

**Original article:**

## **Study of incidence and demographic profile of bladder calculi in Rural Population**

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### **Abstract**

**Introduction:** While reports of such stones were uncommon at that time, their prevalence apparently increased over next 5000 years, so much so that cutting for the stones had become a subspecialty of some who were known as lithotomists leading Hippocrates to advice his followers to leave this job for them.

**Materials and methods:** 89 cases of bladder stones admitted in Pravara Rural Hospital, Loni were studied. It included primary bladder stones, ureteric bladder stones and stones secondary to bladder outlet obstruction and foreign body in bladder.

**Results:** The incidence of secondary bladder calculi is increase throughout the years., but definitely the incidence of renal and ureteric calculi has increased in adult as well as children.

**Conclusion:** The incidence of bladder calculi is higher in males at all age group is concluded from present study.

### **Introduction:**

While reports of such stones were uncommon at that time, their prevalence apparently increased over next 5000 years, so much so that cutting for the stones had become a subspecialty of some who were known as lithotomists leading Hippocrates to advice his followers to leave this job for them. Over the years, the incidence of primary bladder stones, especially children, has decreased with time and industrialization. <sup>1</sup>This has happened as the nutrition of the people improved along with their earning capacity. Vitamin A deficiency and bladder stone was a common finding. Both have almost disappeared from well nourished part of India. However pediatrics and adult stone disorder has increased in the form of renal and ureteric calculi.<sup>2</sup>

### **Materials and methods:**

89 cases of bladder stones admitted in Pravara Rural Hospital, Loni were studied. It included primary bladder stones, ureteric bladder stones and stones secondary to bladder outlet obstruction and foreign body in bladder.

There were 3000 cases of urolithiasis that attended the surgical OPD during these 5 years out of which 120 were cases of vesical calculi. All the patients of bladder stones are advised admission and evaluation and surgical intervention. 89 cases got admitted and operated and rest 31 cases were lost to follow-up.

**Observation:**

**Table No. 1: No. of patients of Bladder Calculi:**

Description	No. of cases	Percentage (%)
No. of patients attended hospital surgical OPD	72000	100%
No. of patients of urolithiasis (Renal+Ureteric+Bladder)	3000	4.16%
No. of patients of Bladder Calculi	120	4.00%
Percentage of bladder calculi to the no. of patients at OPD	120/72000	0.16%

**Table No. 2: Sexwise distribution of 89 cases of Bladder Calculi:**

Description	No. of cases	Percentage (%)
Male	81	91.01%
Female	08	8.99%
Total	89	100.00%

**Table No. 3: Types of Bladder Calculi out of total cases:**

Type of Bladder calculi	Male	Female	Total
Primary or endemic	15	4	39 (43.82%)
Secondary	46	4	50 (56.18%)
Total	81	8	89

**Table No. 4: Age and Sex wise distribution of 39 cases of primary or endemic Bladder Calculi:**

Age in years	No. of cases of primary bladder calculi		
	Male	Female	Total
0-10	28	04	32
10-20	03	00	03
20-30	00	00	0
30-40	01	00	01
40-50	02	00	02
50-60	01	00	01
>60	00	00	00
Total	35	04	39

**Table No. 5: Age and Sex wise distribution of 39 cases of Secondary Bladder Calculi:**

Age in years	No. of cases of Secondary bladder calculi		
	Male	Female	Total
0-10	00	00	00
10-20	04	00	04
20-30	03	00	03
30-40	02	01	03
40-50	06	01	07
50-60	06	02	08
>60	25	00	25
Total	46	04	50

**Discussion:**

Out of 89 cases of bladder calculi under study, 32 cases were the children less than 10 years of age (35.95%) and all were suffering from primary or endemic bladder stone disease. Until the middle of 19<sup>th</sup> century, the incidence of primary vesical calculus was very high in Europe as well as in America. Cicala, in France, in 1838 gives incidence of 51.5% in children less than 10 years of age and Assendelfit, in Russia in 1900 reports an incidence of 77.00% of vesical calculus in children.<sup>3</sup>

In these countries, vesical calculus was common in areas where living conditions were primitive and people were of low socio-economic class. As these countries got industrialized through last 150 years, the living conditions improved along with the earning capacity and the incidence of vesical calculus in children has reduced dramatically. Between 1820 and 1850 the New York hospital report the decrease in incidence of vesical calculus from 80% to 3.25%.<sup>4</sup>

The same trend of decrease in incidence of bladder stones in children is also reported from the Asian countries including India, Anderson et al (1962) reported 140 cases of bladder stones out of 256 cases studied were less than 10 years of age (54.56%). Our hospital is a referral centre situated in rural part of Maharashtra, which receives patients from the surrounding talukas with mainly an agricultural background and a relatively low socioeconomic class.<sup>3</sup>In our study, the incidence of primary vesical calculi in children of 35.95% is comparable with the available reported literature

The mean age of presentation in pediatric age group in our series was 5-6 years. In his study on endemic urinary lithiasis in children in Turkey, Eckstein showed a well marked peak incidence between the ages of 2 to 4 years. R.N.Shrivastava in study of 132 children of vesical calculus in Afghanistan in 1986 showed maximum incidence between 1 to 5 years of age. Anderson et al (1962) showed a peak incidence between 4 to 6 years in his study between 1937 to 1958.<sup>5</sup> The incidence of primary bladder stones in adults has decreased significantly whereas the incidence of secondary bladder calculi is increasing throughout the years, but definitely the incidence of renal and ureteric calculi has increased in adult as well as children. In our series 57 out of 89 patients were adult bladder stone

(60.05%) out of which 50 patients were having secondary bladder calculi and only 7 patients showed primary or endemic bladder calculi. 25 patients were above the age of 60 years and rest were equally distributed throughout the decades.

K. Lonsdale (1968) has reported the incidence of 28.5% of vesical calculi in adults from Ubor Hospital, Thailand where as Anderson et al reported a incidence of 42.62% in adults out of 256 cases of bladder calculi operated during 1939 to 1957. A well-marked secondary rise in incidence of vesical calculi in adults after the age of 60 years is well seen in our series (25 cases of bladder stone more than 60 years of age) and also supported by many authors. The oldest patient in our series was 92 years old male patient. In the study of 89 cases of bladder calculi, there was a marked preponderance of males on compared to females. 81 cases were males (91.0%) where as only 8 were females ( 8.99%)<sup>6,7</sup>

All reported series agree with the finding that the bladder stones are much common in males. The Ahmednagar series by Anderson et al (1962) shows incidence of 97.1% to 2.9% in females while Arsendelft (1900) Russia reported only 2% in females.<sup>7</sup> The general picture of incidence of bladder stones in females resembles that of males but at much lower level. The difference is clearly related to the anatomical difference in the urethra of the sexes, which is especially marked in childhood. However, some other factors like emptying mechanism at bladder neck, voiding pressure etc. must be responsible for the difference in bladder stone formation in males and females. Thus as to why the incidence of bladder calculi is higher in males at all age group is remained unexplained and will require further evaluations.

**Conclusion:**

The incidence of bladder calculi is higher in males at all age group is concluded from present study.

**References:**

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