Use of sealants of little benefit in tubeless PCNL

Meticulous patient selection is key to good outcomes, Italian researchers report

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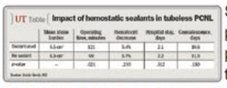
UT Table Impact of hemostatic sealants in tubeless PCNL

Stockholm, Sweden—Sealing the percutaneous tract is not necessary if patients have been rigorously selected for tubeless percutaneous nephrolithotomy (PCNL), according to researchers from the Istituto Clinico Humanitas Stone Center, Rozzano Milan, Italy.

The aim of the group's study, which was presented at the European Association of Urology annual congress, was to demonstrate whether routine use of biological sealant is effective in reducing the incidence of major bleeding and other complications after tubeless PCNL.

According to rigorous indication criteria (ie, single percutaneous tract, absence of major perforation of the collecting system and bleeding, complete stone clearance as assessed by intra-operative nephroscopy and fluoroscopy at the end of procedure), 40 consecutive patients with renal stones treated with tubeless PCNL were randomized to two groups. In one group, the percutaneous tract was sealed with biological glue (FloSeal, Baxter Medical, Deerfield, IL) according to Clayman technique (*J Urol* 2004; 171:575-8). In the other group, the percutaneous tract was not sealed.

Mean stone burden was 5.5 cm^2 in the sealant group and 5.9 cm^2 in the no-sealant group. Blood samples were obtained 3 hours postoperatively and again the following morning. Renal ultrasound was performed on postoperative day 1 and 1 week postoperatively prior to stent removal to exclude hematoma and urinary retroperitoneal extravasations.

The results showed that sealing demanded longer operating times: on average, 121 minutes compared to 99 minutes without sealing. No differences in decrease of hematocrit (5.4 % vs. 5.7%), hospital stay (2.1 days vs. 2.2 days), or length of convalescence (10.6 days vs. 11.0 days) were reported, said lead author Guido Giusti, MD, head of the Stone Center.

A costly precaution

While acknowledging that the study population was small, Dr. Giusti reminded *Urology Times* that "it is the first prospective randomized study on this issue, and this strengthens the signification of our results."

"We were able to demonstrate that, as seldom happens in medical practice, the widespread use of these very costly biological glues is more due to habit than to clinical necessity," he said. "In particular, routine sealing of the percutaneous tract did not impact blood loss, transfusion rate, hospital stay, and convalescence.

"On the counterpart, it involves significant increase in operative time and cost per procedure. Obviously, further studies are needed to corroborate this finding."

Dr. Giusti asserted that applying the stringent indication criteria used in this study is not onerous, provided meticulous attention is paid to details throughout the procedure. He emphasized that in doing so, the urologist optimizes the safety of tubeless PCNL.

"Nevertheless, confidence in tubeless technique usually increases with time so that tubeless PCNL has become a routine procedure at our institution and it is feasible in nearly two-thirds of patients with renal calculi suitable for percutaneous treatment," he said.

Dr. Giusti offered four pearls from his PCNL experience:

- A correct puncture at the bottom of the targeted calyx is crucial.
- Balloon dilation reduces bleeding and operative time related to tract dilation and reduces the frequency of collecting system perforation, which may occur when non-inflatable dilators are inadvertently advanced too far medially.
- When using newer lithotripters, every effort should be made to fragment stones into small pieces to avoid damaging the collecting system wall during extraction.
- Every percutaneous treatment should end with detailed intraoperative flexible nephroscopy to confirm stone-free status.

"The bottom line of my paper is to strictly respect the indications," Dr. Giusti said. "In case of bleeding, biological glues do not guarantee its definitive control; consequently, the tubeless procedure must not be chosen.

"In my opinion, the only indication for using glues is not to obtain hemostasis, but to obtain a watertight closure of the collecting system in case of tubeless procedure after second-look PCNL. In these cases, since generally the percutaneous tract is 'mature' for the presence of larger re-entry nephrostomy, filling the renal defect with glue (in this case, Tissucol [Baxter] instead of Floseal) usually avoids urinary leakage from the flank and allows for quick discharge the day after the procedure."

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