



SUYASH

Uro Times



A Quarterly News Letter From Suyash Nursing Home
July 2014, 4th Issue

For Private Circulation Only

SURGICAL MANAGEMENT OF BPH

Dr Sharad Somani

INTRODUCTION

The options for treatment of benign prostatic hyperplasia (BPH) have expanded dramatically over past 3 decades with development of medical and minimally invasive therapies. **TURP is considered "gold standard" for surgical management of BPH.** Many other minimally invasive options are available. However, these approaches are usually indicated for mild to moderate prostatic enlargement. For larger prostate glands, open prostatectomy has been frequently performed. Lately, holmium laser enucleation of prostate (HOLEP) has been performed as a minimally invasive alternative to TURP and open surgery.

INDICATIONS

Advances in medical management have greatly reduced indications for surgical intervention for BPH.

The indications for surgical intervention include

- ▶ Acute urinary retention
- ▶ Recurrent or persistent urinary tract infections
- ▶ Significant symptoms of BPH not responsive to medical therapy and interfere with patient's quality of life
- ▶ Recurrent gross haematuria of prostatic origin
- ▶ Pathophysiologic changes of kidneys, ureter or bladder secondary to prostatic obstruction
- ▶ Bladder calculi secondary to obstruction

TRANSURETHRAL RESECTION OF THE PROSTATE (TURP)

Introduction -

TURP was developed in 1920-1930. However it took 50 years for it to be developed and accepted as the established treatment for BPH.

TURP is a highly effective treatment for BPH with an acceptable complication rate. It is considered the "gold standard", the standard against which other minimally invasive therapies must be measured and the standard that it is hoped they can achieve.

Surgical Technique



PREOPERATIVE EVALUATION

- ▶ Complete medical history, physical examination and appropriate laboratory assessment.
- ▶ Patients will be above 50 with increased risk for cardiovascular and pulmonary disease, hypertension, diabetes mellitus and other medical conditions.
- ▶ Medication history with special attention to drugs that can cause bleeding. These medications should be discontinued and therapeutic anticoagulation reversed before surgery.
- ▶ Chest radiograph, ECG, serum electrolyte, coagulation studies and complete biochemical parameters before surgery.
- ▶ Digital rectal examination and PSA and biopsy if indicated to rule out malignancy.
- ▶ Urodynamic study if indicated.
- ▶ Patient in urinary retention should be catheterized.
- ▶ If renal function is deranged, surgery should be delayed until this parameter stabilizes.
- ▶ Urine analysis to rule out UTI, if infection is present, urine specimen should be sent for culture & sensitivity & appropriate antibiotics should be started before surgery to prevent urinary sepsis.
- ▶ Blood to be kept cross matched for any emergency.
- ▶ Written informed consent of benefits and risks associated with surgery should be obtained.

Complications of TURP

Immediate on table

- ▶ Bleeding - depends on size of prostate, length of time required for procedure and surgeon's skill.
- ▶ Extravasation or perforation of prostatic capsule - 2%
- ▶ Transurethral Resection Syndrome - 2%
 - Characterized by mental confusion, nausea, vomiting, hypertension, bradycardia and visual disturbance
 - It is related to dilutional hyponatremia
 - Usually patients do not become symptomatic until serum sodium concentration reaches 125 meq/dl
 - Risk is increased if gland is larger than 45 g and resection time is longer than 90 minutes
 - Other possible cause - Glycine is metabolized to glycolic acid and ammonium. Ammonium intoxication has been suggested as a possible cause of the TUR syndrome or direct toxic effect of glycine
 - This can be corrected by giving 200 ml of 3% saline very slowly
 - Prevention - In patients with large gland or when operating time is being prolonged, diuretics are administered
- ▶ Intraoperative Priapism - managed by injecting α -adrenergic agent directly into the corpora cavernosa .

Early post operative complication – 18%

- ▶ Bleeding – Reactionary or secondary, Transfusion requirement is 3.9%
- ▶ Failing to void - 6.5%
- ▶ Clot retention - 3.3%

Late complications

- ▶ Retrograde ejaculation - 50% to 95%
- ▶ Bladder neck contracture – 10%
- ▶ Stricture urethra
- ▶ Repeat surgery rate – 8% at 10 years

Important consideration – TURP does not reduce or affect risk of

LASERS FOR BPH

Introduction

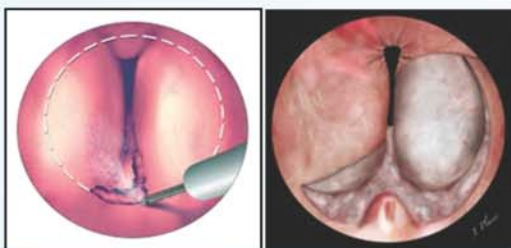
- ▶ “Laser” stands for light amplification by stimulated emission of radiation
- ▶ Four types of laser can be used to treat prostate
 - Nd : YAG Laser – 1064 nm, deep penetration, coagulation, good haemostasis, but prolonged healing
 - KTP Laser - 532 nm, an intermediate level of coagulation and vaporization, also causes tissue desiccation
 - Ho YAG Laser - 2100 nm pulse laser, produces cutting effect by vaporization of tissue water
 - Diode Laser - Efficient use of photons generated makes machine small and portable
- ▶ Methods of Delivery
 - End firing or contact lasers
 - Side firing
 - Interstitial
- ▶ Lasers can have effect on prostate either by coagulation or vaporization. Factors determining whether coagulation or vaporization occurs are power density of laser beam, total energy delivered and time for which it is applied.

HOLMIUM LASER ENUCLEATION OF PROSTATE (HOLEP)

Indications –

- ▶ All cases of enlarged prostate as alternative to TURP
- ▶ Large prostates where TURP is not possible and open surgery is the only option
- ▶ Patients on anticoagulants or anti platelet agents
- ▶ Patients on pacemaker where use of Cautery for TURP is contraindicated

Efficacy – Superior in producing relief of obstruction



development of adenocarcinoma prostate in patients lifetime

Outcomes - Chance of improvement of patients' symptoms after TURP is 88%. The magnitude of reduction in symptom score is 85%.

Mortality - Over the past 50 years there has been reduction in the immediate postoperative mortality rate associated with TURP. Presently mortality rate noted at 30 days related to surgery is nil

Present status – TURP is the choice of treatment for intervention in mild to moderate enlargement of prostate. TURP does not produce as good results as open prostatectomy, but it is not far behind.

Advantages

- ▶ Safe and effective with low complication rate
- ▶ Duration of catheterization less compared to TURP
- ▶ Reoperation rate is low
- ▶ Hospital stay is less
- ▶ Amount of tissue removed is more
- ▶ No Risk of TUR Syndrome

Limitation - Operative time is prolonged

Complications - Incontinence of urine slightly more than TURP but is treatable, all other complications are less than TURP

Present status - HOLEP is an option other than TURP and open surgery for treating symptomatic BPH with promising results.

OTHER LASER PROCEDURES

Transurethral Ultrasound-Guided Laser-Induced Prostatectomy (TULIP) - First Laser procedure to be introduced, had high complication rates & reoperation rate and complicated instrumentation. Presently not in use

HOLAP & HOLRP – Modification of HOLEP, where instead of enucleation, ablation or resection of prostate is done using Holmium laser

Photoselective vaporization of prostate (PVP) - uses a high-power KTP or Greenlight laser, useful for patients on anticoagulants, however produces only cavity and does not remove complete adenoma, used at select centers only.

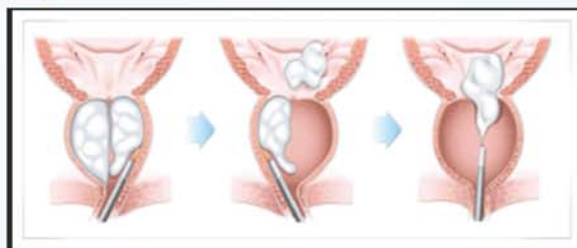
Visual laser ablation of prostate (VLAP) – Not in use presently as was suitable for moderate size prostate only with high retreatment rate and prolonged catheterisation required.

Transurethral evaporation of prostate (TUEP) - uses Nd : YAG laser, presently not in use as high complication rate.

Transurethral interstitial laser coagulation (TUILC) - uses Nd : YAG and/or diode laser, presently not much in use

Thulium laser prostatectomy – Used at select centre only

PROCEDURE



OTHER MINIMALLY INVASIVE OPTIONS

TRANSURETHRAL INCISION OF PROSTATE (TUIP) - Described by Orandi in 1973, it is useful for small prostate with obstruction in a young patient. It is quick, technically easier, associated with less morbidity and decrease in retrograde ejaculation.

BIPOLAR TURP (SALINE TURP) - TURP uses monopolar current with 1.5% glycine as non hemolytic fluids for irrigation. Concerns about TUR syndrome have led to introduction of bipolar TURP which uses normal saline as irrigation. Used at select centers only as special bipolar generator is required.

TRANSURETHRAL NEEDLE ABLATION OF PROSTATE (TUNA) - Heat treatment in excess of 60° C to induce necrosis of prostatic tissue. TUNA uses low level monopolar radiofrequency (RF) of about 490 kHz that is delivered by needles into prostate. It is simple to perform under local anesthesia with minimal sexual side effects. It is useful for prostate up to 60 grams and lateral lobe enlargement. However it had high incidence of immediate post treatment retention, dysuria and high reoperation rate in

long term. Not suitable for larger prostates, bladder neck hypertrophy or median lobe enlargement. Presently not in use.

TRANSURETHRAL MICROWAVE THERAPY (TUMT) – Heat treatment to prostate. Machines delivering higher power yield better results. Day case procedure under sedation, complication rate is low. Sexual side effects are low. However it is not as effective as TURP, symptomatic improvement seen in only 63%. Also has high complication rate. Presently not in use.

TRANSURETHRAL VAPORIZATION OF PROSTATE (TUVP) - Described by Kaplan in 1995, it combines concept of vaporization and desiccation. Used at select centers only.

OTHER TECHNOLOGIES – Not in use at present

Water-Induced Thermoablation, Transurethral Ethanol Ablation of Prostate, Roto resection of Prostate, balloon dilatation and high-intensity focused ultrasonography.

OPEN PROSTATECTOMY

Indications for open prostatectomy

- ▶ Massively enlarged prostate not suitable for TURP – However this indication is now replaced by HoLEP which can deal with any size of prostate
- ▶ Facility for endoscopic surgery not available
- ▶ Patient cannot be placed in lithotomy position for endoscopic surgery due to Ankylosis of hip joint

Advantages of open prostatectomy as compared to TURP

- ▶ Lower re-treatment rate
- ▶ More complete removal of prostatic adenoma under direct vision
- ▶ No risk of TUR syndrome

Disadvantages of open prostatectomy as compared to TURP

- ▶ Need for a lower midline incision
- ▶ Longer hospitalization and convalescence period
- ▶ Increased morbidity and mortality

Complications

- ▶ Urological
 - Bleeding – primary, reactionary or secondary
 - Incontinence of urine either urge, stress or total
 - Urinary extravasation
 - Urinary tract infection
 - Acute epididymo orchitis
 - Erectile dysfunction
 - Retrograde ejaculation
 - Bladder neck contracture
 - Urethral stricture
- ▶ Nonurological
 - Deep vein thrombosis
 - Pulmonary embolus
 - Myocardial infarction
 - Cerebrovascular event

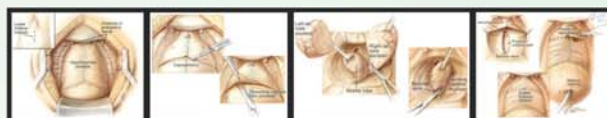
Approach :

- Retro pubic (Millin's prostatectomy)
- Supra pubic (Frayer's prostatectomy)

Retro pubic prostatectomy

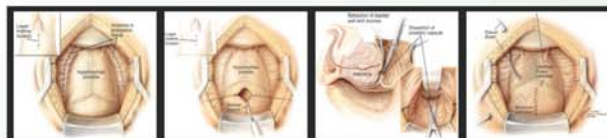
- ▶ Popularized by Terrence Millin in 1945.

- ▶ Enucleation of prostatic adenoma is achieved through a direct incision of anterior prostatic capsule
- ▶ Advantages over supra pubic approach are
 - Excellent anatomic exposure of prostate
 - Direct visualization to ensure complete removal
 - Precise transaction of urethra distally to preserve urinary continence
 - Visualization of prostatic fossa after enucleation to control bleeding
 - Minimal to no surgical trauma to urinary bladder
- ▶ Disadvantage of retro pubic approach
 - Access to bladder is not achieved



Supra pubic or trans vesical prostatectomy

- ▶ Popularized by Peter Freyer 1900.
- ▶ Enucleation of prostatic adenoma through an extra peritoneal incision of lower anterior bladder wall
- ▶ Advantage over retro pubic approach
 - Allows direct visualization of bladder neck and bladder mucosa
- ▶ It is ideally suited for patients with
 - Large median lobe protruding into bladder
 - Clinically significant bladder diverticulum
 - Large bladder calculi
 - Obese men, in whom it is difficult to gain direct access to prostatic capsule and dorsal vein complex
- ▶ Disadvantage
 - Direct visualization of prostatic apex is reduced with increased risk of urinary incontinence
 - Hemostasis may be more difficult



Present status – Though symptomatic and objective improvement is superior than other treatment options available including TURP, it is rarely used in present day practice due to high morbidity and mortality.

INTRAPROSTATIC STENTS

Introduction - Fabian (1980) first described use of stents in urology as less traumatic methods of treating BPH. Idea derived from use in cardiovascular system.

Indications - Patients who are unfit for surgery, to avoid prolonged urethral catheterization.

Types – Temporary and permanent

- ▶ Temporary Stents - Tubular devices designed for short-term use

- ▶ Non absorbable – will need to be replaced regularly
 - ▶ Biodegradable Stents – No need to remove but are costly
 - ▶ Permanent Stents – Self expandable devices for permanent use
- Complications - Epithelial hyperplasia, stent migration, irritative symptoms, painful ejaculation, encrustation, breakage, stress incontinence and bacteruria.
- Problems – High cost & high complication rate
- Present status - The role is limited.

SUMMARY

Presently TURP is better than most other minimally invasive therapies in terms of subjective and objective improvement. However search is on for alternative minimally invasive technique that will have less complications, less requirement for anesthesia and shorter hospital stay and if possible will be less expensive.

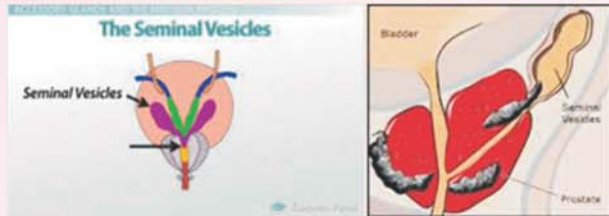
HoLEP is a good alternative to TURP in all cases and is particularly indicated in large prostates and patients who are on anticoagulants, anti platelet agents or on pace maker.

Open surgery is rarely required at present.

Rajeev Gandhi Jeevandayee Aarogya Yojna
Facility available

SEMINAL VESICLE (SV)

Dr Nagesh Nagapurkar



- 1) The SV are pair of glands that are positioned above prostate below the urinary bladder & lateral to vas
- 2) Each SV is folded on itself with approx 5 cm in length & 2 cm in width
- 3) Arterial supply- inf vesical/middle rectal A
- 4) Precursor-wolffian duct

Physiological function :

- a) Help to coagulate the semen with semenogelin -1 component
Poor coagulation mean poor motility of sperm
- b) The consistency of semen is related to SV function. The normal semen consistency is viscous High semen viscosity is associated with hypo function of SV
- c) It enhance sperm motility with postaglandism & K+
- d) Antioxidant in seminal fluid i.e superoxide dismutase catalase & glutathione peroxidase help for capacitation & sperm energy
- e) SV secrete antigen to prevent female immune response against spermatozoa
- f) Sperm chromatin stability

CLINICAL SIGNIFICANCE :

- 1) Clinically hypo function of SV give infertility
- 2) Inflammation of SV mostly caused by bacteria gives symptoms complex and most of the time associated with prostatism
 - a) Vague back or lower abdominal pain
 - b) Painful ejaculation
 - c) Hematospermia
 - d) Perineal & scrotal pain
 - e) Irritative & Obst. Urinary symptoms
- 3) Physical examination is difficult but may be palpated in chronic illness like TB

INVESTIGATIONS FOR ASSESMENT OF SV

- 1) SEMEN ANALYSIS:

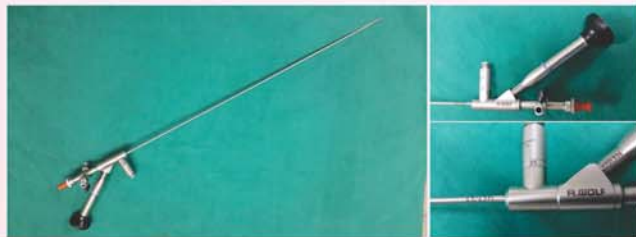
- a) PH- If <7.2 i.e acidic ejaculate associated with either duct obst. Or hypo functioning of gland
 - b) Corrected fructose level i.e base line seminal fructose level & after giving 100 mg of clomiphene citrate for 5 days & checking seminal fructose (corrected level)
 - c) Corrected fructose level of semen is biological marker of SV activity
- 2) SERUM TESTOSTERONE LEVEL: SV are androgen dependent low levels indicate hypo function
 - 3) TRANSRECTAL USG: Detect calcification size cyst & invasion by malignancy. It is diagnostic & prognostic for inflammatory condition.
 - 4) MRI : Rarely needed

DISORDER OF SV

- 1) Inflammatory- Seminal Vesiculitis/Abscess
- 2) Cyst of SV & Prostate which are embryonic remnant of Mullerian duct
- 3) Hypo function of SV – Infertility
It is due to blocked duct – cystic fibrosis, Trauma to post-hypogastric plexus
- 4) Tuberculosis:
 - a) Via haematogenous route
 - b) Both glands involved
 - c) Scarring & calcification with enlargement
- 5) Hydatid cyst- Rare
- 6) Tumour-Rare

Treatment for Hypo function of SV

- A) Medical Treatment :
Medical treatment is effective in partial obstructive infection & Hypogonadism
 - a) Antibiotics/Antiseptics
 - b) HCG
 - c) Low dose testosterone
 - d) Clomiphene citrate
- B) Surgical treatment :
 - a) Consider in ejaculatory duct obstructive/abscess in SV.
 - b) Transurethral resection of ejaculatory duct.
 - c) TRUS guided aspiration.



New ornament in Jewellery box :

- Smallest size ureteroscope available in the world at present 4.5 - 6.5 F, Richard Wolf, Germany.
- Increases successful ureteroscopies, minimises failures, stone clearance rates high.
- Useful in pediatric, adolescent and adult ureteric stone management.

FACILITIES AVAILABLE

- | | | |
|---|------------------------------------|--------------------------------------|
| ▶ Endoscopic Treatment Of Stone In Kidney, Ureter and Bladder | ▶ Male Infertility | ▶ Central oxygen & monitoring system |
| ▶ Endoscopic Treatment Of Prostate (TURP) | ▶ Kidney Transplant | ▶ Uroflometry |
| ▶ LASER - 50 Watt, German Technology Auriga XL excellent energy source for all Urology applications | ▶ Laparoscopy | ▶ Ultra sonography Department |
| ▶ Female Urology | ▶ Video Endoscopy | ▶ Pathology Laboratory |
| ▶ Paediatric Urology (Endoscopy, LASER) | ▶ Well equipped Operation Theatre | ▶ Digital X-Ray Machine |
| | ▶ Multipara monitor, defibrillator | ▶ Lift & Generator facility |
| | ▶ C - arm X - Ray machine | ▶ Cashless Insurance facility |
| | ▶ Lithotripsy | ▶ 24 hrs Pharmacy |

First time in India with ODDS Technology Oral Controlled Delivery System

World's First Combination of Tamsulosin (0.4 mg) & Dutasteride (0.5 mg)

For Symptomatic BPH Clinically Uroselective Alpha₁ Blocker

In Patients with Symptomatic BPH

Superior Solution & Tabs For Urinary Stones

