

**Helical multislice CT with reconstruction for planning for PCNL**

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**Introduction:** The traditional IVU is the imaging of the choice in urolithiasis with hazards of contrast agents side effects and need for preparation before doing it. Multislice helical CT devices provide a lot of data regarding calyceal positing, in addition to radiolucent stone which appear clearly in non contrast CT.

**Purpose:** The current study compares planning for PCNL with preoperative IVU versus planning for PCNL with helical multiclice CT for outcome puncture time, operative time, number of trials to get true access and stone free rate.

**Materials and Methods:** Preoperative evaluation, detailed medical history and clinical examination, routine preoperative investigations and imaging study in the form of ultrasound and KUB was done. 85 patients with renal stones undergone PCNL divided into 3 groups: Group A , traditional IVU was used as a main maging modality in 61 cases (71.8 %) for planning for puncture & technique , Group B, Spiral non contrast CT with reformat was used in 22 cases (25.9%), Group C, 2 cases were having nephrostomies & antegrade was done for planning for puncture. All PCNL were done under fluoroscopy guidance, nephrostomy tube was left postoperative for all patients after procedure. Postoperative follow up, CBC, US and KUB was done.

**Results:** All patients tolerated the technique. Mean stone burden for group A, 5.09 cm ± SD 1.87, for group B 4.84 cm ± SD 2.13. The mean operative time showed near figures for IVU & Spiral CT, 111.98 min for Group A, 109.38 min for Group B. Also mean puncture time showed insignificant changes in figures between IVU & Spiral CT, 21.11 min for Group A & 20.63 min for Group B. Planning with spiral CT showed superiority in number of trials before getting successful puncture to kidney as 72.2 % of PCNL punctures succeeded from the first trial in group B, 13.6% from the second trial and 13.6% from the third trial. In group A only 42% of PCNL punctures succeeded from the first trial, 29.5% from the second trial, 11% from the third trial of puncturing. Cases with residuals that need further surgical interference or ESWL presented in 1 case of Group B (4.5%) and 16 cases of Group A (26.2%).

**Conclusion:** In our institute, the use of spiral CT only in planning for PCNL puncture is safe and versatile modality for management of complex renal stones with comparable outcomes regarding the operative time and puncture time to planning with IVU.

Spiral CT planning showed superiority in number of trials to get true access tract & stone free rate in relation to IVU planning.

Figure 1. Outcomes

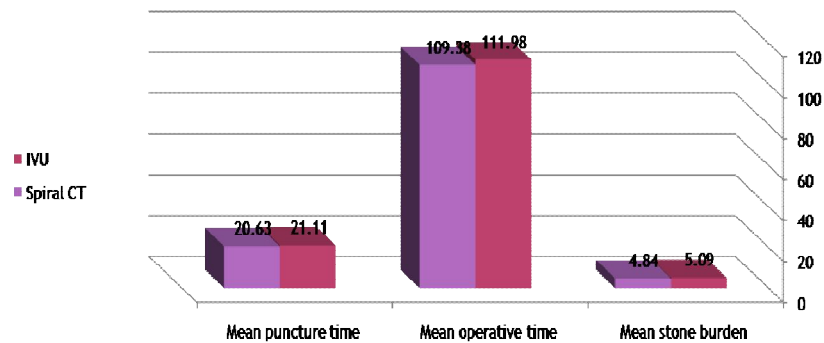


Figure 2. Outcomes

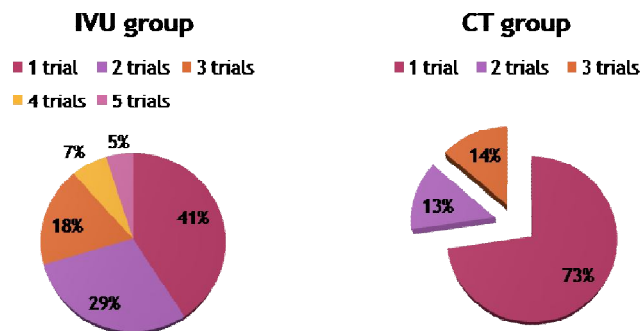


Figure 3. Outcomes

### Percentage of stone free rate in relation to main imaging modality

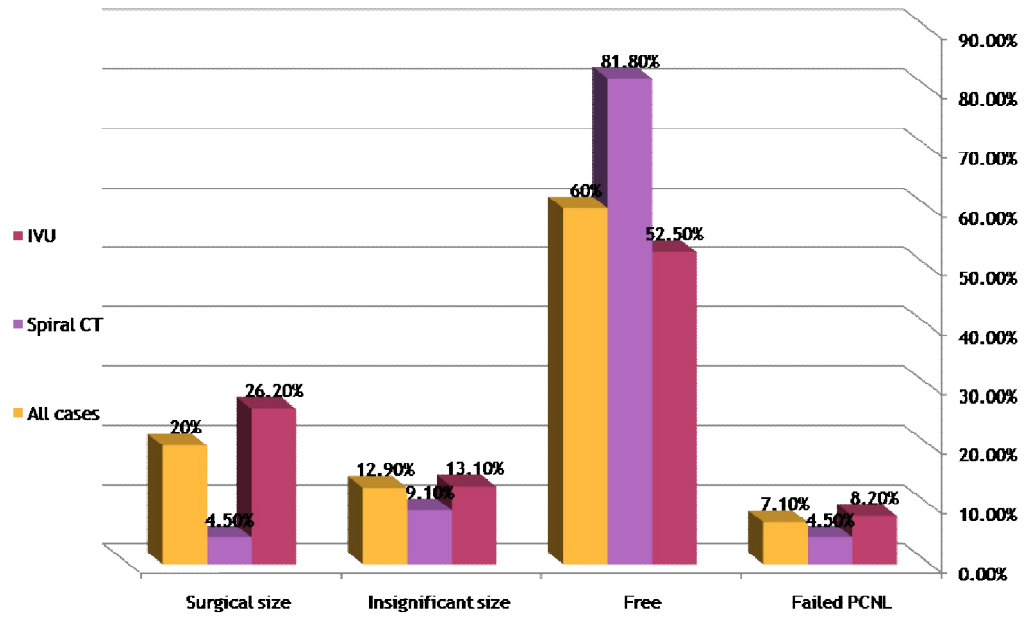


Figure 4. CTrecon



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