

ORIGINS OF RENAL DISEASES

The management of kidney stones as suggested by Goeury-Duvivier



Guido Bellinghieri, Ersilia Satta, Vincenzo Savica, Guido Gembillo, Antonino Salvo, Michele Buemi, Domenico Santoro

University of Messina, Dpt Internal Medicine, Messina, Italy

Address correspondence to: Prof Domenico Santoro, Dpt of Clinical and Experimental Medicine University of Messina; e-mail: dsantoro@unime.it

Abstract

The management of kidney stones has always been a big problem for doctors of all time. Goeury Duvivier in his masterpiece "Guide des malades atteints d'affections de voie urinaires ou des organes de la génération chez l'homme et chez la femme" shows us the different kind of diseases which affects the urinary tract and in particular highlights the list of the main methods that during the history characterized the treatment of renal calculi.

Duvivier gives us the descriptions of invasive innovative techniques of the time, the "Taille", the "Lithotripsy" and "Lithotomy" and their negative effects or limits for each technique.

He also describes the different kind of palliative methods used in the 19th century to treat renal lithiasis and the clinical case reports of the time.

Key words: Calculi, Duvivier, Lithotomy, Lithotripsy, Taille

Introduction

Goeury-Duvivier was a doctor in the Faculty of Medicine in the University of Paris and the University of Jena. He also attended the Department of Public Assistance and worked in the Hospital of Varsavia; here he was decorated by Polish authorities with a military order. He was not just a leading figure in the scientific progress and in the development of the knowledge in the nephrology field but was even an accurate and zealous researcher of the history of medicine.

Thanks to this cultural background and to the passion in the study of the old masters he obtained the inspiration for his intuitions.

Duvivier gives us the descriptions of invasive innovative techniques of the time, the «Taille», the lithotripsy and lithotomy of kidney stones and their negative effects or limits for each technique.

He also explains the palliative methods and solutions to relieve the symptoms with less pain to improve the condition of the patients.

He describes how the management of kidney stones has always been a big problem for physicians of all time. The history of urinary stones almost begins and goes parallel with the history of civilization. Ammonius of Alexandria (276 BC) was the first person to suggest treat the renal stone disease to facilitate its expulsion.

Ammonius was called «The lithotomus» from the instrument he developed to break the calculi. It is said that the Arabists used a diamond, placed on the edge of a rod, to shatter the calculus.

The first recorded details of "perineal lithotomy" were those of Cornelius Celsus (25 BC-40 AD), who lived in Rome and wrote encyclopaedia of medicine (De Medicina).

Duvivier also reports that in 1580 Sanctorius extracted a calculus thanks to a new kind of tool. It was made of three branches and its centre had a "stiletto"

used to break the calculus in order to facilitate its expulsion.

In XIX century Martin and Gruithuisen demonstrated the great extensibility of the urethra. This suggested them the use of a straight cannulas for the extraction of the calculus from the bladder.

The different kind of invasive operation

The original route of approach was through the perineum, first through the mid-line and later from the left side. The suprapubic or high operation started to be used in the early 18th century. The first median perineal lithotomy was known as the "Lesser operation" or "operation by the Apparatus Minor" as only two instruments were essential, a knife and a hook. For the Greater operation many were needed.

The author highlights the list of the main methods that characterized the treatment of renal calculi in the history.

For instance the «Cutting technique», the «Taille», probably developed for the first time in Alexandria.

This kind of operation passed into the annals of history for the tragic death of king Antiochus V, who lost his life when the technique was at its dawn. At the beginning, the technique did not get so much acclamation and the opinions were not positive until the influence of two prestigious doctors: Frere Jacques de Baulie and Jean Baseilhac.

Frere Jacques de Baulie refined the previous methods introducing the lateral cut of the perineum. Jean Baseilhac invented a particular kind of lithotome with an hidden blade, bringing great benefits to the operation: this surgical cut, which can be suprapubic or perineal, represented the classic method for the therapy of kidney stones.

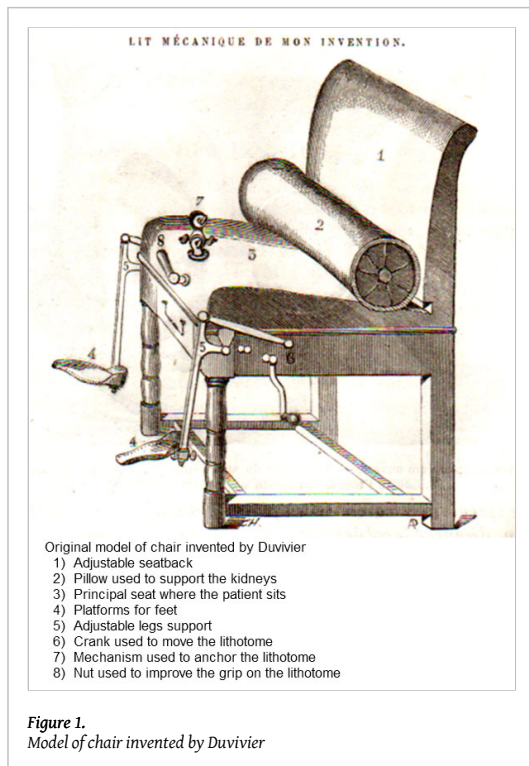
The most immediate way to expel the calculus was to find out the exact moment when the patient gets the stimulus to urinate.

The physicians had to push in the point of the urine tract where they can assume there was the obstacle and ask him to exercise a vigour pressure in order to distend the canal and expel it; if this procedure did not give a satisfactory result, it was possible to use the «Hunter» pincer. This instrument is made of a cannula with a protective sheath that has two clamps on the edge. The Hunter has two functions: the first one is to dilate the urethral channel and the second one is to grab the small calculus once the pincer is in the urethra.

The lithotripsy was the preferable method to grind the calculus and allow expulsion. It includes four basic rules: perforation, isolation, eclatement, and the écrasement, which may be used individually or together.

The limit of the lithotripsy was that it was impossible to pulverize the calculi. For this reason this technique has often required in many cases a suprapubic cut or hypo-gastric one. Another possibility was a cut under pubic or perineal area to help the extraction of the most voluminous stone fragments.

The Lithotripsy represents the evolution of Lithotripsy, also called the elder sister; in fact the Lithotripsy, using more accurate procedures, could break, split and pulverize the stones, so that they could be eliminated by the expulsive action of the bladder. To achieve better results Duvivier realized a special chair that gave to the patient the possibility to stay sat with less pain (Figura 1).



Palliative methods

If calculi are located in different sites (kidneys, ureters, bladder, prostate), or if the clinical condition does not allow the use of the above-named techniques, or if the patient obstinately refuses surgery, Duvivier advises, for duty and for humanity, the use of hygienic and palliative procedures (Figura 2). This kind of approach could sometimes give unexpected and satisfactory results for both patient and the caregiver. Such methods included the palliative anti-inflammatory drugs, the dilators, and diuretics.

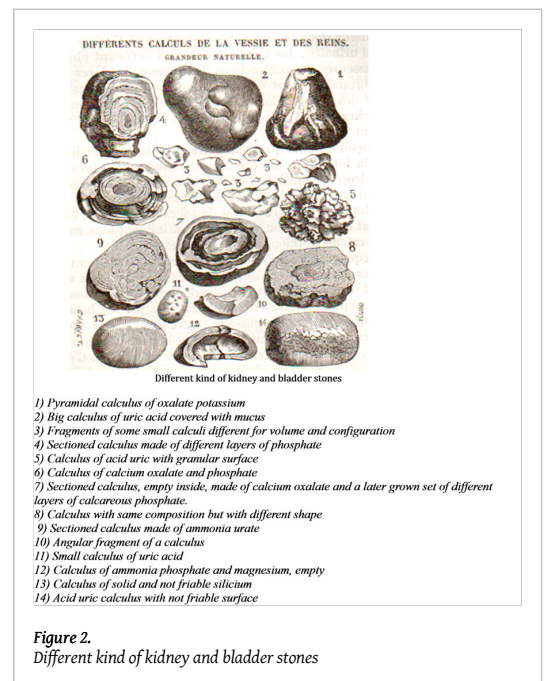
The ingestion of too much uric acid could be reduced by avoiding nitrogen and using hard and fermented liquor in the diet. Instead of meat, starches and plants were to be preferred.

To increase the urinary secretion, the author found advisable to use decoctions of chiendent (the elymus repens), of cherry juice, parietaria, flaxseed, which increase diuresis and help the dissolution of the calculi. It was also recommended the use of mineral waters such as the Carlsbad and the Eau de Vichy, which were capable of neutralizing the uric acid; to saturate the urinary uric acid, it was recommended the use of alkaline carbonates such as potassium and sodium. Another solution was to adopt measures to treat renal stone disease like common baths, body exercises, or going horseback riding.

Goeury Duvivier used to say: «They (patients) have two alternatives: To heal imposing themselves a hard and different way of living or to accept all the inevitable complications and the progression of the bad consequences of the diathesis».

Conclusions

The author gives us an important details concerning the view that ancient physicians had about the urinal



tract diseases. He also shows us the view that a great personality of the time like him had about the development of these techniques. The application of these studies in the clinical cases of the 19th is a relevant look back, and clarify how the medicine of the 20th was inspired from these older techniques.

References

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