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EDITORIAL COMMENT



The meaning of contrast extravasation at the time of post-urethroplasty urethrogram is a matter of debate, in particular its value to predict stricture recurrence. While some studies suggest a positive correlation with future failure, particularly after graft urethroplasty (refs. 11, 15 and 18 in the paper), others like a recent large series from Latin America failed to demonstrate such association.¹

This is frustrating because, conceptually, the finding of extravasation at 3 weeks suggests that the healing may not have been perfect, and that part of the reconstruction has probably been lost and will heal by second intention, leading to fibrosis. Additionally, exposure of the corpus spongiosum to urine may trigger inflammation increasing also the risk of periurethral scarring.

These contradictory findings are most likely due to insufficient follow up and variable protocols, with diverse definitions of failure. In this scenario, this study has the virtue of

presenting a large number of patients from 10 expert centers of excellence, from the Trauma and Reconstructive Network of Surgeons. A retrospective analysis of a prospectively collected database was performed and extravasation was shown to have a strong positive predictive value to portend stricture recurrence at 1 year.

Contrast extravasation is not very frequent and was 4.9% in this series. It has been shown more prevalent after complex and graft reconstructions, and more rarely following bulbar anastomotic procedures. Because of this, some reconstructive urologists - about 30% in a recent survey² - do not perform routine imaging studies when removing the catheter.

However, that's in the hands of experts. In my opinion, post-operative urethrography has the value of serving as a quality control tool for the reconstructive urologist, especially those who are initiating their experience. It can also influence management (ie, longer catheterization time) and may evidence those patients with severe extravasation who are at increased risk of complications, like fistula or abscess, who may even need early reoperation. This report adds another significant value to postoperative imaging.

It is important to note that not all extravasations are the same and the degree of extravasation is crucial, as minor or contained extravasations usually are not relevant and may not need a longer catheterization time. However, more extensive or uncontained extravasations may indicate a more severe healing defect and may be at a higher risk of failure and acute complications. It is unfortunate that analysis of the degree of extravasation was not possible to be done in this study, remaining as an important subject for future research.

Although the study is limited by a short follow-up (only 1 year) and some possible biases arising from variations in the data collection, the use of different urethrography techniques and other factors inherent to this type of studies, the series presents solid data indicating that, despite a low sensitivity (so the absence of extravasation does not exclude the risk of stricture recurrence), the presence of extravasation appears as a strong predictor of future stricture failure and, as the authors indicate, those patients should be followed more closely.

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AUTHOR REPLY



The implications of contrast extravasation after urethroplasty certainly deserves more of our attention and study. An unfortunate limitation of our work was the inability to perform centralized imaging review given local-only, non-saving fluoroscopy units at many sites. In prior work, Grossgold et al

evaluated extravasation severity and ascribed a 3-tiered grading system. Among 31 observed leaks (resulting from 91 buccal urethroplasties), 11 were “severe,” and tended to have worse outcomes at 1 year from surgery.¹ As leaks are attenuated by urethrogram technique, truly comparing across technicians is challenging. In addition, there is no objective method to standardize mild vs severe. The Potter Stewart adage “I know it when I see it” may perfectly describe the current identification of a severe leak.²

We agree that extravasations may represent an undesirable pathway for healing. In many ways, extravasation is an end product of an unknown process. The interplay of surgical technique, native tissue quality, and inflammation may all contribute. Urine spillage may trigger spongiositis and stricture recurrence. When we observe a significant leak, dogma dictates longer catheterization times with unclear effect on long-term stricture recurrence rates. The Trauma and Urologic Reconstruction Network of Surgeons is currently studying the role of inflammation in urethral stricture disease (1R21DK115945-01) which hopefully will begin to shed light on these issues.

The use of post-operative imaging as a quality check tool is an important point. These data represent the accumulated experience of experts. Indeed, the same group previously concluded 100 cases are required to reach urethroplasty proficiency.³ Given challenges

with consistent follow up of patients after urethroplasty, a post-operative image may be the sole opportunity to assess the results of surgery. For a reconstructive urologist early in their career, post-operative urethrogram therefore remains essential.

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