MANAGEMENT OF PROSTATE ENLARGEMENT/BPH

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The prostate is a gland that sits below the bladder and wraps around the urethra (in males).
Normal Prostate

- **Function**
  - produces fluid in semen
  - helps to carry sperm out of the body

- A normal prostate is ~20-30 grams
  - about the size of a walnut
Prostate Growth

- Growth continues throughout a man’s lifetime
- Testosterone/DHT play a permissive role
  - Their presence is required for prostate growth, but does not cause BPH
- BPH is more common in older men
  - 18% in 40’s
  - 29% in 50’s
  - 40% in 60’s
  - 56% in 70’s
  - 88% in 80’s
  - 100% in 90’s
Risk Factors for BPH

- Male
- Aging
- Family history
- Heart disease
- Obesity (strongest predictor)
Enlarged Prostate

- a.k.a. BPH (benign prostatic hyperplasia)
- BPH tissue grows from the center of the prostate and pushes the normal prostate tissue outward (orange)
- Flow of urine from the bladder is obstructed by BPH tissue
- BPH is NOT cancer
BPH causes increased urethral resistance, resulting in compensatory changes in bladder function.

- Decreased diameter of the urethra causes a decreased urine flow rate.
- Increased pressure is needed to generate the same velocity of stream.
BPH Symptoms

- Weak stream
- Urinary frequency (I have to go all the time...)
- Urinary urgency (I have to go right now...)
- Urgency incontinence (I leak urine before I make it to the bathroom...)
- Urinary hesitancy (It takes a while for my stream to get started...)
- Sensation of incomplete emptying
- Nocturia (waking up at night to urinate)
- Intermittent stream (stream that starts and stops)
- Retention (I have to urinate, but I can't...)
  - A urologic emergency
Size Does **NOT** Predict Severity Of Symptoms

- We don’t know exactly who will get symptoms or why.
BPH Treatments: Medications

- **Alpha blockers**
  - Relax muscular tissue in the prostate to increase urinary flow
  - Ex. Flomax, Uroxatrol, Rapaflo, Hytrin, Cardura
  - Side effects: dizziness, fatigue, hypotension, edema, dyspnea, retrograde ejaculation

- **5 alpha reductase inhibitors**
  - Decrease the size/volume of the prostate to improve symptoms
  - Ex. Proscar, Avodart
  - Side effects: ED, decreased libido, decreased ejaculate volume, gynecomastia
When Medical Management Fails . . .
Indications For Surgery

- Kidney failure/Hydronephrosis
- Retention (acute*/chronic)
- Recurrent UTIs
- Bladder stones
- Blood in urine*
- Failed medical therapy
- Desire to be off medications
Additional Work-Up

- Cystoscopy (cysto)
  - Look into bladder with a camera
- Trans-rectal ultrasound (TRUS)
  - Measure prostate size
- Urodynamic studies (UDS)
  - Assess bladder function
- Urine culture
  - Rule out bladder infection/UTI
- Prostate biopsy (if indicated)
  - Rule out prostate cancer
Alternatives To Surgery

- Clean intermittent self-catheterization (CIC)
- Indwelling transurethral catheter (Foley)
- Suprapubic catheter (SP tube)
BPH Treatments: Surgery

- Enucleation (HoLEP)
- Resection (TURP)
- Vaporization (PVP or green light laser)
- Open surgery
- Office procedures
  - TUMT
  - TUNA
  - Urolift
  - Spanner
- Embolization
- Robotic simple prostatectomy
Resection

- Transurethral resection of the prostate (TURP)
- The gold standard for comparison
- Scrapes out the inside of the prostate with an electrocautery loop
- Overnight hospitalization with a catheter
- Trial of void the following morning
- ~10-25% of patients discharged with a catheter (short term) for failure to void on POD#1
- 90% of patients have improvement in their symptoms
- Complications (11%)
  - Blood transfusion, infection, re-operation, failure to void
Resection
Vaporization

- PVP or Green Light Laser
- Heats the prostate to 100°C to vaporize/boil the tissue away

**Advantages**
- Decreased risk of post-op bleeding/need for blood transfusion
- Patients on anticoagulation may benefit

**Disadvantages**
- Higher re-operation rates for larger prostates (25% at 4 years)
- No tissue for pathology
Vaporization
HoLEP

- Holmium Laser Enucleation of the Prostate
- Minimally invasive procedure (no incision)
- A telescope is passed through the urinary opening
- A high-powered laser is used to "core out" the BPH tissue and push it into the bladder
  - Normal prostate tissue is left in place
- BPH tissue in the bladder is cut into tiny pieces and extracted through a morcellator device
  - All tissue removed is sent to pathology
- A catheter is placed to drain and rinse the bladder overnight
HoLEP

- The catheter is removed the next morning
- Patients typically go home after they urinate
  - ~24 hour hospital stay
What To Expect After Surgery

- Over 99% of patients are able to urinate after catheter removal
- The majority of patients have little or no pain
  - Some burning with urination for a few days
- Blood in the urine is common
  - Usually resolves within 7-10 days
  - Patients can return to normal activity after the urine is clear
- 25-30% of patients will have temporary leakage of urine
  - Typically resolves within a few weeks to months
- No change in erectile function or ability to have an orgasm
  - Retrograde ejaculation is common
What To Expect After Surgery
## Comparison Of Techniques

<table>
<thead>
<tr>
<th></th>
<th>Gland Size</th>
<th>Blood Thinners</th>
<th>Reoperation Rate</th>
<th>Overnight Stay</th>
<th>Detrusor Failure</th>
<th>Tissue Pathology</th>
</tr>
</thead>
<tbody>
<tr>
<td>HoLEP</td>
<td>No size limit</td>
<td>Some increased bleeding risk</td>
<td>0.7% at 10 years</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>TURP</td>
<td>&lt;80 grams</td>
<td>Highest bleeding risk</td>
<td>10-16% at 10 years</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>PVP</td>
<td>&lt;80 grams</td>
<td>Lowest bleeding risk</td>
<td>25% at 4 years</td>
<td>Sometimes</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
Advantages Of HoLEP

- Can treat any sized prostate
- Lowest reoperation rates
  - Need for additional procedures is rare
- Removes the largest amount of tissue
- Tissue can be examined by a pathologist afterward
  - Rule out cancer
- Almost everyone can urinate after catheter removal
- Excellent control of bleeding
- Short hospital stay
- Short catheter time
- Complication rates are very low
- Can be successful in patients who have failed other treatments
- Does not preclude future treatment for prostate cancer
THANK YOU