

Figure 3. (A) Computed tomography (CT) scan in a 33-year-old patient demonstrating bilateral UPJ obstruction with a very large right hydronephrosis. (B) Nephrostograms after bilateral endopyeloplasty. In our experience, mostly in classic endopyelotomy and in endopyeloplasty, postoperative nephrostogram at 48 hours reveals no extravasations. Therefore, a watertight endopyeloplasty repair is not mandatory. (C) CT scan 7 months postoperatively showing good evolution with complete resolution of the bilateral hydronephrosis. The right kidney has become very small. Therefore, even in very large hydronephrosis, there is a natural renal pelvic retraction when good kidney drainage is restored. This suggests that the renal pelvic tissue reduction, as performed in open or laparoscopic Anderson-Hynes dismembered pyeloplasty, is not always necessary.

nephrostomy and double-J stent, the renal pelvis is retracted, further aiding in tissue approximation. In our experience, mostly in classic endopyelotomy and in endopyeloplasty, postoperative nephrostogram at 48 hours reveals no extravasations. Therefore, a watertight endopyeloplasty repair is not mandatory (Fig. 3B).

Gill et al³ performed a peri-ureteral dissection of the distal ureteral margin to create space for passage of the suturing device and to relieve tension on the endopyeloplasty suture line. In our experience, this dissection was not performed and no tension was noted during tissue approximation. Possibly, the UPJ invagination, before endopyelotomy, has a role in mobilizing the proximal ureter.

We believe that with endopyeloplasty, the new UPJ is reconstructed from a new segment of the proximal ureter sutured with a new tissue of the renal pelvis wall, as with the completely new UPJ tissue of the Anderson-Hynes dismembered pyeloplasty. Thus, in addition to the wider caliber reconstruction of the UPJ, endopyeloplasty also provides a transposition of the UPJ further down the proximal ureter in “healthy” tissue (Fig. 1H(2)). The UPJ “unhealthy” tissue is moved and “dissolved” into the renal pelvis wall (Figure 1H(1)). However, in conventional endopyelotomy the same walls of the initial UPJ remain.

CONCLUSIONS

Percutaneous endopyeloplasty is a promising technique. The tissue approximation provides fast, full-thickness ureteral healing. The endopyelotomy horizontal suturing leads to a wider caliber reconstruction of the UPJ. The new UPJ is moved further down the proximal ureter in a “healthy” tissue. Our procedure for endopyeloplasty is technically feasible and effective, using reusable material, with little need for highly specialized equipment. However, the procedure needs significant technical expertise, so further technical experience and longer follow-up in a larger group of patients are necessary to improve this technique.

References

1. Oshinsky GS, Jarrett TW, Smith AD. New technique in managing ureteropelvic junction obstruction: Percutaneous endoscopic pyeloplasty. *J Endourol.* 1996;10:147-151.
2. Desai MM, Gill IS, Carvalhal EF, et al. Percutaneous endopyeloplasty: A novel technique. *J Endourol.* 2002;16:431-443.
3. Gill IS, Desai MM, Kaouk JH, et al. Percutaneous endopyeloplasty: Description of new technique. *J Urol.* 2002;168:2097-2102.
4. Lezrek M, Bazine K, Samir J, et al. V26 laparoscopic suture techniques for percutaneous endopyeloplasty. *Eur Urol Suppl.* 2009;8(4):389.
5. Desai MM, Desai MR, Gill IS. Endopyeloplasty versus endopyelotomy versus laparoscopic pyeloplasty for primary ureteropelvic junction obstruction. *Urology.* 2004;64:16-21.
6. Sharp DS, Desai MM, Molina WR, et al. Dismembered percutaneous endopyeloplasty: A new procedure. *J Endourol.* 2005;19:210-217.
7. Symons SJ, Palit V, Biyani CS, et al. Minimally invasive surgical options for ureteropelvic junction obstruction: A significant step in the right direction. *Indian J Urol.* 2009;25:27-33.

EDITORIAL COMMENT

The gold standard treatment for primary ureteropelvic junction obstruction (UPJO) is a pyeloplasty; the approach can be open, laparoscopic, or robotic and could be a matter of surgeon preference. The authors need to be congratulated for describing a conventional and novel approach for performing endopyeloplasty with a 3.5-mm pediatric laparoscopic needle-holder.

Percutaneous endopyeloplasty, popularized by Desai et al, is based on the Heineke-Mikulicz principle, and is best suited for short-segment UPJO with an extra renal pelvis, without a crossing vessel. It also can be offered to patients with concomitant renal stones and UPJO because both can be treated with a percutaneous route. The conceived advantage of endopyeloplasty includes wider caliber reconstruction of the ureteropelvic junction and full thickness healing with primary intention; the added benefit is a shorter duration of indwelling stent.¹

The authors have further raised the bar by succinctly describing a conventional way of performing a percutaneous endopyeloplasty. The outcome of any new procedure for UPJO has to be comparable with a “well-done” open pyeloplasty, and this holds true even for the conventional technique of percutaneous endopyeloplasty described in this article. We would like to make a few comments in this regard.

First, from a technical standpoint, a percutaneous endopyeloplasty requires specialized equipment and advanced skills in percutaneous renal surgery. Although the conventional technique described by the authors minimizes the need for special equipment, it requires a high level of skills in laparoscopic surgery. This may be a hindrance to popularizing the technique.

Second, the authors describe the presence of extravasation in a patient. This is a matter of concern given the fact that the technique requires a significant amount of retroperitoneal dissection. The amount of extravasation should be objectively documented in further studies.

Third, we also are concerned by the theoretical risk of needle break during the procedure. The authors state the need for good quality needles and thread. This statement is quite subjective and needs to be validated objectively.

Fourth, although the technique is impressive, it requires the need for developing skills in laparoscopy; the obvious difficulties in mastering the technique include lack of triangulation and in-line movement of instruments. This implies that in addition to having skills in percutaneous surgery, the operator should also be an accomplished laparoscopic surgeon.

Finally, an earlier study comparing percutaneous endopyeloplasty with endopyelotomy and laparoscopic pyeloplasty showed comparable complications and results in the 3 groups.² A future direction in this context could be a similar study comparing the newly described conventional technique with laparoscopic pyeloplasty!

Finally, this article furthers our quest for the development of a minimally invasive approach in the arena of percutaneous surgery. As in any new technique, randomized trials are required to prove or disprove the merits of the procedure.

Mahesh Desai, M.D., Arvind P. Ganpule, M.S.(Surg), D.N.B.(Urol), Muljibhai Patel Urological Hospital, Nadiad, India

References

- Desai MM, Gill IS, Carvalhal EF, et al. Percutaneous endopyeloplasty: A novel technique. *J Endourol.* 2002;16(7):431-443.
- Desai MM, Desai MR, Gill IS. Endopyeloplasty versus endopyelotomy versus laparoscopic pyeloplasty for primary ureteropelvic junction obstruction. *Urology.* 2004;64(1):16-21; [Discussion:21].

doi:10.1016/j.urology.2011.08.070

UROLOGY 79: 230–231, 2012. © 2012 Elsevier Inc.

REPLY

We genuinely appreciate the comments of Desai et al regarding our feasibility study describing a more “conventional” way to perform percutaneous endopyeloplasty.¹ This technique was performed without any patient selection. Thus, we think that in dependent position ureteropelvic junction (UPJ), the 2 endopyelotomy incision apices are wide apart, thus endopyeloplasty is best suited for short UPJ obstruction. However, in high inserted UPJ, a longer endopyelotomy can be performed until reaching the more dependent renal pelvic part. Mostly in this case, the 2 tissue edges are adjacent, so endopyeloplasty is easier.

We think that endopyeloplasty provides a transposition of the UPJ further down the proximal ureter in “healthy” tissue.¹ Therefore, especially in high inserted UPJ, the new UPJ is in a

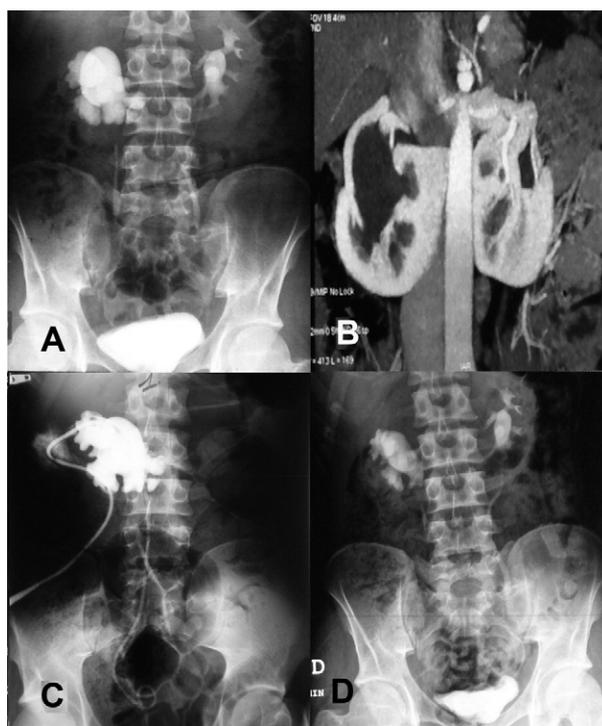


Figure 1. A 26-year-old patient with a 3-year history of recurrent acute right lumbar pain. Ultrasound showed right hydronephrosis. **(A)** Intravenous pyelography showed a right hydronephrosis on a horseshoe kidney with UPJ obstruction. **(B)** Computed tomography scan showed a crossing vessel of the right UPJ. **(C)** Nephrostogram on postoperative day 2 after a right endopyeloplasty was performed, through an upper pole access. **(D)** Six months postoperatively, the patient is symptom-free and intravenous pyelography showed a clear decrease in hydronephrosis.

lower location and the crossing vessel may stay in the same position and then will eventually cross the renal pelvis. Consequently, transposition of crossing vessels might not always be necessary. However, in conventional endopyelotomy the UPJ remains in its initial position and thus more predisposed to the crossing vessel interference. In our experience, only 1 patient with horseshoe kidney had a computed tomography scan confirming a crossing vessel and had a good result after endopyeloplasty (Fig. 1).

The needle-holder-tip performs minimal dissection of the peri-ureteral tissue, just enough to grasp the needle-tip. Therefore, we perform much less retroperitoneal dissection than Gill et al,² and they reported only 1 extravasation in 9 patients. Actually, in percutaneous renal surgery, fluid absorption might be evident in all patients, mostly without any clinical or biochemical evidence of electrolyte imbalance. However, fluid absorption may be clinically significant in patients with compromised cardiorespiratory or renal status and in pediatric patients,³ which justifies fluid monitoring in these cases. Moreover, irrigation is performed with normal saline, so an alcoholometer test is unnecessary. There is risk of losing the needle if the needle breaks or if it detaches from the tread. Therefore, a strong, thick needle is recommended to avoid being twisted while passing through the tissues. In addition, a good suture brand should be used to avoid detachment of the needle and the suture.