Review

Is Complete Resection of Hypertrophic Adenoma of
the Prostate Possible with TURP?

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Abstract

Whether complete resection was possible with TURP was explained. A lot of adenoma
remains after transurethral resection of the prostate (TURP), the other hand transurethral
enucleation of the prostate (TUE) is useful for complete resection of an adenoma.

Key words: prostatic hyperplasia, transurethral resection of prostate

For radical surgical treatments of large benign
prostatic hyperplasia (BPH), open prostatectomy is
chosen, while transurethral resection of the prostate
(TURP) is the standard for smaller BPH. However,
there is a problem of recurrence with these two
surgical treatments. The rate of reoperation with
TURP is high6. This is a big problem whether
complete resection is possible or not.

The Radical Nature of Open Prostatectomy

Specialists have believed that an adenoma can be
completely removed with open prostatectomy. However, the rate of reoperation after open
prostatectomy is 4.5~7% in an 8-year period1,2. The
cause of recurrence is sure to be due to residual
adenoma, although there have been no reports of
research for the amount of residual adenoma.
Hiraoka reported that some adenoma was left in the
prostatic bed with TURP after enucleation with
open prostatectomy1. Some of the adenoma and false
capsule were left especially in both the ends of the
apex and the neck of the prostate. It is said that the
false capsule contains hypertrophy tissue, so BPH
may be recurred6. Because complete removal of the
adenoma is impossible even with open prostatectomy, recurrence can not be avoided.

To Where Should the Distal End of
TURP Be Resected?

The 8-year rate of reoperation for TURP is high at
15.5~16.8%4,5. It is said that the distal end of the
resection in TURP should be stopped at the
verumontanum for the risk of urinary incontinence
due to external sphincter damage5. When the distal
end of the resection was at the verumontanum, a
part of the adenoma was left, and improvement of
urination was poor5. According to Shah3, with a
large hyperplasia the apical portions of the adenoma
project were more than 1 cm from the
verumontanum, and this volume came to 10~50% of
the adenoma. We recommend that the distal end of
the resection should not be at the verumontanum
but the Nesbit sign, which is the boundary line
between the adenoma and external sphincter.

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How Deep Should Resection Be for Complete Resection in TURP?

Distinguishing the adenoma from the outer gland (peripheral zone) during TURP is necessary for complete resection of an adenoma. In general, the resection surface of an adenoma is uneven and irregular. The resection surface of the outer gland is smooth and fine granular. It is believed that the two can be distinguished and advancing up to the smooth resection surface is easy during TURP. However, it has not been confirmed whether the smooth resection surface is the outer gland of the surgical capsule or not. The smooth resection surface is not equal to the outer gland.

TUE (Transurethral Enucleation of the Prostate = Hiraoaka’s Detaching TURP) Developed for Complete Resection

The author sensed a large amount of adenoma was left with TURP compared to that with open prostatectomy, and thus has worked on improvement of TURP with complete resection. Regarding TUE method, at first two thirds of the adenoma in the surgical capsule is detached from the apex towards the prostatic neck with a prostatic detaching blade attached to a resectoscope similar to enucleation of the adenoma with a finger at open prostatectomy. Then, the adenoma can be resected easily with an electric loop completely.

Could It Be Decided that the Smooth Resection Surface Is the Outer Gland?

TURP was attempted with the goal of complete resection of adenoma and resected down to a depth reaching a smooth and fine granular surface. After TURP the residual adenoma was attempted to be detached from the surgical capsule with Hiraoaka’s prostatic detaching blade of TUE, then the residual adenoma was resected, and the weight of that residual tissue was measured. The residual adenoma in all 64 cases were noted, and the weight and percent of residual adenoma were an average of 10.2 g ± 7.9, 54% ± 21.9 of the adenoma respectively. The percent of residual adenoma was almost the same regardless of the size of adenoma. It was demonstrated that the resection surfaces at margins of an adenoma close to the surgical capsule, the false capsule, and the outer gland appeared to be smooth and fine granular. Therefore, distinguishing among the three was very difficult as the smooth resection surface was equal to the outer gland (Fig. 1). Thus, complete resection of adenoma is very difficult with TURP.

Other Reasons that Complete Resection Is not Possible with TURP

1. Total Prostatic Volume by Ultrasound Six Months after Surgery

Because of incomplete resection, constriction of the prostatic capsule worsens, so constriction was sure to be better with more complete resection. The average of total prostatic volume by ultrasound 6 months after three surgeries has been reported to be 8.9 ± 4.1 cm³ with TUE, 46.6 cm³ with TURP for 60 cm³ or more prostate volume, and 28.4 cm³ with holmium laser enucleation of the prostate (HoLEP).
2. Remaining Prostate Volume = Preoperative Total Prostatic Volume-Total Removed Weight

Remaining prostate volume has been reported to be 17.3±11.9 cm³ with TUE², 61.1 cm³ with TURP³, and 28~37.38 cm³ with HoLEP⁴.⁵.

3. Postoperative PSA Measurement Results

With regard to PSA measurements 6 months after surgery, postoperative PSA was 0.6~0.8 ng/ml with TUE² and 1.2 ng/ml with TURP³.

Conclusion

Whether complete resection is possible with TURP has been explained. This is based on the presence or absence of residual adenoma from open prostatectomy, measurement of the amount and percent of residual adenoma remaining after TURP with TUE, measurements for total prostatic volume by ultrasonic 6 months after various surgeries, remaining prostate volume, and postoperative PSA measurement results. A lot of adenoma remains after TURP, so TUE is useful for complete resection of an adenoma.

References


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