RE: Percutaneous nephrolithotomy for isolated calyceal stones: How important is the stone location?

Yanıt: İzole kalis taşları için perkütan nefrolitotomi: Taşın yerleşimi ne derecede önemlidir?

Mohd Nazli Kamarulzaman

I read with great interest the article "Percutaneous nephrolithotomy for isolated calyceal stones: How important is the stone location?" by Ozgor et al.[1] This article highlights an interesting outcome of isolated calyceal stones which were managed by percutaneous nephrolithotomy (PCNL). The isolated upper pole calyceal stone has been shown to have statistically significant difference in term of thoracic complications, longer nephrostomy duration, and hospital stay in comparison to middle calyceal stone. Besides that, post-operative bleeding also appeared to be higher and stone clearance rate was lower in upper pole puncture but there was no statistically significant difference between the groups. All those parameters suggest that the direct puncture for treating isolated upper pole calyceal stone has higher risks with lower effectiveness. In my opinion a definite conclusion cannot be drawn from this study as it was a retrospective review which had some limitations. In this study various modifications of conventional PCNL as a special measure was not clearly elaborated. The use of balloon dilatation and single stage dilatation with Amplatz dilator was found to have less bleeding in comparison to serial Amplatz dilatation.[2] Whereas properly selected site and timing of the puncture was found to reduce the thoracic complications. Ko et al.[3] found that careful placing the puncture site at lateral half of the ribs will avoid pleural and supracostal puncture. Whereas, puncturing kidney during fully expiration will push the lung base two interspaces higher. Both tricks will avoid from puncturing pleura, thus reduce thoracic complications. On the other hand, Raza et al.[2] found that the efficacy of upper pole puncture was significantly higher than mid-pole and lower pole punctures in managing staghorn calculi whose incidence rates were 83%, 78% and 65%, respectively. They postulated that the ability of direct access to upper pole, pelvis and upper ureter contributed to higher stone- free rate.[2] Besides that, they also found that the upper pole puncture had no significant increase in complication rates.[2] Thus in my opinion upper pole puncture had more advantages provided that careful precautions are taken during the procedure.

References

1. Ozgor F, Kucuktopcu O, Simsek A, Sarilar O, Binbay M, Gurbuz G. Percutaneous nephrolithotomy for isolated calyceal stones: How important is the stone location? Turk J Urol 2015;41:171-6.
2. Raza A, Moussa S, Smith G, Tolley DA. Upper-pole puncture in percutaneous nephrolithotomy: a retrospective review of treatment safety and efficacy. BJU international 2008;101:599-602. [CrossRef]
3. Ko R, Soucy F, Denstedt JD, Razvi H. Percutaneous nephrolithotomy made easier: a practical guide, tips and tricks. BJU Int 2007;101:535-9. [CrossRef]

Author's Reply

Parietal pleura, which adheres to the posterior part of 12th rib, is adjacent to the upper part of kidney that lies between posterior part of 11th and 12th rib. Conversely, the location of visceral pleura is elevated dramatically by breathing, during deep inspiration, the visceral pleura stays at the level of the 12th rib, but at the level of 8th rib at expiration.[1] Due to anatomical characteristics mentioned above, supracostal puncture may traverse the pleural place, and cause intrathoracic complications.

Department of Surgery, Kulliyyah of Medicine, International Islamic University, Kuantan, Malaysia

Submitted: 07.01.2016

Accepted: 05.02.2016

Correspondence: Mohd Nazli Kamarulzaman
E-mail: nazlikamarulzaman@gmail.com

Available online at www.turkishjournalofurology.com

Turk J Urol 2016; 42(2): 115-6
DOI:10.5152/tud.2016.84565

Recently, there is no strict classification for intrathoracic, and intrathoracic complications which varies widely according to different studies. Munver et al.[2] reported 7.1% and 23.1% incidence rates for intrathoracic complications after percutaneous nephrolithotomy (PNL) with supra 12th and supra 11th rib access, respectively. They proved that access thorough 10-11 intercostal space is associated with increased pulmonary complications, 16, and 46-fold higher than accesses thorough 11-12 intercostal space and subcostal plane. Similarly, Shaban et al.[3] encountered intrathoracic complications at an incidence of 33.3% with supra 11th rib access. Moreover, Lojanapiwat et al.[4] found intrathoracic complication rate as 15.3% following PNL performed through supracostal access. They concluded that PNL via upper pole is an effective approach, however, pulmonary complication rate is significantly higher with supracostal approach, similar with our study.

Supracostal access allows direct visualisation of upper pole, ureteropelvic junction, proximal ureter, lower pole and it is indicated for upper caliceal stones, staghorn calculi, in abnormal kidney and distorted lower calyceal anatomy. Recent studies using with supracostal access have not classified procedural success or complications according to indication of supracostal access.[3,4] Thus, we believe that it is not possible to directly compare our study with other studies. In Shaban's study, supracostal access for upper calyceal stones was performed only in 26.7% of their patients.[3] In parallel to that study, Lojanapiwat et al.[4] found supracostal access rate as 21.7% performed for calyceal stones.

Stone- free status was accomplished in 93.1%, 92.9% and 88.1% of the patients with lower, middle and upper calyceal stones, respectively, without any significant intergroup difference (p=0.537). Similar with our study, Shaban et al.[3] and Jun-Ou et al.[5] also achieved 88.9% and 84.6% success rates following supracostal PNL.

Faruk Özgör, Onur Küçüktopcu, Abdulmuttalip Şimşek, Ömer Sarılar, Murat Binbay, Gökhan Gürbüz
Clinic of Urology, Haseki Training and Research Hospital, İstanbul, Turkey

References

1. McAllister M, Lim K, Torrey R, Chenoweth J, Barker B, Baldwin DD. Intercostal vessels and nerves are at risk for injury during supracostal percutaneous nephrostolithotomy. J Urol 2011;185:329-34. [CrossRef]
2. Munver R, Delvecchio FC, Newman GE, Preminger GM. Critical analysis of supracostal access for percutaneous renal surgery. J Urol 2001;166:1242-6. [CrossRef]
3. Shaban A, Kodera A, El Ghoneimy MN, Orban TZ, Mursi K, Hegazy A. Safety and efficacy of supracostal access in percutaneous renal surgery. J Endourol 2008;22:29-34. [CrossRef]
4. Lojanapiwat B, Prasopsuk S. Upper-pole access for percutaneous nephrolithotomy: comparison of supracostal and infracostal approaches. J Endourol 2006;20:491-4. [CrossRef]
5. Jun-Ou J, Lojanapiwat B. Supracostal access: does it affect tubeless percutaneous nephrolithotomy efficacy and safety? Int Braz J Urol 2010;36:171-6.

Correspondence: Faruk Özgör
E-mail: md.farukozgor@yahoo.com