Non-palpable testis: Is management consistent and objective?

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Introduction

- Undescended testis (UDT)
  - 30% non-palpable
- Sonography
  - Unreliable

Introduction

- Contralateral hypertrophy
  - 90% predictive of absent testis
- Blind-ending vessels
  - 100% nubbin or no remnant
    - No germ cells

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Introduction

- Guidelines – AUA & EAU/ESPU
- NPT
  - No sonography
  - Diagnostic laparoscopy or open inguinal
    - If vessels are “blind-ending”, then no inguinal exploration is necessary

Hypothesis and Aims

- Hypothesis 1:

Surgeons are not following guidelines and evidenced-based literature

- Aim 1:

Assess patient and clinician variables that effect NPT management decisions.

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Materials & Methods

- Aim 1: Practice patterns
  - Surveys electronically sent
    - Surgeon region
      - Europe vs USA
    - Years in practice
    - Type of practice

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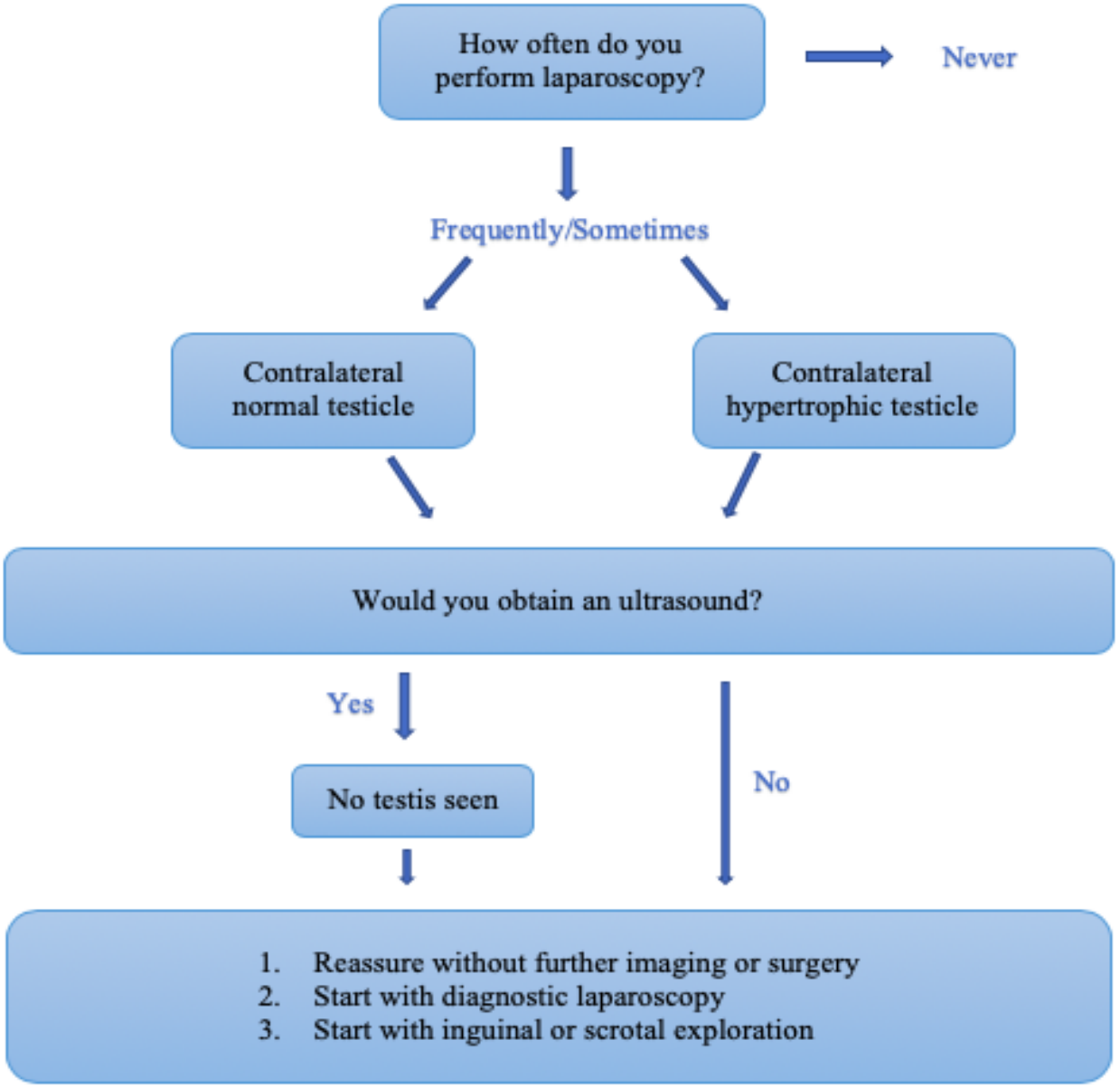
Aim 1



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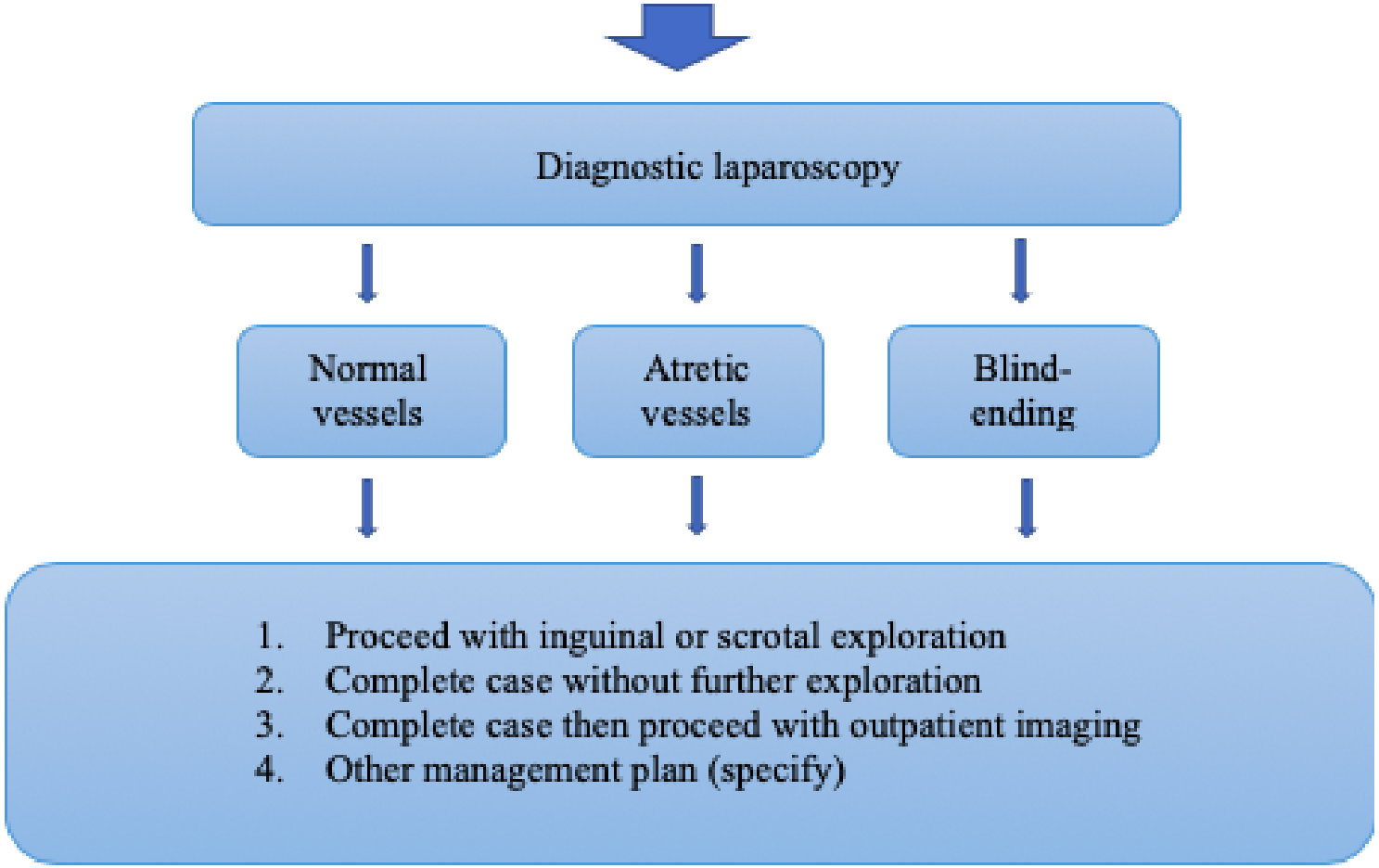
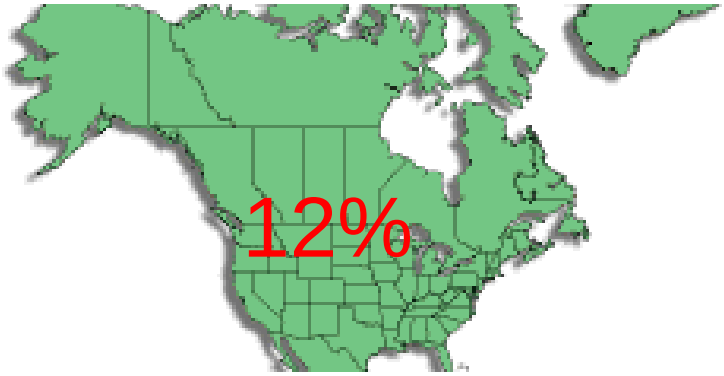
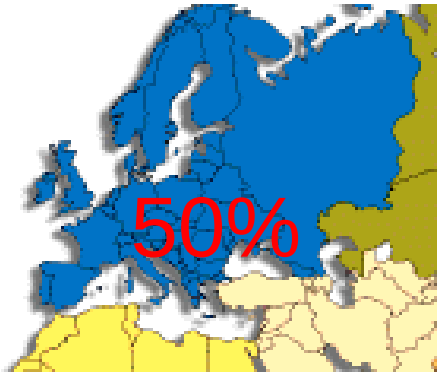
Aim 1


Diagnostic laparoscopy
Normal vessels
Atretic vessels
Blind-ending
1. Proceed with inguinal or scrotal exploration
2. Complete case without further exploration
3. Complete case then proceed with outpatient imaging
4. Other management plan (specify)

Aim 1- Results

- Participants – 339
- Ultrasound





- NPT
  - Laparoscopy – first step 81-97%

  Not associated with years in practice or type of practice

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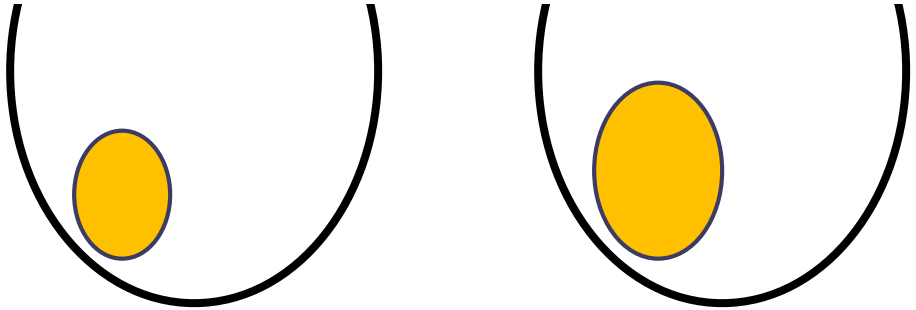
Aim 1 - Results

- Hypertrophic contralateral testis



  - 2% switched and chose sonography
  - 10% switched from diagnostic laparoscopy to open exploration

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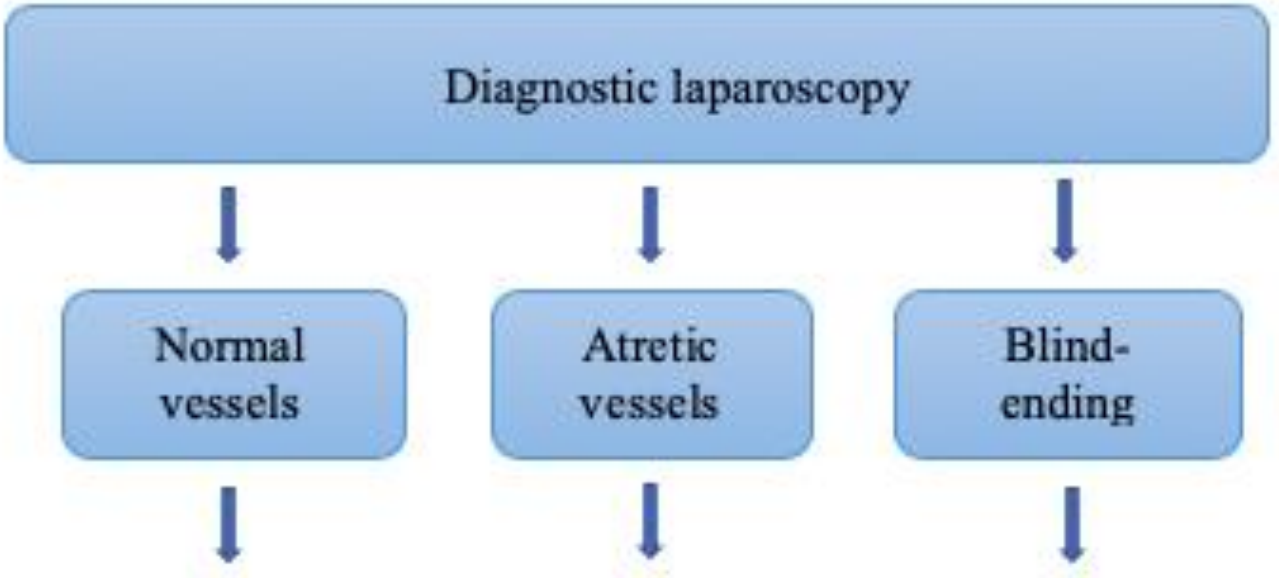
Vessel status



Inguinal exploration

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Vessel status

- Most important variable
- Is this variable objective?
- Time for another survey!

Hypothesis and Aims

- Hypothesis 2
  Interpretation of gonadal vessels is not reliable

- Aim 2
  Determine inter- and intra-reader interpretations

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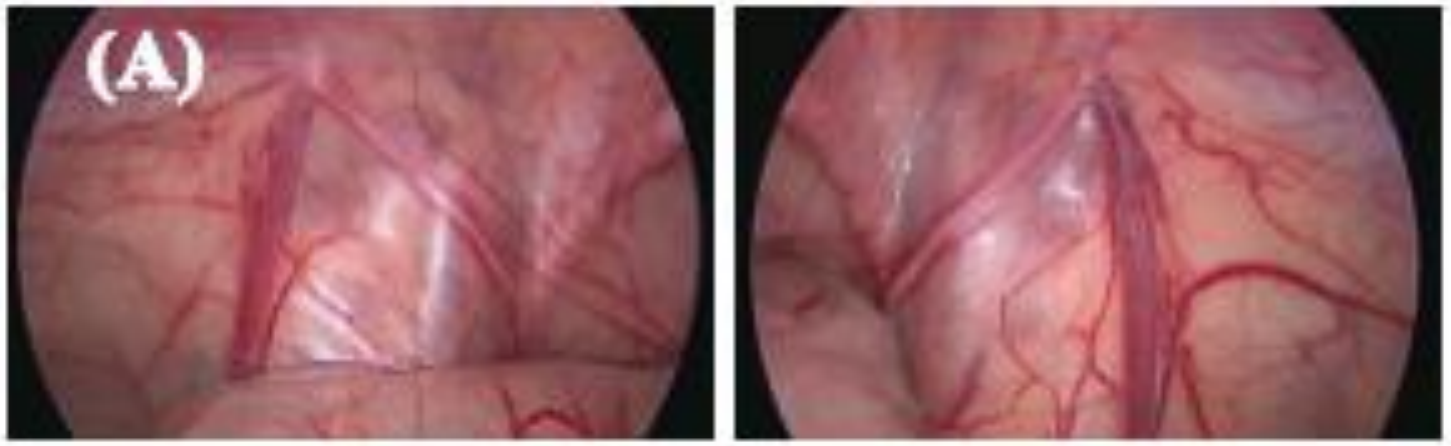
Methods

- Digital image survey
  - 32 consecutive cases with an absent intra-abdominal testis



Methods

- Digital image survey – 32 cases

L side – index

R side always normal

L side choose:
Normal
Atretic
Blind-ending

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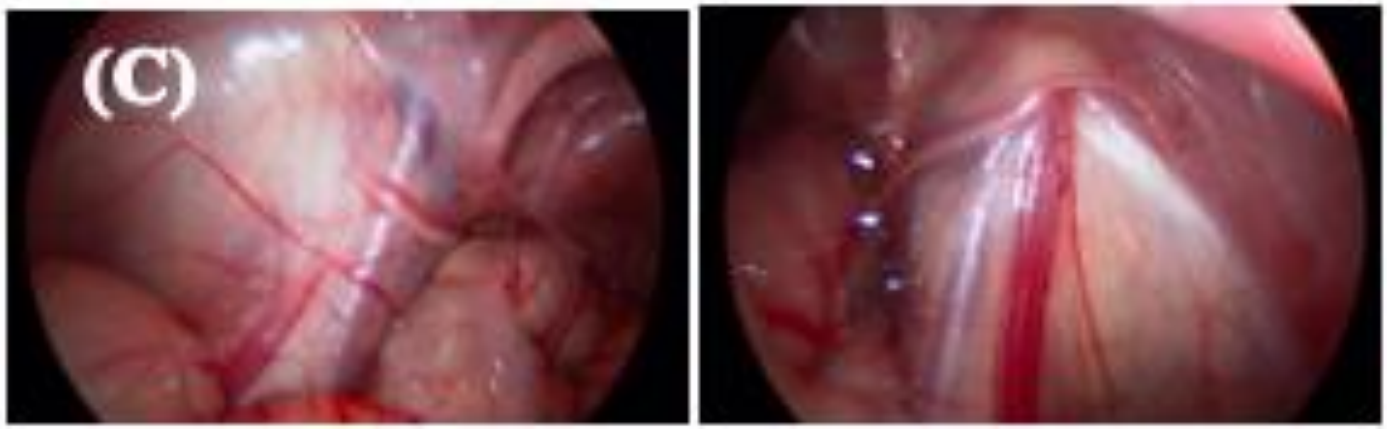
Digital image survey

L side – index

R side always normal



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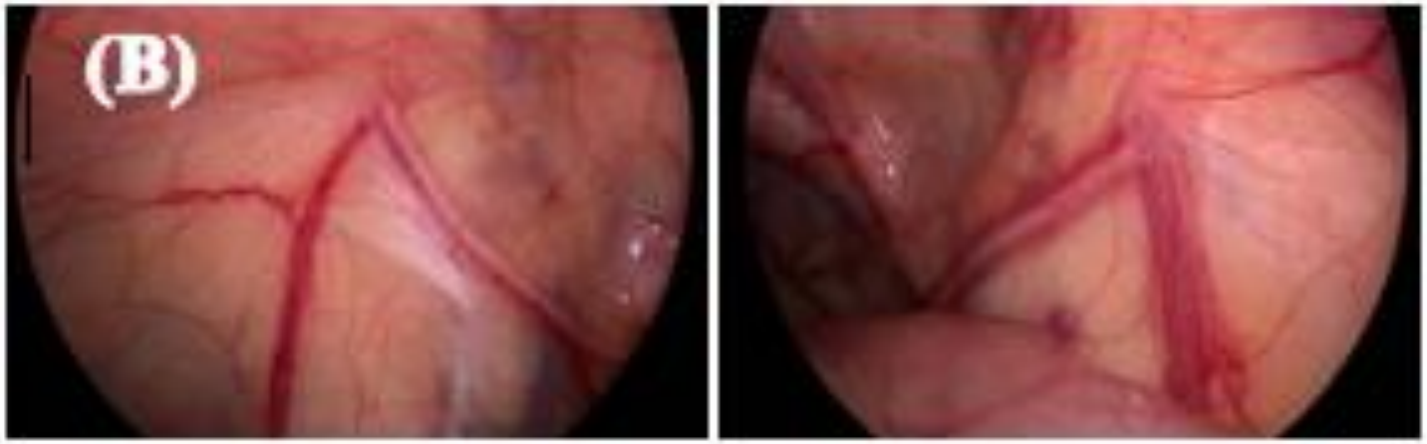
Digital image survey

L side – index

R side always normal



L side choose:
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Digital survey

- 32 consecutive cases
  - Inter-reader interpretations
- 18 cases repeated
  - Intra-reader interpretations (reliability)

- Agreement - Fleiss' kappa coefficient
  - perfect agreement, kappa = 1
  - no agreement, kappa $\leq$ 0.

Inter-reader agreement

- Participants – 116

- normal vessels – moderate agreement (K = 0.59)
- blind-ending vessels – (K = 0.42)
- atretic vessels – poor agreement (K = 0.27).

- More experienced urologists disagreed with each other's interpretations more often (P <0.001)

Intra-reader reliability

- normal vessels – moderate agreement (K = 0.50)
- atretic vessels – (K = 0.41)
- blind-ending vessels – poor agreement (K = 0.34)

- When the first interpretation was blind-ending, the same surgeon changed interpretation of the same image 39% of the time.

- There was no statistical difference by years of practice.

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Limitations

- Many

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Conclusions

- Europeans utilize sonography
- Absence of testis on sonography
  - no statistically significant impact on management decision
- Hypertrophy of the contralateral testis
  - no to minimal impact on management decisions

Conclusions

- Interpretation of testicular vessels has the most impact upon management decisions

- Assessment of vessels is subjective and poor
  - Validity
  - Reliability

- Thank you

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Discussion

- Use of sonography
  - U.S. pediatric urologists utilized sonography for NPT at a lower rate (12%) than European pediatric urologists (49%)
- Both guidelines support either diagnostic laparoscopy or inguinal exploration in the setting of NPT
  - <20% of participants chose inguinal/scrotal approach as the first choice for NPT
- The size of the contralateral testicle in the setting of a unilateral NPT has been utilized to predict monorchism (absent IAT).
  - <17% of participants chose to start with an inguinal/scrotal exploration when there was a contralateral hypertrophic testicle.
- Both guidelines recommend no further exploration in the setting of "blind-ending" vessels
  - Risk of leaving viable testicle tissue (malignant potential)
- AUA guidelines state that the identification of the testicular vessels should be the objective of any exploration for an NPT

- Sturm et al. reviewed 595 patients with NPT and 318 (53%) had an abdominal testis. Of 86 boys deemed to have atretic vessels entering a closed ring, two (2%) were found to have a normal testis. Of the 102 deemed to have normal vessels entering a closed ring, 17 (17%) were found to have a normal testis.17 This study was retrospective. Vessel status was recorded by the surgeon after surgery was completed hence vessel designation could have been influenced by inguinal findings. Of the 207 excised testicular

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