

APPLICATION

Diagnostic test for interstitial cystitis.
Site: bladder interior
Species: human
Duration: acute

PROBE

Type: E (Endoscopy)



Fig. 1: Type E probe (ABLPHE)(1.8 mm dia.)
Head: Teflon coated cable with 1 mm titanium disc at tip of endoscopy segment: length, 2 meters; diameter 1.8 mm; flexible cable length, 2 m. Total Length: 4 meters

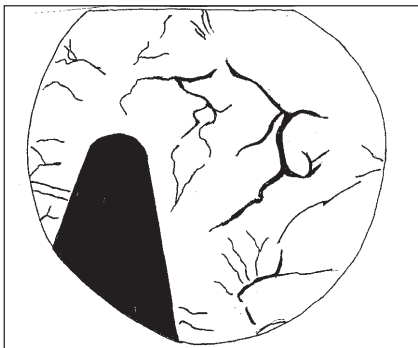


Fig. 2: Type E probe placed against the bladder wall, as seen through a cystoscope. Note the placement avoids relatively large blood vessels.

ACKNOWLEDGEMENTS

Protocol and measurement data courtesy of Drs. Paul Irwin and Niall Galloway, The Emory Clinic, Section of Urology, Atlanta, Georgia.

Reference

¹Irwin, P., Galloway, N.T., "Impaired Bladder Perfusion in Interstitial Cystitis: a Study of Blood Supply Using Laser Doppler Flowmetry," *Journal of Urology*, Vol. 149, No. 4, p. 890-892, 1993.

Approach

Perform laser-Doppler flowmetry during cystoscopy. Administer general anesthesia because of the sensitivity of the bladder lining and also because bladder filling may be accompanied by hyperventilation and cardiovascular changes which will affect microvascular perfusion and, therefore, LDF reading.

Place the patient in the lithotomy position, prep and drape using sterile technique. Introduce the cystoscope and empty the bladder. Allow the bladder to fill with 100 cc of fluid.

Introduce the endoscopic laser-Doppler probe (type E) through the working channel of the cystoscope. Under vision, place the tip of the probe gently against the posterolateral, posterior wall and trigone regions of the bladder. These sites do not undergo as much movement with respiration as the dome. Avoid obvious blood vessels in the bladder wall. Avoid excess pressure of the flowprobe against the bladder wall which will occlude underlying vessels. (Determine the correct pressure by taking a reading as below, backing the probe away slightly and taking a second reading. If the second value is higher it may be due to initial excess pressure.) Avoid unnecessary movement of the cystoscope or of the flowprobe's cable between the patient and the laser Doppler flowmeter.

Obtain bladder perfusion measurements after allowing the placement to equilibrate for approximately 15 seconds. Record data from all sites with the bladder near empty. Fill the bladder to capacity with saline under a hydrostatic pressure of 80 cm and repeat the measurements for each region.

FLOW RANGES OBSERVED:	PERFUSION IN EMPTY BLADDER		INCREASED PERFUSION IN DISTENDED BLADDER	
	VAULT	TRIGONE	VAULT	TRIGONE
GROUP				
Interstitial Cystitis (n=16)	10.80 ± 1.30	14.36 ± 2.5	6%	24%
Control (n=18)	11.27 ± 1.98	16.8 ± 3.5	70%	68%

Table1: Mean blood flow in the vault (*posterolateral walls*) is analyzed separately from that of the trigone because of their different distensibility and collateral blood supply.

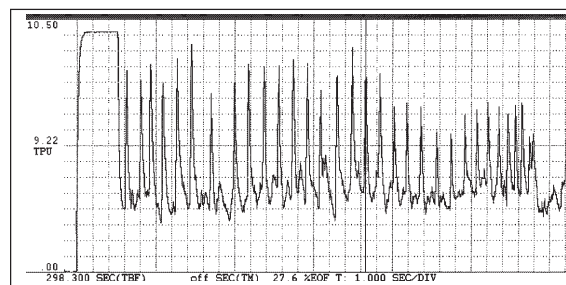


Fig. 2: Human bladder perfusion (*lateral wall*) by laser-Doppler flowmetry, recorded with WINDAQ software.