

## Use of Morcellator for Bladder Clot Removal: A Novel Technique

Dr. Praveen Pushkar\*

Consultant, Asian Institute of Medical Sciences, Faridabad, India

**\*Corresponding Author:** Dr. Praveen Pushkar, Consultant, Asian Institute of Medical Sciences, Faridabad, India. E-mail: [praveenpushkar@yahoo.co.in](mailto:praveenpushkar@yahoo.co.in)

### Abstract

**Objective:** To introduce a novel technique using morcellator for large bladder clot removal.

**Methods:** Retrospective review of data of last 4 years done for the patients where bladder clot removal was done surgically. Of the total of 33 patients, morcellator was used successfully in 19 patients.

**Results:** All the patients where morcellator was used, clots were completely removed. Median time taken for clot removal was 7 minutes (range 5 to 9 minutes) and median estimated volume of clots which were removed was 840 cc (range 590 to 1090 cc). In two cases, bladder mucosal injury was there which was conservatively managed.

**Conclusion:** Use of morcellator is a simple, efficient and time-saving technique of large organized bladder clot removal.

### 1. INTRODUCTION

Urinary retention due to bladder clots is a common condition we encounter in practice. Sometime removal of bladder clots can be challenging and time consuming. Many techniques both non-surgical and surgical are described to deal with it. In practice, we use non-surgical ways, endourologic techniques and open methods to remove bladder clots. Here I describe my innovative approach of using morcellator to remove large organized bladder clots.

### 2. MATERIALS AND METHODS

Retrospective review of medical records of last 4 years where surgical intervention was done for bladder clot removal. There were 33 cases where clot removal was done surgically inside operation theatre under general anaesthesia. In all these cases cystoscopy was done initially done followed by clot removal using Ellik bladder evacuator (BARD®), Toomey glass syringe (BARD®) or morcellator (LUMENIS®). Morcellator was used in 19 cases. Method of clot removal, quantity of clots removed, time required and complications were recorded.

#### Technique

Morcellator was introduced in the year 1998 to removed prostate tissue post Holmium Enucleation of Prostate (HoLEP) by Peter Gilling

et al. [1] but it can be used to remove any tissue including blood clots from bladder. We use Lumenis® VersaCut Tissue Morcellator for this purpose. It removes tissue with controllable morcellation speed and suction power. Morcellator was used in the same manner for bladder clot removal as used post HoLEP to remove enucleated prostate tissue.

Morcelloscope was kept just distal to bladder neck and bladder was adequately distended with irrigation fluid before morcellation begun. Morcellator must be used cautiously specially in small capacity bladder as chances of bladder injury will be high in these cases. Clots and bladder wall should always be in vision while doing morcellation.

### 3. RESULTS

Out of 33 cases, Ellik evacuator was used exclusively in 4 cases, in 10 cases both Ellik evacuator and Toomey glass syringe was used. In rest of the 19 cases morcellator was used either exclusively or when Elliks/ Toomey syringe failed to remove clots completely. In 4 cases where Ellik was exclusively used,  $114 \pm 21$  cc of blood clots were removed and time taken was  $25 \pm 7$  minutes. In 10 cases where both Ellik and Toomey glass syringe was used,  $290 \pm 110$  cc clots were removed in  $34 \pm 14$  minutes. In those cases, where morcellator was used, total quantity

of clots which were removed was  $840 \pm 250$  cc and the time taken was  $7 \pm 2$  minutes.

In 2 cases, there was mucosal injury in the bladder where morcellator was used and this was managed conservatively. There was no other complication noticed in any other cases.

#### 4. DISCUSSION

Acute urinary retention due to blood clots is a common thing we see in our day to day practice. Common causes for the bladder clot formation is post TURP, radiation cystitis, bladder tumour bleed, carcinoma prostate, post PCNL bleeding etc.

Bed side management includes foley catheterization with 3-way catheter and use of tommy plastic syringe to remove clots. If it is successful, then it followed by continuous bladder irrigation till bleeding stops.

Bo et al. described a non-surgical technique using chymotrypsin and 5% sodium bicarbonate to dissolve bladder clots. [2]

If this bed side management fails to remove clots and patient goes for recurrent urinary retention, then further management is dealt surgically. In today's era, open method is rarely used for clot removal. In majority of cases cystoscopic clot evacuation is successful. Cystoscopic clot evacuation is generally done either by Ellik bladder evacuator or with the help of Toomey glass Syringe. This method becomes challenging sometimes specially in large organized clots. When the bladder is already distended, there is risk of bladder rupture when fluid is pushed in to disorganize the clots.

Yu et al. described the "suction and fishing method" for clot removal. [3] Goel described mechanical suction with the help of suction bridge to remove bladder clots. [4]

Use of morcellator is never described for clot removal in literature. I used morcellator in 19 cases without any serious complication to remove large organized bladder clots. Advantages of using morcellator are it is quick compared to any other methods, large quantity of clots can be removed by using it, there is no extra cost and the technique is easy to learn. The only disadvantage is availability.

#### 5. CONCLUSION

Use of morcellator if available should be considered while managing large organized bladder clots because it is a safe and quickest technique.

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