

History of Medicine in Kashmir

Bladder Stone A Historical Overview 2

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During the early and middle nineteenth century most surgeons removed bladder stones by cutting the bladder, and in the majority of cases the approach was through the perineum. In Kashmir there was no one who could undertake that and the port of call for a stone sufferer was a Hakim, who would treat the patient with opium for pain and strangury, and with oral *sheera* (special herbal extract) for stone dissolution. During my boyhood days the Hakim with a reputation to dissolve urinary stones with his special recipe of *sheera* was Hakim Sham Butt of Haba-Kadal Srinagar, whose illustrious son Dr Raj Nath worked as Professor of Medicine at Medical College Jammu during the nineteen seventies. According to Prof. Girja Dhar, Mr Sham Butt was from the illustrious lineage of Butts of Shri Butt Wan located in the vicinity of Sher-i-Kashmir Institute of Medical Sciences (SKIMS) at Soura.⁽¹⁾

The change to Western allopathic system of Medicine was brought about by the arrival of the Christian missionary Dr William Elmslie who was the first qualified medical graduate to work in Kashmir valley. One of the first surgical procedures undertaken by him under chloroform anaesthetic in his makeshift dispensary at Amira Kadal Srinagar in 1866 AD was bladder stone surgery which would have involved cutting open the bladder through the perineal route. Apparently, he performed several such procedures, during an era when the concepts of antisepsis and asepsis were unknown. In his memoirs, Elmslie described removing a bladder stone weighing '3 oz. and 6 drs' (approximately 100 grams).⁽²⁾

How did Mr Elmslie remove such a big stone and how did the large perineal wound through which he delivered the stone heal, and did the patient recover fully after the operation? These are some questions that will remain unanswered. However, the fact is that over centuries surgeons have been conscious about the difficulties and

dangers of cutting for big stones and have looked at means of breaking up the stone within the bladder and removing the smaller fragments one by one. The idea of breaking a stone was actually put into practice by Muslim practitioners of surgical craft way back in the ninth and tenth century AD, as an aid to open surgery. The Iranian surgeon Mr Al-Razi [Rhazes] (841-926 A.D.) designed a strong metallic pincer called the *Almajarra* to hold firmly onto a part of the stone that was made to protrude through a small perineal cystotomy and the instrument was used to break the stone bit by bit until it was small enough to come out.⁽³⁾ However, the well-known Andalusian surgical maestro Mr Abul-Qasim Khalaf Ibn Abbas Alzahrawi (Albucassis) [930-1013 A.D.] was the first to describe a technique and design an instrument to crush a large stone inside the bladder which enabled its piecemeal removal.⁽⁴⁾ His instrument '*Alkalaleeb*' has been described as the primitive *lithotrite*.

Whilst most surgeons concentrated on techniques to make the cutting for stone easier and less painful, some were looking at ways to approach the bladder through its natural passage the urethra. Before the advent of X-rays in 1895 the diagnosis of bladder stone was made by its symptoms and by feeling a stone bimanually though the rectum or in some cases through the vagina. Some devised the technique of '*sounding*' for a bladder stone, which meant negotiating a metallic rod with a curved distal section and a flattened tip carefully into the bladder through the urethra. This was known as a '*bladder sound*.' The glass fronted cupboards in surgical theatres at SMHS Hospital Srinagar and SMGS Hospital Jammu used to store bladder sounds of different sizes for different ages. The author spent some happy days

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in both these hospitals and had the privilege of seeing the old Kashmiri surgical duo of Ghulam Rasool and Girdhari Lal undertake 'sounding' for stones at SMHS Hospital and William Riberio displaying the technique at SMGS Hospital. All present in the operating theatre were told to shut up as the master craftsman moved the metallic urethral sound inside the bladder, while everyone listened to the expectant *clink* of the metal hitting the stone. The technique was used regularly in children in whom bladder stones were common those days.

Some enthusiasts were keen to develop an instrument that could be inserted into the bladder through the urethra to approach the stone blindly, manipulate it carefully and grab it, and then crush it into pieces, and thus emerged the procedure of *lithotripsy*. The idea gained momentum during the 19th century when surgeons and instrument makers put their thoughts together to design the ideal stone breaking instrument. According to Ellis, at the Royal College of Surgeons in London Instrument Collection section is the curved metal sound with a roughened edge which General Martin of Lucknow used to disintegrate the stone in his bladder by nine months of steady labour.⁽⁵⁾

It was, however, Jean Civiale who carried out the first *lithotripsy* in 1864. His first instrument was called the *litholabe* which was made of two metal tubes, both straight and one inside the other. The inner tube had three curved arms that could grab the stone. The instrument could only remove small stones and he modified it to enhance the crushing ability and called it a *lithotrite*. Civiale continued to use his instrument for 40 years. Baron Heurteloup's (1832) designed an improvised version and called it the *Percuteur*, that could grasp the calculus between its parallel blades by pushing the smaller blade against the larger distal blade, with the aid of a mallet, which he subsequently modified to screw-action.⁽⁶⁾

Notwithstanding the successes achieved with grasping and crushing the bladder stone within the bladder manual evacuation of fragments was still a problem and the patient had to pass the fragments naturally per urethra between repeated lithotripsy sessions. In other words, clearing the bladder of stones was a protracted process with accompanying morbidity and mortality. The world had to wait till 1878 when a Harvard surgeon Mr Henry J Bigelow published '*Lithotripsy by a Single Operation*', in which he described his technique for crushing and removal of a stone from the bladder at one-sitting.⁽⁷⁾ He developed a newer and sturdier lithotrite that could grab and crush bigger and harder stones between its two curved blades. Along with that he developed a large calibre evacuator that could be connected to bladder cannula after the lithotripsy was

completed. The evacuator pumped water into the bladder and then sucked the water back along with the stone fragments and debris lying within it. Thus, the procedure of *cysto-litholapaxy* was borne. At this point in time, Bigelow had the advantage that anaesthetic techniques had been established, which meant that the patient was lying still on the table. It must also be said that this procedure was also blind and accidents, in particular bladder perforation and urethral rupture were not uncommon in unskilled hands. Nonetheless, the development of anaesthesia and litholapaxy reduced the mortality from bladder stone surgery from 24% to 2.4%.⁽⁸⁾

Many types of blind lithotrites and evacuators were invented subsequently and many of these were in use until the nineteen eighties and disappeared after fibre optics were invented. The most famous of these is the Freyer's (of prostate fame) Lithotrite that was used by British urologists. Whilst working as a lecturer at St Peter's Hospital and the Institute of Urology London the author had the privilege of learning the technique of using the Freyer's instrument and Bigelow's evacuator from Messers John Blandy and Peter Worth, the urology stalwarts of the eighties. The clinicians of that era, both senior and junior, however were aware that the advent of fibre-optics and rod-lens system would open a completely new horizon for the treatment of urinary stones including the bladder calculus which had given grief to the humanity since the beginning of civilisation.

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