

Role of Sonourethrography in The Diagnosis of Urethral Strictures and its Comparison With Reterograde Urethrography

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This study was carried out on 52 patients which were selected from the general surgical and urology out door of Mayo hospital Lahore. The study was carried out in the department of Radiology King Edward Medical college / Mayo Hospital Lahore. Ultrasound machine used in this study had both 3.5 and 7.5 MHz probes. To out line the urethra, lignocaine gel was used. For conventional x-ray urethrography 300mA, x-ray machine with water soluble contrast medium used. Results showed that the ultrasound diagnosed 91.3 % anterior urethral strictures and x-ray urethrography diagnosed 88.5 % strictures of anterior urethra. Posterior urethral strictures were inconclusive in sonourethrography and were outlined in the conventional urethrography. This study proved that the anterior urethral strictures are better picked up on sonourethrography; this method is cheap and can easily be carried out in outdoors.

Key words: Sonouretrography, X-Ray urethrography, urethral stricture.

Male patients with difficulty in micturition and positive history of venereal disease in the past are perfect candidates for sonourethrography. These patients are usually seen in the urology or surgical out doors. Other than the history, important investigation for urethral stricture is the retrograde urethrography. It is difficult to arrange this investigation for these patients on outdoor basis as it is time consuming and expensive. The author has used ultrasound for the anterior urethral investigation and has found that it is much more accurate in diagnosing anterior urethral stricture. The method is inexpensive, less painful, easy to carry out in the outdoor and more accurate in locating anterior urethral strictures. Sonourethrography is however not very beneficial in the posterior urethral strictures.

Material

Fifty two patients subjected to both conventional urethrography and sonourethrography. These patients were picked from the department of urology and department of venereal diseases of Mayo Hospital Lahore. These 52 male patients had presenting complaints of urethral discharge, dysurea, and difficulty in micturition and subsequent urinary retention. All these patients had positive history of sexually transmitted disease.

3.5 MHz and 7.5 MHz transducers were used simultaneously for the sonographic examination. Sterile lignocaine gel was used for copulation as well as visualization of the anterior urethra. Later conventional x-ray urethrogram of each patient was performed on 300 MA machine with water soluble contrast material.

Method

Patient is properly exposed in supine position on examination couch. The shaft of the penis is on lower abdomen and the undersurface is facing up. After application of lignocaine gel on the shaft the transducer is placed longitudinally on it, and through the anterior urethral meatus lignocaine gel is introduced directly from the tube, thus using aseptic measures. The passage and propagation of the gel is observed on the monitor. This demonstrates strictures, calculi and even growth of the anterior urethra. After sonourethrography these patients were subjected to conventional x-ray urethrography with water-soluble contrast filled bladder wash syringe introduced through anterior meatus. Contrast is injected and films are taken in both right and left oblique positions. This procedure can be visualized on fluoroscopy unit. Spot films are taken and kept for record.

Fig 1. Normal sonourethrogram.



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Fig 2. Normal sonourethrograph with gel in urethra.

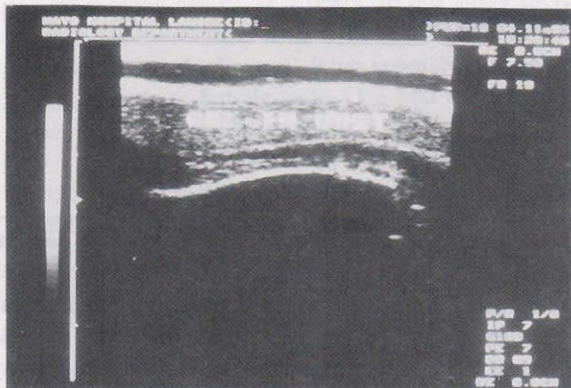


Fig 3. Entire Urethra with air in it. The white line indicates air.



Fig 4. Normal x-ray urethrogram.



Stricture on sonourethrograph.

Will show a stricture as arrest of gel at the stricture site and with increase of pressure gel can be seen passing through the narrowed segment.

Fig 5. Stricture anterior urethra.

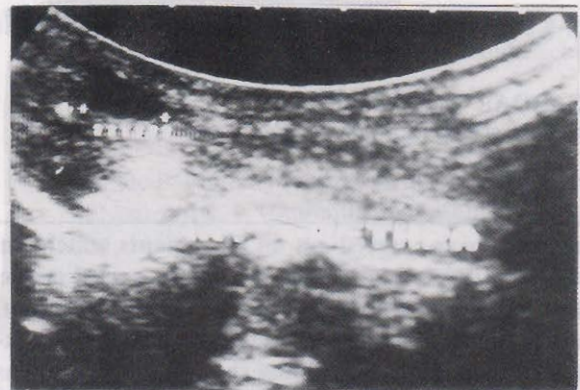


Fig 6. X-ray urethrogram of the same patient. There is a stricture at mid portion of anterior urethra the gel is seen tapering to the level of commencement of stricture.



Fig 7. Partial stricture is shown in this as a heap of tissue. This is not visible on conventional x-ray urethrogram.



Results.

Sonourethrograph:

Anterior urethral stricture

Positive results	False results	Inconclusive
42	4	6
91.3%	8.7 %	3.36%

X- ray urethrogram	
Stricture ant. Urethra	Stricture post. Urethra
46	6
88.5 %	11.5%

On sonourethrography 4 patients who gave false results were due to false passages in two patients and the other two had minimal urethral scarring. Six patients with inconclusive results were because of posterior urethral strictures, which were not identified on sonourethrography.

Conclusion

Sonourethrography on comparison with x- ray urethrography has following advantages and disadvantages.

- It is much less expensive.
- It can be easily performed even on outdoor basis.
- It can correctly identify anterior urethral stricture and its distal extent.
- It can also clearly identify between urethral calculi and simple air in the urethra.
- Sonourethrography is not helpful when posterior urethra is involved. The urethral false passages and diverticulae are better outlined on conventional urethrogram.

Discussion

Male patients with problems relating to urethra are referred to the Radiology Department for investigation of urethra. Common investigations requested are urethrogram. Ideally this should be done with fluoroscopic

unit and not just with plain-x-ray machine, as direct visualization of procedure on fluoroscopy is of immense help for the radiologist to diagnose the urethral stricture. Further, when the contrast material is injected into the urethra it masks minor details, because of opacification of the passage. On the contrary sonourethrography does not require any special preparation, ultras sound requirement is available more readily as compared to the fluoroscopy unit, above all direct visualization of the entire urethra facilitates the radiologist to identify minute structural pathologies like minimal scarring, calculi and growths in the urethra. This investigation is radiation free as well, which is an added advantage. Sonogrethrography however is not helpful in cases where there is false passage and posterior urethra is involved. In our opinion the sonourethrography is quite helpful in the diagnosis of anterior urethral strictures, it is convention, less time consuming and accurate at the same time for minimal scarring it has advantage over conventional urethrography.

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