

Prostate brachytherapy - One learning curve or many?

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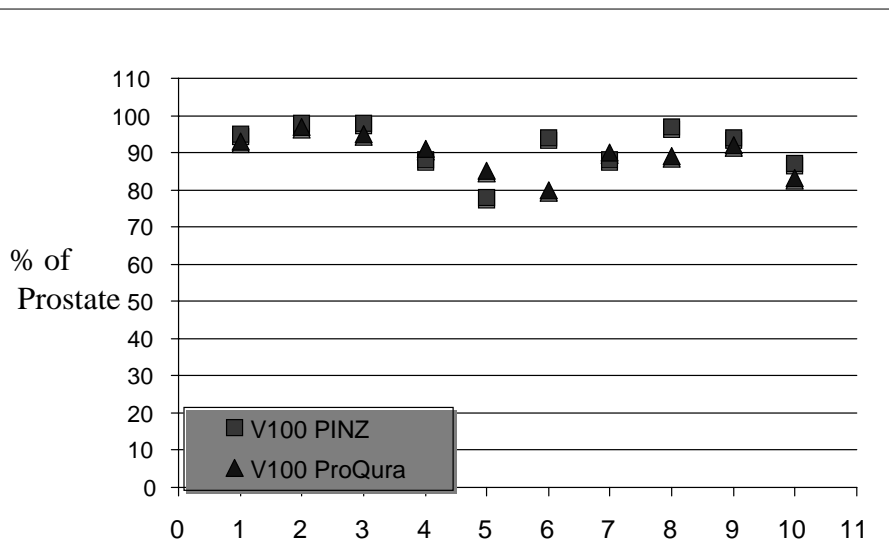
Summary

- There are many learning curves for TPPSI
- The length / difficulty of the learning curves vary
- Good outcomes are achieved faster with training and mentoring in all parts
- Mentoring and support is best when it extends beyond the initial implants

Overview of our program

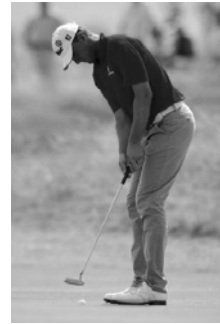
- Seattle Prostate Inst course 1999
 - Expert pre planning tuition
 - Needle loading
- Mentored volume study and initial 4 implants
- Review of pre plans, post implant CTs and post plans in Seattle April 2000 and 2001
- Post implant dosimetry correlation of 10 cases with Pro-Qura Sept 2000

V100 Comparison with Expert Standard



Parts of Golf

- Driving
- Pitching
- Chipping
- Putting



“Learn Golf in a Weekend”

- The golf grip.
- The golf swing.
- Reading the green.
- The scoring of golf.
- Golf etiquette.
- Club selection.



The parts of prostate brachytherapy

- Case selection
- Preimplant volume study
- Preplanning
- Seed strength verification / needle loading
- Implant
- Post implant CT assessment
- Symptomatic care
- Collaboration as a multidisciplinary team

Length of learning curves

- Shorter curves
 - Case selection
 - Symptomatic care
 - Seed verification
 - Needle loading



Length of learning curves

- Longer curves
 - Pre implant volume study
 - Implant



Length of learning curves

- Intermediate curves
 - Preplanning
 - Post implant CT assessment
 - Collaboration as a multidisciplinary team



Importance of ALL the parts

- Good outcomes occur when:
 - **All** parts of the process are done well
- Not so good outcomes can occur when:
 - Any **one** or more parts of the process is not done well

Case selection guidelines

- Urinary function
 - Low IPSS <10
 - Flow test
 - Q max > 10 ml/s sec
 - Unobstructed pattern
 - Small size < 50 cc
- Prognostic factors
 - low risk patients
- Pubic arch interference
 - < 25 - 33% coverage
 - < 1 cm at any point



Borderline Urinary function

- Learning
 - Limitation of IPSS
 - Irritative vs obstructive symptoms
 - Patient interpretation of IPSS
 - Poor flow test
 - “stage fright”
 - Overfull or under full bladder
- ➡
- Repeat flow test, Use of Voiding diary

Borderline pubic arch interference

- Learning
 - to interpret the pubic arch CT
 - to assess PBI at TRUS volume study
- ➡
- extended hip flexion and low probe angle
 - Draw PA on Vol study to see acceptable needle placement in a given patient

Borderline prognostic factors

- Learning when to offer implantation
- Options
 - Avoid Intermediate risk patients until consistently performing good implants
 - “Favorable” intermediate risk
 - < 30 % +ve Biopsies, Gleason 3+4=7 , PSA <10
 - Patterns of care survey as to current practice

Volume study learning curve

- Learning
 - To maintain good image base to apex
 - What to do when image is poor
 - Accurate measurement of length
- ⇒
- Good bowel prep - check at start
 - Correct probe pressure, angle
 - Good ultrasound probe cover / balloon
 - Rolling ultrasound probe

Volume study learning curve

- Learning
 - Accurate determination of base and apex
 - Accurate contouring
 - Pubic arch estimation
- ⇒
- Both Axial and sagittal imaging
 - Review Plane above and plane below
 - Pulling down of prostate due to “gripping” of the probe
 - Rechecking at end of procedure
 - Correlate with CT

Preplan learning curve

- Learning
 - Position of prostate on grid
 - Appropriate margins
 - Too hot vs too cold -
 - V150
 - Urethral dose
 - Easy to perform implants
 - Not too many different planes
 - Usual spacing without adjacent needles

Implant learning curve

- Learning to
 - Optimize the ultrasound image
 - Maintaining good image throughout
 - Identification of base
 - Adjust for changes in
 - base
 - height of gland
 - symmetry around the D / G row

Implant learning curve

- Learning
 - Needle steering
 - Implant the prostate not the grid - “image guided”
 - Avoiding high urethral dose
 - Avoiding high rectal dose
 - Posterior row
 - Sagittal imaging
 - Using a higher row if required

Post implant dosimetry learning curve

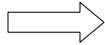
- Learning to
 - Identify base and apex slices
 - Identify prostate contour
 - Identify seeds
 - Assessment of dosimetry / implant quality
- ➡
- Use of volume study ultrasound as guide
 - Ratio CT/US volumes in Day 30 scans
 - Correlate with AP and Lateral scout views

Symptomatic care

- Learning
 - Management of Urinary symptoms
 - Alpha blockers / NSAIDS / Urinary alkalisers
 - Fluid management
 - Over drinking / Under drinking

Learning to be a multidisciplinary team

- Learning
 - Who is doing what and when
 - Volume study / Roles at implant / Planning



- Have a “Captain” of the ship
- Learn as much as possible about each other’s role
- Share roles
- Clear coordination of patient flow

Shortening the learning curves

- Precomissioning training in all parts
- Mentoring in all parts
- Ongoing expert support in all parts
- Prospective QA program /regular audit
- Workshops and updates

Learning prostate brachytherapy

- Training courses and Mentoring
 - Case selection
 - Implant
 - Volume study
 - Pre and post planning
 - Needle loading and seed verification
- Limited published data

“Prostate brachytherapy made complicated” Wallner et al 2nd Ed 2001

Suggested initial support

- Basic course / training in all parts
- Mentoring for initial volume studies and implants
- Parallel preplanning with expert
- Parallel post planning with expert
- Case specific feed back on how to improve

Until team happy with skills ? 10 + cases

Suggested extended support

- Periodic review of
 - Pre and post planning
- Opportunity to discuss problems
 - Individual patients
 - Systematic

Requirements for this approach

- Availability of this level of support
- Financial support for this approach

But...

only one chance to get it right for each patient

Conclusions

- There are many learning curves for TPPSI
- The length / difficulty of the learning curves varies
- Expertise is achieved faster with training and mentoring in all parts
- Mentoring and support is best when it extends beyond the initial implants