

# THE INCIDENCE OF BLADDER SQUAMOUS CELL CARCINOMA IN LARGE BLADDER STONE CASES

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## ABSTRACT

**Objective:** To determine the incidence of squamous cell carcinoma (SCC) in patients with large bladder stones (> 40 mm). **Material & methods:** This is a descriptive retrospective cross-sectional study, data was collected from medical record on patients with a diagnosis of large bladder stones (> 40 mm) that have been performed surgical removal of stone (vesicolithotomy) and bladder mucosa biopsy in Hasan Sadikin Hospital General Bandung, during the period of 2006 until 2010. Furthermore, the data are classified according to pathology. **Results:** This study found 47 cases of large bladder stone (> 40 mm), among these cases, there were 76.7% non malignant and 23.3% malignant cases, with 2 cases (4.3%) with anatomical pathology picture of SCC. Based on the age group of patients aged 31-40 years obtained 25.5%, 41-50 years 21.3%, 51-60 years 21.3%, and > 60 years 23.4%, whereas for ages below 30 years 8.5%. Based on sex, male 95.7% and 4.3% of women. Based on the size, stone sizes retrieved were 40 mm (48.9%), stone 50 mm (10.6%), 60 mm and 70 mm respectively (8.5%), stone size 80 mm (12.8%), stone size > 80 mm (4.3%) and 6.4% with multiple bladder stones. **Conclusion:** There were only two cases of bladder SCC from 47 cases patients with large bladder stone (> 40 mm) in Hasan Sadikin General Hospital Bandung during 2006-2010.

**Keywords:** Bladder Stone, bladder carcinoma, squamous cell carcinoma.

## ABSTRAK

**Tujuan:** Menentukan kejadian squamous cell carcinoma (SCC) pada pasien dengan batu kandung kemih besar (> 40 mm). **Bahan & cara:** Studi ini adalah penelitian silang deskriptif retrospektif, data dikumpulkan dari rekam medis pasien dengan diagnosa batu kandung kemih besar (> 40 mm) yang telah dilakukan pengambilan batu (vesicolithotomy) dan biopsi mukosa kandung kemih di RS Hasan Sadikin (RSHS) Bandung selama tahun 2006 sampai 2010. Kemudian data diklasifikasikan berdasarkan patologi. **Hasil:** Studi ini mendapatkan 47 kasus batu kandung kemih besar (> 40 mm), dan dalam 47 kasus ini didapatkan 76.7% patologi tidak ganas dan 23.3% keganasan. Pada 2 kasus (4.3%) didapat gambaran patologi anatomi SCC. Berdasarkan kelompok usia pasien berusia 31-40 tahun 25.5%, 41-50 tahun 21.3%, 51-60 tahun 21.3%, > 60 tahun 23.4%, dan usia dibawah 30 tahun 8.5%. Berdasarkan jenis kelamin, laki-laki 95.7% dan 4.3% wanita. Berdasarkan ukuran, ditemukan batu dengan ukuran 40 mm (48.9%), ukuran batu 50 mm (10.6%), ukuran batu 60 mm dan 70 mm masing-masing 8.5%, ukuran batu 80 mm (12.8%), ukuran batu > 80 mm (4.3%) dan 6.4% dengan batu kandung kemih multiple. **Simpulan:** Didapatkan hanya 2 kasus SCC kandung kemih dari 47 kasus pasien dengan batu kandung kemih besar (> 40 mm) di RSHS Bandung selama tahun 2006-2010.

**Kata kunci:** Batu kandung kemih, karsinoma kandung kemih, karsinoma sel squamous.

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## INTRODUCTION

In the United States, the incidence of squamous cell carcinoma (SCC) of the bladder is about 5% of all bladder carcinomas. Approximately 90-95% of bladder tumors are urothelial carcinoma. Incidence rate of male and female is 1 : 2, is in contrast to urothelial carcinoma which predominantly affects men. Around the world, the incidence of bladder SCC varies. In certain areas of the African

continent, the majority of bladder carcinomas are of squamous cell type. The highest incidence was seen in area where schistosomiasis is endemic, especially in Sudan and Egypt, where bladder SCC is two-thirds to three-quarters of all malignant tumors of the bladder.<sup>1,2</sup>

Approximately 90-95% of cancers are urothelial bladder cancer (TCC). Non-urothelial cancer in the bladder is most commonly a squamous cell carcinoma (SCC). From previous studies, it has

been reported that one of the precipitating factors of bladder SCC is the presence of stones in the bladder, chronic cystitis which is result from prolonged indwelling catheterisation is also shown to increase the risk of bladder SCC.<sup>2-4</sup> The incidence of bladder SCC caused by large bladder stones (size > 40 mm) in Indonesia is not yet known.

## OBJECTIVE

The aim of the study is to find out the incidence of bladder SCC in patients with large bladder stone (> 40 mm) in Department of Urology, Hasan Sadikin General Hospital Bandung.

## MATERIAL & METHODS

Samples from this study were the all patients who have been diagnosed with large bladder stones (> 40 mm) who had undergone open surgical removal of bladder stones (vesicolithotomy) and bladder mucosal biopsy. Histopathologic examination is conducted by the Department of Pathology Hasan Sadikin General Hospital Bandung, during 2006 to 2010.

This research is a retrospective descriptive cross-sectional study, where the data were collected from medical records at Hasan Sadikin General Hospital Bandung. The data are classified according to the histopathology of bladder mucosal biopsy, the additional data were stratified by age, sex, and stone size.

## RESULTS

This study describes the incidence of bladder SCC which is caused by a large bladder stone (> 40 mm). From table 1, the age group of patients with large bladder stone (> 40 mm) were in the age group 31-40 years (25.5%), 41-50 years (21.3%),

51-60 years (21.3%) and > 60 years (23.4%), while for the age below 30 years (8.5%).

Characteristics of subjects according of sex in patients with large bladder stones (> 40 mm) in the Department of Urology Hasan Sadikin General

**Table 1.** Distribution of age and sex in patients with large bladder stone (> 40 mm).

	Frequency	Percentage
Age (Year)		
≤ 20	3	6.4
21 - 30	1	2.1
31 - 40	12	25.5
41 - 50	10	21.3
51 - 60	10	21.3
> 60	11	23.4
Total	47	100.0
Sex		
Males	45	95.7
Female	2	4.3
Total	47	100.0

**Table 2.** Distribution of stone size in patients large bladder stone (> 40 mm).

Stone size (mm)	Frequency	Percentage
40-49	23	48.9
50-59	5	10.6
60-69	4	8.5
70-79	4	8.5
80-89	6	12.8
> 90	2	4.3
Multiple	3	6.4
Total	47	100.0

**Table 3.** Histopathological appearance of the bladder mucosa in patients with large bladder stone (> 40 mm).

Anatomical Pathology Result	Frequency	Percentage
Ca insitu	1	2.1
Chronic cystitis	9	18.9
Non specific chronic cystitis	25	52.5
Squamous metaplasia	2	4.3
Bladder TCC	8	16.9
There were no malignant tumor cells found	2	4.3
Total	47	100.0

Hospital of 2006 until 2010 were male (95.7%), and just 4.3% of female.

The size of stones in patients with large bladder stones (> 40 mm) was the most 40-49 mm, stone size of 48.9%, stone size 50-59 mm (10.6%), stone size 60-69 mm and 70-79 mm stone size equal at (8.5%), stone size 80-89 mm (12.8%), and only (4.3%) had stones the size of > 90 mm, and as much as (6.4%) with multiple bladder stone (table 2).

Based on table 3, histopathological appearance of the bladder mucosa in patients with large bladder stones (size > 40 mm) in Hasan Sadikin General Hospital Bandung from 2006 until 2010, is a nonspecific chronic cystitis comprising 52.5%, chronic cystitis 18.9%, TCC 16.9%, while squamous metaplasia was 4.3%.

According to these data, bladder mucosa which classified as malignant were 11 cases (23.3%), non malignant 36 cases (76.7%).

## DISCUSSION

From the results of these study, the incidence of bladder SCC due to large bladder stone (> 40 mm) was 4.3%. Of these cases it is known that bladder SCC occurred in the age group over 60 years, bladder stone size > 80 mm, and occurs in male gender.

Incidence of bladder SCC depends on the length or chronicity of the bladder mucosal irritation from foreign body (stone), the older the person's age. It is predicted that the longer the duration of the irritation as well, considering the formation of bladder stone from a small nidus which later developed into large size bladder stone, therefore, to be able to form a large bladder stone size. It takes a long time, and as it has already begun to irritate and traumatize the bladder mucosa.<sup>5-18</sup> The larger the stone size, the higher frequency of irritation on bladder mucosa.<sup>5-18</sup>

Bladder outlet obstruction (BOO) is a condition that causes urine stasis, the condition is also an irritant factor that cause chronic cystitis and infections, as well as long term catheter usage due to BOO, can cause mucosal irritation caused by balloon catheter in the bladder. BOO is more common in men, especially old age which is most often caused by benign prostatic enlargement.<sup>19-20</sup>

## CONCLUSION

There were 2 cases (4.3%) of SCC, from all the non-urothelial bladder malignancy which is rela-

ted to large bladder stone (> 40 mm) during 2006-2010. It occurred in the age group above 60 years.

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