ). The mean durations of hospitalization in patients with and without fever were  $5.4 \pm 2.3$  and  $3.4 \pm 1.7$  days, respectively ( $p = 0.001$ ). In logistic regression analysis, positive urine culture, type of stone (staghorn) and presence of nephrostomy tube have been independently related to post-operative fever with classification accuracy of 90% and AUC of 0.7199. In Naive Bayes model, that except above includes and number of tracks, classification accuracy was 87.3% but AUC was 0.7222.

**Conclusions:** Fever after PCNL can be predicted in the most of patients. Both models offer very good prediction of fever after PCNL and can be used as a good prognostic tool in everyday practice.

### S105

#### **Does stone burden and degree of hydronephrosis affect success of shock wave lithotripsy in pediatric patients?**

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**Introduction and Objectives:** To evaluate success of shock wave lithotripsy (SWL) with a third generation SWL machine and to determine the relation between stone burden and the degree of hydronephrosis in children with urinary stones.

**Material and Methods:** Two hundred and sixty children with urinary system stones were treated with Siemens Lithostar Modularis Uro-Plus. The patients were divided into three groups according to stone burden (group 1:  $< 100 \text{ mm}^2$ ; group 2:  $101 - 200 \text{ mm}^2$ ; and group 3:  $> 200 \text{ mm}^2$ ) and four groups (group 0: absent; group 1: mild; group 2: moderate; and group 3: severe) according to the degree of hydronephrosis. These groups were compared in terms of the success rate of SWL.

**Results:** Two hundred and seventy-nine renoureteral units of 260 patients were treated at 402 SWL sessions. In all patients the average stone burden was  $98.2 \text{ mm}^2$  (range, 11-525). The overall success rate was 87.5%. According to stone burden, the success rate was 93.1% in group 1, 85.5% in group 2 and 60% in group 3 ( $p < 0.001$ ). According to the degree of hydronephrosis, the success rate was 93.8% in group 0, 89.6% in group 1, 73.3% in group 2, and 64.3% in group 3 ( $p < 0.001$ ). The average energy, number of shockwaves, number of sessions, re-treatment rate, auxiliary procedure rate, and overall efficacy quotient were 1.76 units, 2260, 1.4, 33%, 8.2%, and 0.62 respectively.

**Conclusions:** SWL is an effective treatment method in selected patient groups in pediatric age. However, percutaneous nephrolithotomy can be the first alternative for stones larger than  $200 \text{ mm}^2$ . It should also be kept in mind that the success rate of SWL decreases when the degree of hydronephrosis increases.

### S106

#### **Changes of plasma $\beta$ -endorphin and ACTH levels during ESWL treatment**

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**Introduction and Objectives:** To measure plasma levels of  $\beta$ -endorphin and ACTH, and to correlate their values with pain intensity in patients undergoing ESWL.

**Material and Methods:** 25 patients who hadn't previously undergone ESWL treatment were enrolled into this study. All stones were completely radioopaque at plain x-ray film and localized in renal pelvis. Their diameters were  $\leq 20 \text{ mm}$ . 2000 shock waves were given on the Pck Stolith ESWL machine. Plasma levels of  $\beta$ -endorphin and ACTH were measured before and 10 min, 30 min after the beginning of the treatment. Pain intensity was scored using 10-points the Visual Analog Scale after the end of the ESWL treatment.