

## REVIEW

# Correlation between Prostatic Calculi and Benign Prostatic Hyperplasia

Ruipeng Tang Chuan Xiao\*

Panzhihua general hospital, Panzhihua, Sichuan, 617000, China

### ARTICLE INFO

#### Article history

Received: 3 November 2020

Accepted: 27 November 2020

Published Online: 30 January 2021

#### Keywords:

Prostatic calculus

Benign prostatic hyperplasia

Correlation

### ABSTRACT

Prostatic calculus is a common disease of the urinary system, Prostate stones are more common in middle-aged and elderly men, With the development of ultrasonic diagnosis, more and more patients with prostate stone were found in physical examination, According to research shows, The vast majority of patients with benign prostatic hyperplasia in the pathogenesis of examination was found to have prostate stones, but so far the correlation between prostate stones and benign prostatic hyperplasia is still not very clear, Benign prostatic hyperplasia is an important factor affecting the physical and mental health and quality of life of the elderly male, With an increasing trend of population aging in China more quickly, this problem is more and more outstanding, but also allows us to further study the relationship between prostate stones and benign prostatic hyperplasia.

## 1. Introduction

Benign prostatic hyperplasia (BPH) is one of the common diseases in middle-aged and elderly men. About 48.91% of men will have clinical symptoms when they are over 50 years old. Prostate stones belong to urinary system stones. In the past, because of the deep lesion, small stone and affected by the surrounding anatomical level, it is difficult to find the traditional examination. Nowadays, the development of ultrasound detection system provides an important basis for the diagnosis of prostate stones, and its sensitivity is up to 95%. Through the prostate color ultrasound<sup>[3]</sup>. It can determine the location, size and shape of prostate stones, so as to provide an important basis for the choice of treatment options. According to the literature<sup>[4]</sup>, 79% of patients with benign prostatic hyperplasia were found to have prostate stones during physical examination; 60%

- 70% of patients with normal prostate were detected with prostate stones. Although more and more patients with prostate stones have been detected, it still does not attract the attention of doctors and patients. The main reason may be that most patients with prostate stones have no clinical symptoms. According to relevant studies, 89.47% of the patients under 30 years old have no symptoms, and 81.10% of them are asymptomatic from 31 to 49 years old<sup>[5]</sup>. Whether prostate stones are related to the occurrence, development and clinical symptoms of benign prostatic hyperplasia; whether prostate stones can become a risk signal for predicting the degree of benign prostatic hyperplasia need further clinical research to confirm.

## 2. Prostate Stones

Prostate stones usually occur in middle-aged and elderly patients, most of them are primary stones. According to the location of the stones, they can be divided into true

\*Corresponding Author:

Chuan Xiao,

Panzhihua general hospital, Panzhihua, Sichuan, 617000, China;

Email: 459477817@qq.com

and false types. True stones are rare, mostly produced in prostate vesicles and glandular tubes. Pseudostones originate from urinary calculi. System stones appear in the prostate segment of urethra or urinary stones enter into the urethra of prostate segment due to infection through the glandular duct. Usually, the prostate stones are hard, round, oval or irregular in shape, with smooth surface; they are brown in color, similar to chestnut and soybean, and some are scattered in the whole gland, and some are limited to the gland leaves. Generally, the diameter is less than LCM, and there are also huge stones more than several cm. \* small stones are mostly located in the middle of the gland. The causes are often related to prostate inflammation, hyperplasia of prostate, retention of prostate gland fluid, metabolic disorder, and occasionally in <sup>[6]</sup> of tuberculosis patients. The composition of prostatic stones and urine reflux in prostate gland duct, age of patients \* <sup>[7]</sup>, urinary system infection <sup>[8]</sup>, prostate performance decline <sup>[9]</sup>, secretion retention <sup>[10]</sup>, calcium and phosphorus metabolism disorder are related. USTA MF et al. <sup>[11]</sup>, and concluded that the positive rate of prostate stones in prostate related diseases such as benign prostatic hyperplasia and prostate cancer will also be significantly increased. Sutor et al. <sup>[12]</sup>, through long-term clinical research, it is concluded that prostate stones can be formed by the retention of calcium salt and magnesium phosphate contained in the prostatic gland fluid. Shen Xuecheng et al. <sup>[14]</sup> concluded that prostate stones and nanobacteria infection have a significant relationship. Similarly, Shoskes et al. <sup>[15]</sup>, through clinical research, found that prostate stones are more common in patients with CPPs, which is closely related to the progress of inflammation, the site of bacterial infection and the duration of symptoms. Through the above research, we can easily find that prostate stones are closely related to urinary tract infection. Because prostate stones are often small in size, they usually have no special clinical manifestations <sup>[17]</sup> most patients are only found in physical examination. However, when the stones are large, complicated with prostatitis and prostatic hyperplasia, bladder irritation, ejaculation pain, hematuria and dysuria may occur.

### 3. The Relationship between Prostatic Calculus and Benign Prostatic Hyperplasia

The incidence of prostate stones in prostate diseases is high <sup>[18]</sup>. Most of the patients with prostate stones are accompanied by hyperplasia of glands, which can be confirmed by many clinical studies. Jin Xu <sup>[19]</sup> et al. After 680 patients were examined by color Doppler ultrasound of prostate, 251 cases were found to have prostate stones.

Among these patients, 195 cases were accompanied with prostatic hyperplasia, 12 cases were with prostatic cyst, and 28 cases were with prostatitis. All 680 patients were divided into 40 ~, 50 ~, 60 ~, 70 ~, 80 ~, and the positive rate of prostate stones in each group was (percentage) The results showed that the positive rate of prostatic calculi increased with age, and the majority of patients with prostate stones were accompanied with hyperplasia of glands. Fang Zheng <sup>[20]</sup> et al. Selected 295 cases of patients with prostate stones detected by transrectal color Doppler ultrasound of prostate. The age range of the selected patients was 21-86 years old. After clinical examination, it was concluded that there were 3 cases of gonorrhea, 7 cases of acute and chronic urethritis, 22 cases of acute and chronic prostatitis, 248 cases of benign prostatic hyperplasia, and the remaining 15 cases were healthy people. The results showed that the positive rate of prostate stones increased significantly with the increase of age. Once again, the vast majority of patients with prostate stones were associated with benign prostatic hyperplasia.

Shixing Li et al. Methods: 400 patients after transurethral plasmakinetic resection of prostate were selected and divided into stone group and non stone group, 130 cases in stone group and 270 cases in non stone group. The results showed that the average age of patients in the stone group was younger ( $70.2 \pm 5.4$  years old), significantly lower than that in the non Stone Group ( $78.8 \pm 7.3$  years old) ( $P < 0.01$ ). The average weight of prostate in the stone group (weighed with balance after operation) [ $20.4 \pm 7.8$  g] was significantly smaller than that in the non Stone Group [ $50.6 \pm 17.3$  g] ( $P < 0.01$ ). Among them, 125 cases of patients with postoperative symptoms disappeared or improved, reexamination of color Doppler ultrasound showed that stones completely disappeared; 5 cases of patients failed to remove the stones at the first operation (mistakenly considered that the stone cavity was the rectum and stopped the operation), the symptoms of the patients did not significantly improve after the operation, 3 cases underwent transurethral resection of the prostate to remove the residual glands and remove the stones, the clinical symptoms disappeared; the remaining 1 One patient was transferred to another hospital for radical prostatectomy, the other one refused the second operation and was followed up for 5 years. The results showed that the stone of prostate significantly aggravated the clinical symptoms of patients with benign prostatic hyperplasia, and the average age of patients requiring surgery was 8.6 years earlier, and the weight of prostate needed surgery was reduced by 30.2G. Yubing Wang et al <sup>[22]</sup>. A total of 392 patients with benign prostatic hyperplasia were selected. Among them, 351 cases were positive for prostate

stones and 41 cases were negative for prostate stones, The positive rate of stone detection was 89.54%. All the patients were divided into negative group and positive group. Spss19.0 software was used to analyze the statistical data. It was found that the degree of benign prostatic hyperplasia in the positive group was more serious than that in the negative group.

According to the above study, it is not difficult to find that the vast majority of patients with prostate stones accompanied by hyperplasia of the prostate, and the positive rate of prostate stones with the increase of age will be significantly increased. In Guoxian Zhao's research,<sup>[5]</sup> found that the incidence rate of prostatic stones in the group over 50 years old was 48.91%, while that in the patients with prostatic calculus and benign prostatic hyperplasia was as high as 68.52%, while those in the group under 30 years old were 89.47%. 31 to 49 years old asymptomatic patients were as high as 81.10%. In the study of 275 cases of prostate stones by Li Wei Zhong<sup>[23]</sup>, 192 cases were found to be 69.8%. 147 cases (53.5%) were younger than 30 years old. Whether this shows that early detection of prostate stones is a dangerous signal of rapid progress of benign prostatic hyperplasia, or that prostate stones aggravate the clinical symptoms of patients with benign prostatic hyperplasia, making patients have to accept surgery when the size of prostate gland does not reach the conventional surgical indications, these problems need further clinical scientific research to confirm. This is an important factor affecting the physical and mental health and quality of life of middle-aged and elderly male patients. With the increasing trend of aging population in China, this problem is particularly prominent, which also forces us to further study the correlation between prostate stones and benign prostatic hyperplasia.

## References

- [1] Wei Guo, Meini Chen, Jing Wen et al. Journal of Kunming Medical University, Journal of Kunming Medical University, 2014, 35 (7): 88-91.
- [2] Pavlica, Menchi I, Barozzi L. New imaging of the anterior male urethra. Abom imaging, 2003, 28(2): 180-186.
- [3] Haigen Cao, Jinrui Wang. Practical abdominal ultrasound diagnosis. Beijing: People's Health Publishing House, 1994: 570-571.
- [4] Yongchang Zhou, Wanxue Guo. Ultrasound medicine. 4th Edition. Beijing: Science and Technology Literature Publishing House. Chinese Journal of clinicians, March 2008, 2(3): 1232-1233.
- [5] Guoxian Zhao, Bo Fu, Heming Wang, et al. Chinese guide to medicine, 2012, 10(18).
- [6] Ling Song, Ming Gong. Chinese Journal of clinicians (electronic version), 2008, 2.
- [7] Geramoutsos I, Gyftopoulos K, Perimenis P, et al. Clinical correlation of prostatic lithiasis with chronic pelvic pain syndromes in young adults[J]. Eur Urol, 2004, 45(3): 333-337
- [8] Jieping Wu, chief editor. Wu Jieping urology[M]. Jinan: Shandong science and Technology Press, 2004: 795.
- [9] Muezzinoglu B, Gurbuz Y. Stromal microcalcification in prostate[J]. Malays J Pathol, 2001, 3(1): 31-33.
- [10] Prostate disease of river fish m Wuhan: Hubei people's Health Publishing House, 1982, 56.
- [11] Usta MF, Baykara M, Erdo ru T, et al. Idiopathic prostatic giant calculi in a young male patient[J]. Int Urol Nephrol, 2005, 37(2): 295-297.
- [12] Sutor DJ, Wooley SE. The crystalline composition of prstatoccalculi. BrJUrol, 1974, 46(5): 533-535.
- [13] Koseo lu H, Aslan G, Sen BH, et al. Prostatic calculi: silent stones[J]. Actas Urol Esp, 2010, 34(6): 555-559.
- [14] Xuecheng Shen, Jie Yang, Xiancai Rao, et al. Culture and morphological identification of nanobacteria from prostatic calculi[J]. Journal of the Third Military Medical University, 2008, 30(12): 1122-1124.
- [15] Shoskes DA, Lee CT, Murphy D, et al. Incidence and significance of prostatic stones in men with chronic prostatitis/chronic pelvic pain syndrome[J]. Urology, 2007, 70(2): 235-238.
- [16] Shoskes DA, Thomas KD, Gomez E. Anti-nanobacterial therapy for men with chronic prostatitis/chronic pelvic pain syndrome and prostatic stones: preliminary experience[J]. J Urol, 2005, 173(2): 474-477.
- [17] Xia Mi Si Ding, Ligui Min, Chinese Journal of andrology, 2010, 24(5).
- [18] Leye He. Prostatitis syndrome[J]. Chinese Journal of Urology, 2000, 21(11): 697-698.
- [19] Jin Xu. Journal of clinical military medicine, 2003, 31(3).
- [20] Fang Zheng, Yihe Liu, Southeast national defense medicine, 2005, 7(3).
- [21] Shixing Li, Zhongqing, Guima, Shunli, et al. Clinical medicine, September 2007, 27(9).
- [22] Yubing Wang, Enzi Xu, Mengqiang Li, Journal of Modern Urology, 2014, 19(12).
- [23] Weizhong Li, Guiping Ge, Shuang'e Zhang. Journal of practical medical technology, 2005, 12(12).