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## “TAGGED” LOCAL ANESTHETIC SOLUTION FOR TRANSURETHRAL SURGERY

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The massive increases in the cost of hospitalization have compelled us to shorten hospital stays by refining our surgical techniques. This is particularly true in transurethral surgery where it is now common to perform a transurethral prostatectomy with only a thirty-hour hospitalization. Many lesser procedures can be safely and speedily performed in the office. The need for anesthesia remains an obstacle to office procedures, but this can be overcome by the use of local anesthesia, which may also permit hospital surgery upon the poor-risk patient.<sup>1-4</sup> Topical anesthesia has limited use, beyond which we must continue to inject our anesthetic agents.

Through the years, different types of hypodermic needles have been devised for cystoscopic use. The first were awkward, difficult to aim and insert into the tissue, and often resulted in the surgeon's being squirted in the eye. The need for a rigid needle that could be forcefully driven into the tissue was solved by Orandi,<sup>1</sup> who devised a needle\* that is positioned in the

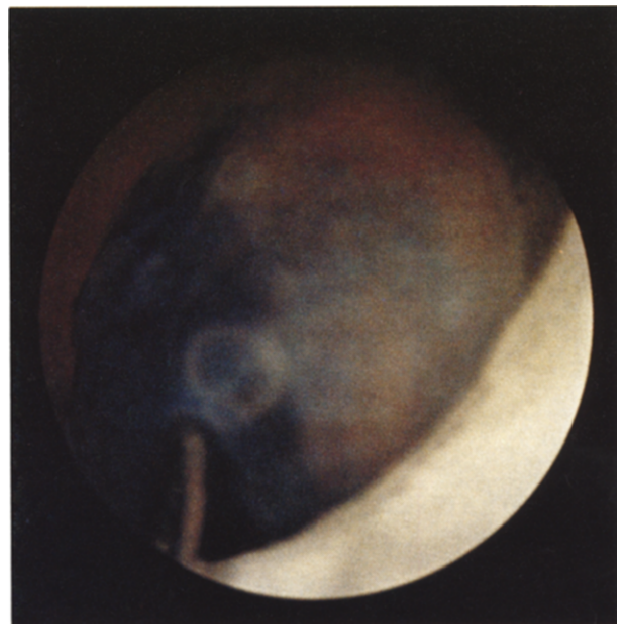


FIGURE 2. Bladder lesion "floating" on blue-colored local anesthetic.

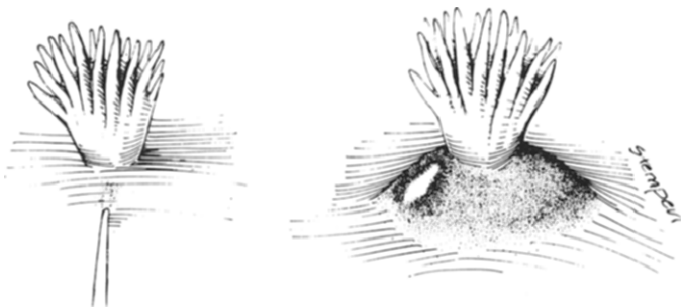


FIGURE 1. (Left) Papillary bladder tumor with Orandi needle placed in bladder wall beneath tumor. (Right) Appearance of bladder wall stained with anesthetic solution.

\*Greenwald Co., Lake Station, Indiana 46405.

working element of the resectoscope in place of the cutting loop. It is driven into the tissue by force of the thumb, in the same move that is used to reach out with the cutting loop. Local anesthetic solutions can thus be injected wherever the resectoscope loop can reach.

However, bladder pressure occasionally forces irrigating solution into the syringe and, since this and the anesthetic are both colorless, water may be mistakenly injected. If the anesthetic agent could be "tagged" safely and distinctively, one could be certain that it had entered the tissue. This marked tissue could then be resected or cauterized painlessly. Since safety is paramount, any tagging agent must be innocuous, must not interact with the anesthetic, and

must be easily secured. Such a "tagged" solution would be useful for perineal infiltration of the prostate as well as for transurethral injection.

Indigo carmine (sodium indigotin disulfonate) is a drug familiar to urologists. It has no adverse physiologic effects and mixes with both lidocaine (2-diethylamino-2,6-acetoxyidide) and epinephrine without chemical interaction (Anderson, D.: Personal communication). A 1:9 solution of indigo carmine:lidocaine is deep blue and will stain the tissue into which it is injected, marking it as anesthetized. Indigo carmine is supplied in sterile glass ampoules, and the mixture can be made up just before use. Methylene blue can also be used (Coyan, J.: Personal communication), but its occasional physiologic effects make it less desirable. When a papillary tumor of the bladder is "floated"

upon a bubble of blue anesthetic solution (Figs. 1 and 2), or when the prostatic tissue to be resected is stained blue, anesthesia is certain and will not restrict the desired procedure.

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