

以體外震波碎石術治療下腎盞結石：可否由腎下極之解剖
特性預測結石廓清率？

**Extracorporeal shock wave lithotripsy for
lower caliceal stones: can stone clearance be
predicted by lower pole anatomy?**

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摘要

背景與目的：爲了瞭解由靜脈注射尿路造影圖所顯示的腎下極解剖特性和體外震波碎石術治療 15 毫米以下的下腎盞結石之臨床效果兩者之間的關聯性，我們進行了本研究。方法：本研究包含回溯性分析 57 位病人具有等於或小於 15 毫米之下腎盞結石，他們都接受了 Simens lithostar C 體外震波碎石機的治療，在治療前的尿路造影圖上，量取腎盂和腎漏斗的交角，腎漏斗的寬度，和記錄腎下極之腎盞範型。結果：術後 3 個月，從 KUB 上檢視結石碎片排空的情形發現：總共有 27 位病人於術後 3 個月結石完全排空，30 位病人仍有殘餘碎片留存，在首次治療後的結石廓清率是 47%。具有腎盂和腎漏斗交角大於或等於 90 度的病人其結石廓清率是 88%，而角度小於 90°者則僅有 41%。病患之腎漏斗寬度大於 4 毫米者，結石廓清率爲 67%，而寬度小於或等於 4 毫米者只有 26%，具備簡單式腎盞範型者有 78%之病人結石完全排空；而有複雜式範型的病人則只有 33%的結石廓清率。結論：我們可以很輕易地從尿路造影圖上量取這三項解剖因子，同時每一個別的因子都和體外震波碎石術後之結石廓清率有顯著的相關性。因此，這參項解剖特性的量度對於預測結石排空的情況扮演一個關鍵的角色。本研究結果建議應該於術前詳細評估尿路造影圖以便對下腎盞結石擬出最好的治療計。

Abstract

Background and Purpose: To determine whether there is a significant relationship between lower pole anatomy of the kidney, as seen on intravenous urography (IVU), and the outcome after extracorporeal shock wave lithotripsy (ESWL) for a solitary lower caliceal stone 15 mm in diameter or less. Methods: The study comprised a retrospective analysis of 57 patients with solitary lower caliceal stones of 15mm or less in diameter who underwent

ESWL with a Simens lithostar C lithotripter. On pretreatment, the IVU infundibulopelvic angle, the diameter of the lower calyx infundibulum, and the lower pole caliceal pattern were determined. A plain x-ray of the KUB (kidney-ureter-bladder) was obtained 3 months after ESWL to check the clearance of stone fragments. Results: Among these patients, 27 were considered to be completely free of fragments 3 months after ESWL, while 30 had residual stones. After initial therapy the overall stone-free rate was 47%. The stone-free rate in patients with an infundibulopelvic angle $\geq 90^\circ$ was 88%, while in those with an angle $< 90^\circ$, it was 41%. In patients with an infundibular diameter of the lower calyx of > 4 mm, the stone-free rate was 67%; in those with a diameter ≤ 4 mm, it was 26%.

Seventy-eight percent of patients with a simple caliceal pattern were stone-free, whereas only 33% of those with a complex caliceal pattern were stone-free. Conclusion: These 3 anatomical factors of the lower pole calyx can be easily measured on IVU, and each factor is significantly related to the stone-free rate after ESWL. They play a key role in predicting the status of stone clearance and therefore should be assessed on IVU to facilitate the planning of treatment for lower caliceal stones.