

## Landmark Articles in Urology from Bombay Hospital Institute of Medical Sciences Rewinding the Clock, Nostalgia, Lessons Learned, and Moving Forward

### ABSTRACT

**Introduction:** Every clinician and academician works hard to put up his/hers clinical work into the print through a scientific publication. Some of the clinical work at the time of publication is considered as “experimental,” as “things in progress,” while some receive extraordinary appreciation as “breakthrough research or technological advancement or even pearls of wisdom.” In due course of time, some of them become “landmark publications” due to its originality, longevity, and usefulness in clinical practice for ever. Bombay Hospital Institute of Medical Sciences (BHIMS) with a glorious past has its own share of landmark publications. In this “out of the box” article, the author has interacted with these stalwarts in BHIMS whose landmark articles find a top place in the bibliography of newly published articles on these subjects even today, after 2–3 decades. The old is gold as they say and it is still shining and precious. **Materials and Methods:** Among all the scientific publications from Department of Urology BHIMS in the past four decades, we selected six landmark articles covering different fields in urology. These stalwarts and their team members were interviewed to understand the genesis of the article, its impact on clinical practice at that time, how the things have progressed and its relevance in 2022. **Results:** The interaction with the stalwarts and their team members was really an eye opener. Right from the conceptualization, designing the hypothesis to the hurdles they faced, and the enormous satisfaction, they cherish even after three decades, it is a great lesson for everyone. **Conclusions:** Getting recognition as author of a landmark publication is a great achievement and every research has a great story. Rewinding the clock and learning from their experiences is a great source of inspiration and we should undertake this exercise time to time to motivate and inspire the scientific community.

**Key words:** Bombay Hospital Institute of Medical Sciences, Carcinoma penis and lymph node metastasis, Chyluria, Extraperitoneal radical cystectomy, Impact factor, Obstructive azoospermia, Retroperitoneoscopy, Tuberculosis in renal transplantation

### INTRODUCTION

Every clinician and academician works hard to put up his/hers clinical work into the print through a scientific publication. Some of the clinical work at the time of publication is considered as “experimental,” as “things in progress,” while some receive extraordinary appreciation as “breakthrough research or technological advancement or even pearls of wisdom.” In due course of time, some of them become “landmark publications” due to its originality, longevity, and usefulness in clinical practice for ever.

Bombay Hospital Institute of Medical Sciences (BHIMS) with a glorious past has its own share of landmark publications. The department was founded almost four and half decades ago under the leadership of late Dr. D K Karanjwala, late Dr Ajit Phadke and Dr. D D Gaur. Dr. Ajit Phadke was a great visionary. He was instrumental in starting subspecialties in urology at BHIMS. It was one of the first departments in the India to start sub-specialties in urology and was on the forefront of doing extraordinary and modern work of that time when the urology was much more in infancy and getting

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developed in the other parts of the country. The faculty of the BHIMS left no stone unturned to bring the latest technology; newer concepts to this highly sought after specialty and were on the forefront of academics as well as clinical work. Visiting the international centers of great repute, interacting and bringing the international faculties and starting the DNB and M Ch program in the late 80s and early 90s, paved the way for many national and international publications from BHIMS.

In this “out of the box” article, the author has interacted with some of these stalwarts and their team members in BHIMS, whose landmark articles find a prominent place in the bibliography of newly published articles on these subjects even today, after two – three decades.

The old is gold as they say and it is still shining and precious in 2022!!

## MATERIALS AND METHODS

Among the many publications from BHIMS (National as well as international), we chose six articles from the period of 1979 to 2021 which are cited very frequently and have become “a real reference point” even today.

The articles written by Dr. Karanjawala (Chyluria), Dr. Ajit G Phadke (Obstructive azoospermia), Dr. D D Gaur (Retroperitoneoscopy – Gaur’s balloon technique), Dr. V Srinivas (Carcinoma penis and inguinal metastasis), Dr. J N Kulkarni (Extraperitoneal radical cystectomy), and Dr. Umesh Oza (Tuberculosis in the renal transplantation) are selected [Table 1].

The questionnaire [Table 2] was sent to Dr. D D Gaur, Dr. V Srinivas, Dr. J N Kulkarni, and Dr. Umesh Oza who kindly consented and elaborated about the entire journey of how the idea was conceptualized, the hurdles they faced at that time, how do they feel today about their work which is still getting recognized today after so many years, and the message they would like to give to the students and scientific community at large.

Dr. Karanjawala and Dr. A G Phadke being no more, we interacted with their team members of that time who were actively involved in that work: Dr. Harshad M Punjani, Dr. Sadanand W Thatte, Dr. Ramakant K Garg, and Dr. Rajeev Joshi about the entire journey of that scientific work.

## RESULTS

1. **Chyluria** (chyle in the urine in patients with filariasis) was a challenging clinical condition recalls Dr. Harshad M Punjani, Senior Pediatric urologist at BHIMS who was trained under Dr. D K Karanjawala. The diagnosis was easy as the patients used to come with milky white urine, but the exact localization of chylolyphatic connection to the urinary tract in absence of modern imaging of today such as US, CT, or MRI was a real problem. “We had to rely on IVU and cystoscopy (which was also primitive in those days) and tricky lymphangiography by injecting into the dorsum of the foot to localize the source of chyluria. The surgery involved was disconnecting the chylolymphatics from the renal parenchyma and it used to give a great relief to these patients” along with the medical management. The disease was endemic to the Northern and Eastern part of India, patients used to come from far distances, but it was satisfying to diagnose and treat these patients.

Dr. Karanjawala earned a big reputation of treating this condition and presented this work on international platforms. British Journal of Urology (BJU) published his work on chyluria in 1979<sup>[1]</sup> and is still considered as a pioneer work in this field. Later, he wrote a chapter on this subject in a book “Tropical Urology” by Dr. Imtiaz Hussain, a consultant urologist who worked in Middle East and thereafter in Bedford (UK).

“Publishing was a great hurdle in those days, but since many of us including Dr. Karanjawala were trained in United Kingdom at that time, we were familiar to the BJU and could publish our work in that journal,” recalls Dr. Ramakant K Garg who is another senior urologist at BHIMS who has been working at BHIMS since past four decades and continues to do so with a great enthusiasm. Dr. Garg says “This was a big step forward as till then; we used to publish the odd case reports in the journals which were very few in those days. We used to get elated if the clinical images picked by us were included in the surgical text books as “our publication” in late 70s’. Dr. Garg was credited with his work on ectopic kidneys with images in the surgical text book of Bailey and Love’s short practice of surgery. It was a fascinating thing to read your name in the foot notes of that book which is still considered as a Bible of Surgery, says Dr. Garg.

2. **Obstructive Azoospermia** caused by viral infections such as chickenpox and small pox or bacterial infections such as tuberculosis was the most common cause of infertility recalls Dr. Sadanand Thatte, a Senior Urologist at BHIMS for the past four decades who was trained with late Dr. Ajit Phadke.

“Dr. Phadke was trained in Montreal, Canada for urology and did extensive work on infertility. His father – late Dr. G M Phadke had keen interest in vasectomies and reversal of vasectomies. With this background at home and further work in Canada, Dr. Ajit Phadke came out with a successful series of vasoepididymal anastomosis and Vasovagal anastomosis and published this work extensively. The publication named as “Phadke and Phadke”’s work<sup>[2]</sup> on infertility remained buzzword for many years in the urology and andrology meetings those days” says Dr. Sadanand W Thatte.

“Dr. Phadke won the best essay award at AUA by J Urology that year” recalls Dr. Rajeev Joshi, Consultant urologist at BHIMS and third-generation urologist from the Phadke family. “In those days, there were no operating microscopes; they had to use the magnifying loops for anastomosis, look at the semen/sperms under the routine microscope during surgery by themselves before making the anastomosis. Collecting the data, documenting them and putting it together, were mammoth tasks those days, says Dr. Joshi.

3. **Dr. D D Gaur** is considered as a father of modern retroperitoneoscopy. His pioneer work on retroperitoneoscopy is really an interesting and inspirational journey. An octogenarian and a true legend in urology, who

**Table 1:** Landmark Publications

Author	Topic	Journal and year of publication	Article Ref
Dr. D K Karanjawala	Chyluria	British journal of urology, 1979 Cited by 28	Karanjawala DK. Technique of clearance (or disconnection) of dilated lymphatics in renal hilum and lower ureter and bladder in cases of intractable chyluria or haemochyluria. Br J Urol 1979;51:440-442.
Dr. A G Phadke	Obstructive azoospermia, VEA, VVA	J Urology, 1967 Best essay for the year, 1967 by J Urol Cited by	Phadke GM, Phadke AG. Experiences in the reanastomosis of the vas deferens J Urol 1967 May; 97 (5) :888-890
Dr. D D Gaur	Retroperitoneoscopy-Gaur's balloon technique	Journal of Urology, 1992 Cited by 1016	Gaur DD. Laparoscopic operative retroperitoneoscopy: use of a new device J Urol. 1992 Oct; 148 (4):1137-9.
Dr. V Srinivas	Carcinoma penis and inguinal LN metastasis	Journal of Urology, 1987 Cited by 190	Srinivas V, Morse MJ, Herr HW, Sogani PC, Whitmore WF, Jr. Penile cancer-Relation of extent of nodal metastasis to survival J. Urol. 137: 880 (1987).
Dr. J N Kulkarni	Extraperitoneal radical cystectomy	Journal of Urology, 1999 Cited by 53	Kulkarni JN, Gulla RI, Tongaonkar HB, Kashyapi BD, Rajyaguru KB. Radical Cystectomy: An Extra peritoneal retrograde approach J Urol 1999;161:545-8
Dr. Umesh Oza	Tuberculosis in the renal transplantation	International Urology and Nephrology, 2002 Cited by 53	Vachharajani TJ, Oza UG, Phadke AG, Kirpalani AL. Tuberculosis in renal transplant recipients: Rifampicin sparing treatment protocol December 2002 Int Urol Nephrol 34 (4):551-3

(Citation number is based on the Google and PubMed search, last search was in Nov 2022)

**Table 2:** The questions posed to the authors of these landmark publications

1. How did you get this idea and what made you work on this issue?
2. Hurdles you faced in doing this work, research and the final frontier of publication?
3. Are you aware that your work is still prominently cited in latest publications on this subject even today? What is the feeling like
4. What is the message you would like to give to the upcoming young scientific community?

is still actively working, took us through his journey of birth of retroperitoneoscopy.

Dr. Gaur is also credited for his famous Gaur' sign, Gaur's urethroplasty balloon catheter, and many innovations in laparoscopy and retroperitoneoscopy.

- i. How did you get this idea and what made you work on this issue?

For years, since I returned from UK from urology training, I have been visiting UK for BAUS annual meeting and extend my journey further to USA to visit centers like Cleveland Clinic every year to update myself. It was in year 1991, I saw a urologist in UK indulging into laparoscopy for undescended testis (UDT), the urologist did laparoscopy to locate the UDT, and then made an incision to bring the testis down, the term coined for that surgery was "Laparoscopic-assisted orchidopexy!" I must say I was not at all impressed and I thought its waste of time.

During that visit in 1991, I heard about first ever laparoscopic nephrectomy done by Prof Ralph Clayman in USA, and there was a lot of talk about it everywhere. I was aware that Prof. John Wickham in London also had a go at laparoscopic nephrectomy. My first impression was that laparoscopy is not for the urology work as most of the urological organs are

retroperitoneal, what is the point in disturbing the original anatomy, go intraperitoneally then reflect the bowel/peritoneal folds to access the kidneys and ureters, its unnatural I thought. When I attended a group meeting of the young urologists in USA where Prof. Clayman's work was highlighted, I noticed that this first lap nephrectomy took nearly 11 h and that too in a 77-year-old lady. I again thought, this is a waste of time as many experts would finish this job with extraperitoneal approach in an hour's time. I asked my peers and young guns, why we can't do this by putting the Verees needle in the retroperitoneum and get pneumoinsufflation to access the RP, my ignorance in this field was evident to everyone! Really speaking, I had no knowledge of laparoscopy and attempts of retroperitoneoscopy at that time. I was made aware that the attempts were made in the past to access RP, but no one succeeded as it resulted into just forming the cobwebs and no real access to the RP organs, leave aside doing any surgery.

I kept on thinking that there must be some way out and in fleet of enthusiasm, promised my peers, and friends that I will return next year for sure with some innovative idea of how we can perform retroperitoneoscopy and surgery through that route. I did not know how I was going to do it, but I am a strong believer in Vedanta Philosophy: If you think that this is going to happen, it will happen!

However, I must say I was completely ignorant about all the history and attempts made by the stalwarts in the laparoscopy and retroperitoneoscopy till now, ignorance is the bliss as they say. I returned to India after a month's stay there in UK/USA, having promised to them brings something extraordinary, where many experts had failed; however, I did not have a faintest idea of how I am going to do it.

- ii. Hurdles you faced in doing this work, research, and the final frontier of publication.

Now that, I had come back, I was all the time thinking about how I am going to create a space in the retroperitoneum. I used to sit alone for hours in the office thinking about how to go about it, I was sure that there was some way to enter the RP space. One day I saw a guy with a very large benign cyst in the retroperitoneum (a large renal cyst), sitting pretty in the RP “displacing the nearby organs, and creating its own space.” Eureka, Eureka. I had found an answer. Why not create a balloon which can be placed into the RP space in a deflated state through a small incision and then inflate it in a measured way to create a space and then use laparoscope to do the surgery? I was waiting for a right patient to experiment my idea. As luck would shine (and as I believe in Vedanta philosophy), a young guy walked in my clinic with a very large 3.5 cm upper ureteric stone with proximal hydronephrosis, my first case was ready! The day of surgery I did not utter a word about how I am going to do it. I took a surgical glove, attached a rubber tube to the closed end of the glove and with a BP apparatus cuff, inflated the glove, my balloon was ready. With a small incision, in the lateral position just under the ribs, I created an entry point, placed the balloon, and inflated it and left it for a while. After taking out the balloon, I placed a trocar and laparoscope through the first entry point and what I saw was a miracle. The entire peritoneum was reflected anteriorly, the ureter with large upper ureteric stone was glaring at me with a hook knife I incised the ureter, removed the stone and came out. The first retroperitoneoscopy was performed successfully with a balloon technique. I asked my colleagues to keep it as a secret until we work more on this and come out with more refinements in technique and outcomes.

Now, it was the time to present it in the meetings and put it in the print in the form of publication. The biggest hurdle was documentation as in those days the endo cameras were in the primitive stage, we did not have a technology to capture the images from the laparoscopes, doing a video recording was a distant dream. However with the spy cameras and some out of the box ideas we somehow could click the pictures with cameras connected to the laparoscope.

I prepared the manuscript of this first retroperitoneoscopy with balloon technique and send it to BJU; however, this was rejected. I, then, sent the manuscript to J Urology; though this was not rejected the reviewers had sent nearly 13 queries and asked for clarification on these issues. My first impression was that they did not want to reject it outright, therefore found this way of raising these enumerable queries. I was totally disheartened, this was my first attempt to the international original article (had written few case reports before though) and I was getting disillusioned. I went to Dr. Ajit Phadke, my close associate at BHIMS, he, in fact, spent lot of time working on this article and made very useful suggestions which led to a very concise and near perfect manuscript and I sent it to the J Urol. I was overjoyed when I got the congratulatory response from the J Urol telling me that the article was accepted. The first article got published in 1992.<sup>[3]</sup> Slowly, we expanded the indications from renal biopsies, to pyelolithotomies,

varicocele ligation to 1 day retroperitoneoscopic nephrectomy. The first small series of this work was published in J Urol in 1994 and the editorial comments were of full of praise of this promising new technique, yet had few cautionary remarks. After this, there was no looking back, we kept on improvising on our techniques, indications and the results had to follow. Dr. Dinesh Agrawal who was the urology resident, working along with you Makarand, then helped me a lot in this, he is currently a renowned urologist in Melbourne. It was just apt that history took a note of my work as a “father of modern retroperitoneoscopy” mission accomplished!

iii. Are you aware that your work is still prominently cited in latest publications on this subject even today? What is the feeling like?

Before I answer that, I must mention one incident in 1992 where I presented this work at endourology meeting at Singapore. Prof. Ralph Clayman was in the audience, when he saw my work, his first reaction was of genuine appreciation yet at the same time he just exclaimed “I thought of everything but the balloon.” Prof. Jo Segura insisted that I patent this balloon and in due course of time this became Gaur’s balloon. Acquiring patent is an entirely different ballgame and I must say I was completely ignorant about it. Prof. Inderbir Gill, a world renowned laparoscopic and robotic surgeon in USA briefed me about this process at one of the live surgery workshops.

Yes, it is heartening to see that I am considered as a father of modern retroperitoneoscopy and with the series of our scientific publications on this subject, it has become a reference point. I am grateful to you and Dinesh Agrawal for putting this in to the history of laparoscopy in urology in World Journal of Urology recently.<sup>[4]</sup> I am amazed that the original description of 1992 is cited in more than 1000 publications worldwide. It is a really satisfying journey.

iv. What is the message you would like to give to the upcoming young scientific community?

Keep thinking all the time. What you have learned during your training period and what you are practicing now is surely going to change with newer ideas and better understanding of the disease process. Have patience, have faith in yourself and keep toying with newer ideas you will change the history for sure. HDP is my mantra: Hard work, dedication, and perseverance and do not forget about Vedanta philosophy.

4. **Dr. V Srinivas**, an internationally renowned urologic oncologist, who established uro-oncological services at BHIMS around 1988 is a great teacher, has keen interest in academics and publications. Having trained in CMC Vellore and later under Dr. A G Phadke at BHIMS, he acquired further training in urologic oncology in Sloan Kettering Hospital with Prof Willet Whitmore. His original work on carcinoma penis and its relation with inguinal lymph node metastasis is considered as “class act” and no wonder has become a point of reference. Prof. Lawrence Klotz from Canada, 1 time his associate at Sloan Kettering



says, every time I talk about carcinoma penis Srinivasa's work gets the first mention.

i. How did you get this idea and what made you work on this issue?

In 1982, Dr. Willet F Whitmore, the chief (and pioneer) of Urologic oncology at Memorial Sloan Kettering Cancer Center, New York pulled me aside at one of our weekly meetings and said "We got to look at cancer penis, as this is commonly seen in India where you will be working in future, but we don't have much published data. A large study from MSKCC on this topic is long overdue."

At that time, the Jackson staging system (TNM was still not in vogue for Ca penis) was being followed, wherein all patients with lymph node metastasis were classified as stage III. The 5 year survival for these patients was roughly 0–30%; whereas for Stages I and II, it was 70–90%. Dr. Whitmore felt that since this was a very rare tumor in USA, we would have to retrospectively review the MSKCC experience over the past 30 years (1950–1980) to get any meaningful numbers.

ii. Hurdles you faced in doing this work, research, and the final frontier of publication

After some brainstorming sessions, a questionnaire was prepared with emphasis on some special areas to be studied. Several evenings/nights were spent in the medical records department, located in a dark, dingy basement, reviewing 200 odd charts, and manually entering the data into a spread sheet as computer technology was still in its infancy. Many of the older files had been archived so that data were stored on microfilms, reading, which at times, was a severe strain on the eyes, especially when trying to decipher some semi-illegible handwriting!

Once all the data had been compiled and reviewed, we realized that one of the "gray areas" we had planned to look at had some very noteworthy findings.

If the Jackson stage III category was subdivided into four subgroups, those with minimal nodal metastasis had a 56–82% 5 year survival (as opposed to 0–30% in the Jackson system) and those with pelvic nodes were in the 0% category.

Since this was the largest study from USA<sup>[5]</sup> and had identified some compelling data on prognosis of patients with lymph node metastasis, it was well received in academic meetings and was readily accepted for publication without too many revisions.

iii. Are you aware that your work is still prominently cited in latest publications on this subject even today? What is the feeling like?

Before sending the paper for publication, it was presented at various international conferences. One incidence stands out At the Memorial Sloan Kettering Uro-oncology workshop in 1985, during the question/answer session, it was interesting to find out that one of the persons who complimented the work was Dr. Cabanas, the author of sentinel lymph node biopsy for penile cancer.

The American Urological Association also wanted a sound/slide series made for their educational archives and once the

manuscript was published, there were several requests to attend symposiums as a guest speaker.

It was definitely satisfying to realize that this paper had created such an impact at that time and is still being quoted.

iv. What is the message you would like to give to the upcoming young scientific community?

In the 1980's, there were hardly any scientific papers on urology being published by Indian authors. Hence, on returning to India, this was one lacuna I tried to fill by getting our Urology residents to start presenting and more importantly publishing uro-oncology papers in various Indian/International journals, even if it was a case report. This is one area in the training program which needs to be continuously strengthened as most of the emphasis here is on passing the exams.

It is heartening to see we have come a long way and besides publishing papers in various international journals and authoring chapters in textbooks, our Indian colleagues like you find a prominent place on the editorial boards/expert panels of prestigious journals.

5. **Dr. J N Kulkarni** – a renowned internationally acclaimed urologic oncologist is Professor of Urology –Urologic oncology at BHIMS. With a huge amount of uro-oncological work at Tata Memorial Hospital under his belt, he joined BHIMS in later half of 1990 and has played a pivotal part in performing complex and challenging uro-oncological work at BHIMS. His work on bladder cancer, prostate cancer is widely cited in the scientific journals. His work on extraperitoneal radical cystectomy has become a game changer.

i. How did you get this idea and what made you work on this issue?

I was working as an International Fellow (F.S. foundation/ UICC Scholar) at Mayo Clinic in 1991 (October–December) and assisted almost 90 open radical prostatectomies during that period. While chatting with the Prof. David Barret about the learning curve for radical prostatectomy and management of DVC and Vesico-urethral anastomosis and nerve sparing techniques, he opined that at least 30–50 cases to be performed under supervision of the expert. I told him that at Tata Memorial Hospital and Bombay Hospital, the most common uro-oncological surgery was radical cystectomy (transperitoneal) for Ca Bladder. He, in turn, advised me to concentrate on DVC ligation and urethral dissection diligently during the cystectomy.

While sitting in the library at Mayo clinic, I got the idea of performing the radical cystectomy in retrograde manner with extraperitoneal approach since the prostate is generally benign and normal in majority. Second, I realized that whole GU tract from kidney to bladder is retro or extraperitoneal and if we can cover the peritoneum and place the urinary conduit or neobladder extraperitoneally bowel activity will return early and urinary leak can be managed effectively with drain, reducing the morbidity and ICU stay and mortality. Further, it will help me to dissect the prostate and urethra diligently.

Finally, re-exploration and repair U-Ileal surgery could be transperitoneal and easily done. After returning, I decided to pursue the idea. Dr. G V Kesari, who was the HOD of Anatomy helped with cadaveric Dissection. Later, I continued my journey of extraperitoneal – retrograde radical cystectomy and published in *Radical Cystectomy: An Extra peritoneal retrograde approach*. *J Urology* in 1999.<sup>[6]</sup>

To answer the second part of the question is: Necessity to improve the surgical outcomes of radical cystectomy and learn the radical prostatectomy which appeared to be the future.

- ii. Hurdles you faced in doing this work, research, and the final frontier of publication

I would not say that there were hurdles but had to go through some technical issues. First, I had to go Grant Medical College, Mumbai, for the cadaveric dissection and take the pictures of lymphography pre- and post-surgery for the completion of surgical margins and lymph node dissections. My classmate (Dr. G V Kesari) helped me. Second, Institutional policy of Tata Memorial Hospital and Bombay Hospital was always encouraging including the Ethics Committee. Anesthesia and pathology departments were extremely helpful to maintain the data.

Finally, publications: *J of Urology* asked for all the cadaveric dissection photographs and ethics committee approvals before accepting for publication in 1999, in fact, the review process and publication time were minimal. Subsequently, I published my next article in *BJUI* on neo bladders in 2003, and *Gynec tract saving cystectomy in females* in 2007 (*IBZU*) and *perioperative morbidity of radical cystectomy* in 2011 (*IJU*), and finally, *comparison of transperitoneal versus extraperitoneal cystectomy long-term out comes* in 2018 (*IBZU*).

- iii. Are you aware that your work is still prominently cited in latest publications on this subject even today? What is the feeling like?

Well, I am aware that not only my first publication, but other articles on this subject are still being cited in minimal and robotic era. Of interest is to note, the concept of *Gynec tract saving cystectomy* in selected female cases is gaining ground and many authors are publishing their results.

There is certainly a feeling of satisfaction and containment after 45 years of uro-oncology journey, since scientific and research community has endorsed my work.

- iv. What is the message you would like to give to the upcoming young scientific community?

Disciplines such as urology and uro-oncology have enormous potential for newer ideas, both in clinical practice and research too. Perhaps, one needs “Out of the box thinking” to conceive, persuade, and practice. It will reach to fruition by persistent hard work, tenacity, and patience.

6. **Dr. Umesh Oza**, Senior urologist and transplant surgeon and Prof. and Head of the Department of Urology at BHIMS, humbly gives the credit of his pioneer work in tuberculosis and renal transplantation to his entire team:

Dr. Ashok Kripalani, Professor Emeritus of Nephrology BHIMS, Dr. Tushar Vaccharajani, then nephrology resident and now eminent nephrologist in USA and late Dr. Ajit Phadke. The work was undertaken in early 90s and he still continues to work on this area.

- i. How did you get this idea and what made you work on this clinical challenge?

The retrospective study conducted in the early 1990's aimed at evaluating the incidence, clinical presentation, diagnosis, and management of tuberculosis in patients with chronic kidney disease (CKD) being treated at the BHIMS. The study was designed to better understand the challenges faced by the patients and physicians alike while taking complex decisions for patients who suffered from chronic kidney disease. Chronic maintenance dialysis and kidney transplantation are corner stone therapies for advance chronic kidney disease.

Even today, the incidence rate of tuberculosis in the general population in India remains high (400/100,000 in 1990–250/100,000 in 2019). The incidence is 7–14 folds higher in patients with chronic kidney disease. The morbidity and mortality with tuberculosis is much higher in patient with CKD.

In addition, the therapy for tuberculosis in the setting of immunosuppression can be challenging as it compounds the overall decision process due to –

1. Delay with undergoing kidney transplantation; ultimate therapy for CKD
2. Multiple drug interactions between anti-tuberculosis therapy and immunosuppressive medications
3. Financial burden; as it prolongs the dialysis therapy until the extended treatment for tuberculosis is completed
4. Social and emotional burden for both patient and their family members
5. Potential family income loss due to delay in definitive care.

Given all these multitude of challenges and lack of any major studies from India in 1990, we at BHIMS felt that it was an important study to undertake and possibly improve and innovates a treatment protocol that may help mitigate some of the challenges by the patient, their family members, and the caregivers.

- ii. Hurdles you faced in doing the research work and final frontier of publication?

Any clinical research activity starts by asking a relevant question – Why? And the process of research then tries to collect existing information from the literature followed by data collection (prospective or retrospective) to analyze and formulate an effective way to prevent, diagnose, and treat a disease. The clinical work load in India far outweighs the desire to conduct studies.

In the early 1990s, the challenges to conduct a thorough research revolved around –

1. Time constraints – Clinical demands far outweighed the research potentials
2. Access to literature – The current ease of access to the literature in digital format was non-existent. The libraries were unable to maintain all the expensive scientific journals.

3. Physical demands to extract information, photocopy the relevant published papers and maintain a bibliography to reference in a manuscript
4. Study support – Lack of funding to hire study coordinator and data analyst put the onus on the lead investigator to be a one person show. Data collection and maintaining records were a laborious manual process.
5. Ethical challenges – Lack of universal institutional review board, placed the burden of ethically conducting clinical research on the mentors and the co-investigators.

The study was completed in a timely manner, despite all the challenges and eventually published as two separate papers in high impact scientific journals.<sup>[7,8]</sup>

- iii. Are you aware that your work is still prominently cited in the latest publications on this subject even today? What is the feeling like?

Yes, both these studies and publications are still relevant and are still being cited in literature.

Feelings: A very proud moment for the team to have contributed to scientific literature despite all odds and above all the study findings is still relevant more than 25 years later. The continued relevance of this study highlights the global challenges faced by the medical community treating patients with similar diseases. The satisfaction and joy we all experience is immeasurable.

- iv. What is the message you would like to give to the upcoming young scientific community?

Research is a passion. Scientific methods and evidence based on clinical research can help all of us improve approach to patient care. Research questions arise from day to day clinical practice and need not be a “zebra” or rare occurrence or pathology. A little inquisitiveness, some hard work, a desire to do something good for the society can give sense of accomplishment which ultimately provides tremendous satisfaction that is immeasurable in monetary terms and lasts lifelong.

## DISCUSSION AND CONCLUSIONS

The interaction with these stalwarts and their team members at BHIMS was really an eye opener. Right from the

conceptualization, designing the hypothesis to the hurdles they faced especially when urology and technology were in infancy and the enormous satisfaction they cherish even after three decades, it’s a great lesson for everyone.

Getting recognition as author of a landmark publication is a great achievement and every research has a great story. Rewinding the clock and learning from their experiences is not only nostalgic, but a great source of inspiration and we should undertake this exercise time to time to motivate and inspire the scientific community.

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