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# Epochs of Endourology*

# A Personal Perspective on the Origins of Endourology and the Endourological Society

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DURING MY TRAINING in South Africa, it was the urologist's duty to drain a renal cyst and sclerose it and to drain a massively hydronephrotic kidney with a percutaneous nephrostomy tube. In 1977, I moved to the VA Hospital in Minneapolis and attempted to do the same thing at that institution. I found out that in the United States, these procedures were commonly performed by radiologists. At that time, in the VA Hospital, Paul Lange was the Chief of Urology, Bob Miller was the interventional radiologist, and Donovan Reinke was the Chairman of Radiology. After some discussion, we agreed that these procedures could be shared by the urologists and radiologists.

I then had a patient with carcinoma of the prostate gland who had obstruction of one ureter that did not respond to hormonal treatment, and I elected to reimplant the ureter. Several days postoperatively, the patient developed a urinary leak, and I thought the only solution to the problem would be to stent the ureter. The only stent available at that time was the Gibbons design, and it was very difficult to insert a Gibbons stent up a reimplanted ureter. We felt that the only solution to this problem would be to pull the stent up from above. Bob Miller and I came up with a plan whereby a percutaneous tube was placed antegrade down the ureter, and I retrieved this catheter in the bladder. With a series of tubes and sutures, I was able to leave the patient with a stent extending from the renal pelvis to the bladder and thus allow the urinary leak to seal.[1]

Bob Miller and I really enjoyed this collaboration, and we came up with several other ideas involving this technique of advancing a catheter from the kidney down the ureter and attaching various instruments to it. The instruments we used in this way included a meatotomy catheter, stone baskets, and various other tubes.[2–6]

When it came time to submit these odd cases for an AUA exhibit in 1978, I needed to find some way to embody the whole principle. I discussed this with Elwin Fraley, the Chairman of the Department of Urologic Surgery at the University of Minnesota. He offered several names, and I selected the term "endourology," which was defined as closed controlled manipulation within the genitourinary tract.[7] Once my residents read this title, they—along with some of the radiologists—immediately changed it to "the end of urology."

At the University, I had the unique opportunity to work with Kurt Amplatz, Willy Castaneda, and their technical support. If one of us had an idea for a nephrostomy tube, it was immediately produced for us by the support staff. Initially, we used a filiform follower on the end of angiographic catheter to dilate a nephrostomy tract. This assembly proved difficult to manipulate over a guidewire, so we designed dilators to fit over the angiographic catheter. We then found that we were dilating the ureteropelvic junction and causing extravasation, so we placed a metal band at the tip of the dilator to differentiate the parts of the system (Fig. 1). We were also handicapped by our lack of knowledge of how far to dilate the tract, but I reasoned that a tract that would accommodate a 30F Amplatz sheath would allow us to remove a 1-cm stone intact. We noticed that sheaths that were simply round tubes tended to adhere to the renal pelvis, so we cut the tips at an oblique angle. Then we found that patients could suffer gram-negative septicemia from forcible renal irrigation, so we abandoned that technique. A series of articles traces our quest for a good way to rid patients of stones without open surgery (Fig. 2).[8–15]

In 1982, the concept of endourology became somewhat popular. One of the reasons was the ability to create a model with a pig kidney to allow the practicing urologist to get a feel for these procedures. Ralph Clayman came up with the pig kidney as a working model for nephroscopy and for ureteroscopy, and this concept formed the basis for innumerable courses in endourology that were conducted throughout the United States and internationally. Early that year, I edited the first publication devoted entirely to endourology: an issue of the *Urologic Clinics of North America.*

1982 was the year of the 1st World Congress in Endourol-

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*It is only appropriate that the seminal article for our new section on Epochs of Endourology should be devoted to the genesis of the new discipline of endourology and its organizational history. Who better to write this than Arther D. Smith, who has been singularly involved from the conception to the young adulthood of our Society? At my urging, Dr. Smith has provided this reminiscence in his unique personal style that will remain a treasure for our posterity.—*Sakti Das*, M.D.

**FIG. 1.** Early nephrostomy tract dilators.

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ogy, which was organized by John Wickham in London. This was a relatively small but very exciting meeting, and many ideas were exchanged. The year also saw the start of extracorporeal shockwave lithotripsy, but the meeting was dominated by percutaneous approaches. The following year, the meeting was organized by Peter Alken in Mannheim, Germany. Peter was one of the pioneers involved in removing stones percutaneously,[16] but the credit for the first percutaneous stone extraction goes to Fernström, a Swedish radiologist.[17] At the meeting in London, he told us when he first removed a stone with a basket, a colleague asked him how he could be sure he could ever do that procedure again. "It was very simple," he replied. "I put the stone back in the patient's kidney and then removed it a second time!!!"

At the time of the meeting in London, it was agreed that Peter Alken would organize the second conference in Mannheim, and I would organize the third meeting in New York in 1984. Prior to the meeting in New York, Joe Segura, Ralph Clayman, Gopal Badlani, and I had a discussion at which we elected to form an endourology society. Ralph, Joe, and I were more interested in endourology of the upper tract, whereas Gopal was enthusiastic about endourology in the lower tract. It was decided that I would be the president, Joe Segura the vice president, Ralph Clayman the secretary, and Gopal Badlani the treasurer. The bylaws were established, and from the outset, the basic concept of the society was that it would be all inclusive and encourage people to join rather than restricting membership to the people properly credentialed to do endourologic procedures, of whom at that time there were very few. The Endourological Society is the only society that from its inception has uniquely promoted and maintained international participation at the grassroots and organizational levels.

Whenever one organizes an international conference, it is critically important to have financial backing, particularly if the meeting can lose money. I was fortunate to negotiate with Long Island Jewish Medical Center to provide us with financial backing and CME credits. It turned out to be a very successful meeting, both educationally and financially: the money generated became the financial basis of the Endourological Society. The Annual Meeting in Genoa, Italy, will be the 20th, and we will be reaching our maturity with the 21st Annual Meeting in Montréal, Canada, in 2003.

The purpose of the Endourological Society has always been to encourage people to do procedures in a minimally invasive fashion and to train as many people as possible to do so. It has also been a basic principle of the Society to encourage newer members to submit posters and videos to the meeting so that we can share experiences and learn from each other. These basic principles have helped the Society grow and encouraged younger people to be more active within the organization.

Shortly after the 3rd World Congress, Ralph Clayman began to edit a newsletter in endourology, publishing new techniques that were becoming more and more prevalent almost on a monthly or weekly basis. This newsletter was highly successful and probably was the reason Mary Ann Liebert contacted me to establish a *Journal of Endourology*. I immediately told her the world did not need another urology journal, and that the needs of endourologists for publications were adequately covered with Ralph's newsletter and the established urology journals. She then told me that if I wasn't the one who was going to bring out the *Journal*, then somebody else would, and she

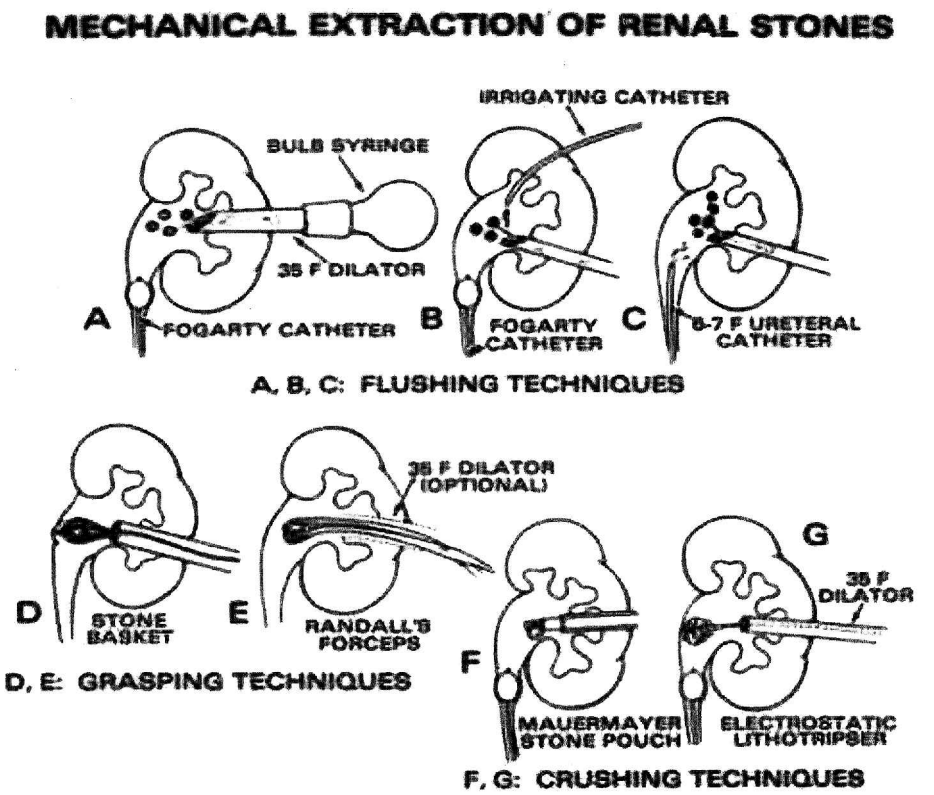


**FIG. 2.** Early methods of percutaneous stone removal.

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was sure that I would not be happy with this turn of events. Mary Ann is not a person who changes her mind easily, and consequently, I suggested to her that she contact Ralph Clayman. I then called Ralph and told him that Mary Ann was about to call him. He agreed with me that there was no way that we were going to bring out a *Journal of Endourology* because the community did not need it. Well, the next day, after he had spoken to Mary Ann, he called me up and said, "Guess what. We are bringing out the *Journal of Endourology*!" Initially, this journal came out four times a year, but with increasing demand, the journal now is published virtually monthly—10 issues a year plus an issue with the abstracts of the Annual Meeting.

Both Ralph and I had worked with Judith Gunn Bronson at the University of Minnesota, and she continues to work with us on the *Journal*, editing many of the manuscripts—particularly those from contributors whose native language is not English. The journal has grown in stature over the years, and it is now listed in Index Medicus. From an initial circulation of 350, it has grown to a circulation of approximately 5500.

Part of the original aim of the Endourological Society was to train people in minimally invasive urology techniques, which took the form of fellowships for both American and foreign graduates. For those urologists who did not receive adequate training in endourology during their residencies, we thought it would be worthwhile establishing training centers where they could gain expertise in the field. The fellowships were organized so that people received adequate training in the performance of percutaneous nephrostomies, percutaneous procedures on the kidney, ureteroscopy, shockwave lithotripsy, laparoscopy, and endourology of the lower urinary tract.

The first endourology procedures were simple by today's standards, although they were complicated by the need to adapt stents, catheters, and endoscopes designed for other purposes. Today, a quarter of a century since the field began to alter the practice of urology, we have many custom-designed tools and a body of creative urologists dedicated to converting ever more procedures to minimally invasive techniques, even those such as donor nephrectomy that might have seemed impossible without a large incision. If this dramatic change in our practice has complicated the lives of many established urologists, it has undeniably benefited our patients. It will be interesting to watch future developments!

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