

INDICATIONS FOR TREATMENT OF THE ADOLESCENT VARICOCELE

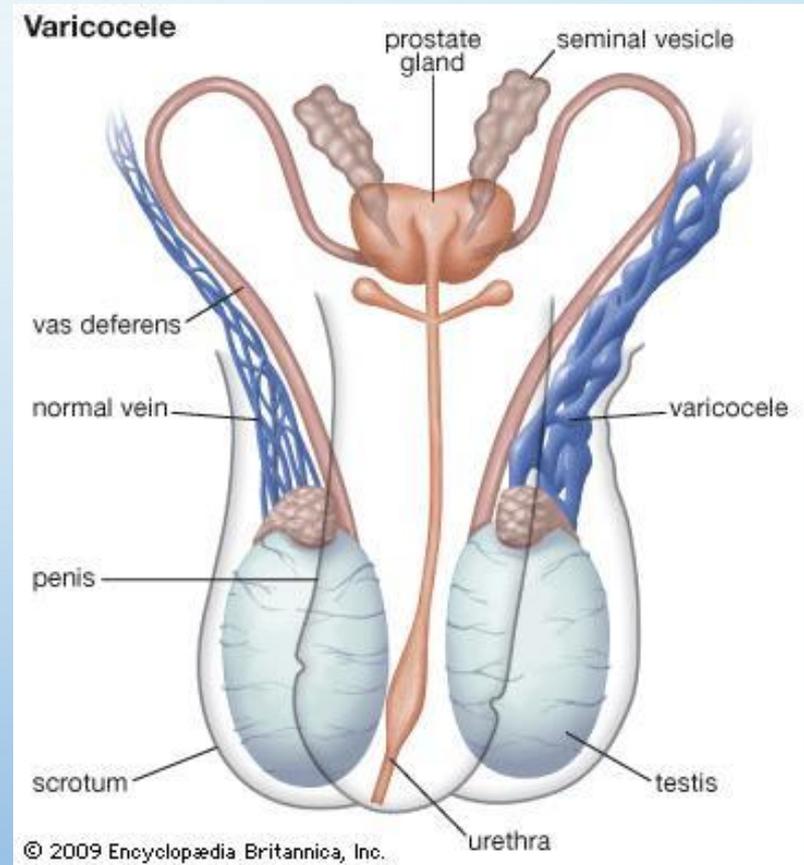
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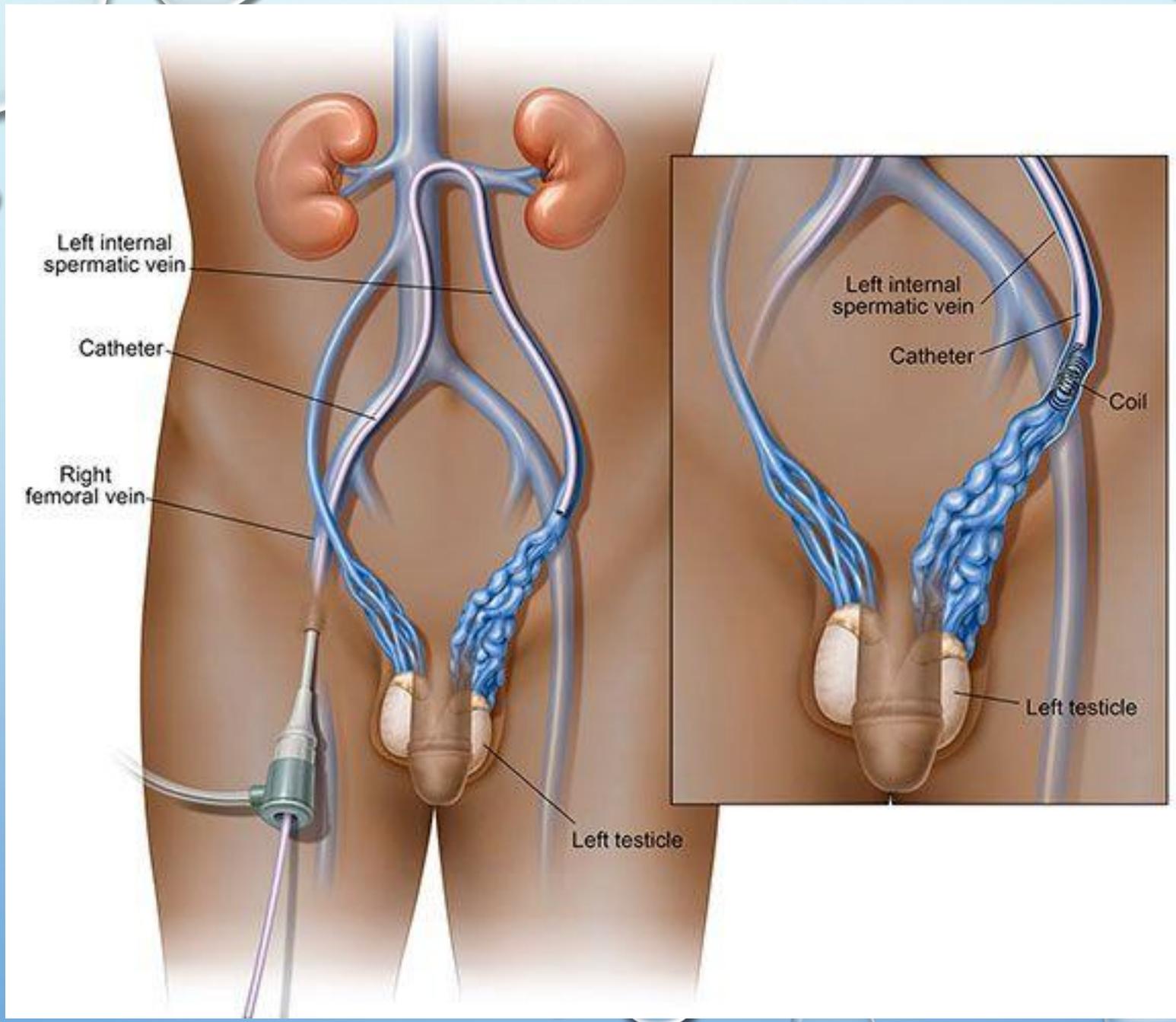
UROLOGY DEPARTMENT

CHILDREN'S HOSPITAL 2

INTRODUCTION

- **VARICOCELE: ABNORMAL DILATATION OF THE PAMPINIFORM PLEXUS OF VEINS OF THE TESTIS**
- **EXACT ETIOLOGY: REMAINS UNCERTAIN**
- **HYPOTHESES: RELATES TO THE ANATOMY OF TESTICULAR VASCULARISATION**
- **ANATOMICAL DIFFERENCES BETWEEN LEFT AND RIGHT VENOUS → PRIMARILY LEFT VARICOCELE.**





INCIDENCE

- **AGE-DEPENDENT**
- **BEFORE 10 YEARS OLD: LESS THAN 1% OF BOYS**
- **INCIDENCE INCREASES WITH AGE AFTER 10**
- **15-20% INCIDENCE IN BOYS OF ABOUT 14-15 YEARS OLD**
- **20-40% IN MEN WITH FERTILITY PROBLEMS**
- **LINK BETWEEN THE PRESENCE OF A VARICOCELE AND FERTILITY (REGARDING TEMPERATURE, VOLUME AND GROWTH OF THE TESTIS AND THE SEMEN ANALYSIS)**

DIAGNOSIS

- **PATIENT IN STANDING AND SUPINE POSITIONS**
- **CATEGORIZED INTO THREE GRADES (DUBIN AND AMLAR CRITERIA):**
 - **GRADE I: NOT VISIBLE IN SUPINE POSITION, PALPABLE ONLY WITH A VALSALVA MANEUVER IN A STANDING POSITION**
 - **GRADE II: NOT VISIBLE IN SUPINE POSITION, PALPABLE IN THE STANDING POSITION WITHOUT A VALSALVA MANEUVER**
 - **GRADE III, VISIBLE THROUGH THE SCROTUM IN THE STANDING POSITION WITHOUT A VALSALVA MANEUVER**

PREDICTING FUTURE INFERTILITY

- **VARICOCELE GRADE**
- **ASYMMETRIC TESTICULAR GROWTH**
- **TOTAL TESTICULAR VOLUME**

VARICOCELE GRADE

- **ADULT STUDIES, SHOWN THAT GRADE AND SIZE OF THE VARICOCELE ARE ASSOCIATED WITH IPSILATERAL HYPOTROPHY AND ABNORMAL SEMEN PARAMETERS**
- **DIAMOND *ET AL.* COULD NOT IDENTIFY ANY DIFFERENCE IN SEMEN PARAMETERS OR TESTICULAR VOLUME DIFFERENTIALS BETWEEN GRADE 2 VS 3 VARICOCELES**
- **ZAMPIERI *ET AL.* IDENTIFIED GREATER IPSILATERAL HYPOTROPHY AMONGST GRADE 3 VS GRADE 2 VARICOCELES**
- **MORI *ET AL.* WERE NOT ABLE TO IDENTIFY ANY DIFFERENCE IN TESTICULAR VOLUME OR SPERM INTEGRITY BETWEEN GRADE 2 AND 3 VARICOCELES IN ADOLESCENTS**

PERCENT ASYMMETRY

$$\% \text{ ASYMMETRY} = \left[\frac{\text{VOLUME OF RIGHT TESTICLE} - \text{VOLUME OF LEFT TESTICLE}}{\text{VOLUME OF RIGHT TESTICLE}} \right] \times 100$$

$$\text{VOLUME OF TESTICLE} = (\text{LENGTH} \times \text{WIDTH} \times \text{DEPTH}) \times 0.71 \text{ OR } 0.52$$

- MEASUREMENTS OBTAINED BY ULTRASOUND DEPENDING UPON WHO IS OBTAINING THE MEASUREMENTS
- → CUT OFF VALUES TO INDICATE A POSSIBLE FUTURE PROBLEM
- DIAMOND *ET AL.* FINDING 59% OF TANNER 5 BOYS WITH >20% ASYMMETRY HAVE A TMC OF LESS THAN 10 MILLION → CLEARLY ABNORMAL VALUE
- → USING ASYMMETRY AS A GUIDELINE FOR DETERMINING WHO SHOULD BE FOLLOWED AND WHO SHOULD UNDERGO SURGERY

SEMEN PARAMETERS

- **1991, HAANS *ET AL.* FOUND DECREASED TOTAL SPERM COUNTS IN 17 TO 20 YEARS OLD WITH A LEFT VARICOCELE AND IPSILATERAL HYPOTROPHY**
- **FIVE YEARS LATER, PADUCH AND NIEDZIELSKI IDENTIFIED STATISTICALLY SIGNIFICANT DIFFERENCES IN 17 TO 19 YEARS OLD WITH AND WITHOUT A VARICOCELE**
- **2002, CAYAN *ET AL.* DEMONSTRATED THAT VARICOCELECTOMY COULD CORRECT ABNORMAL SEMEN PARAMETERS IN 15 TO 19 YEARS OLD WITH A LEFT VARICOCELE, IPSILATERAL HYPOTROPHY AND ABNORMAL PRE-VARICOCELECTOMY SEMEN PARAMETERS**

INDICATIONS FOR VARICOCELECTOMY

EUROPEAN SOCIETY FOR PAEDIATRIC UROLOGY 2013

- **VARICOCELE ASSOCIATED WITH A SMALL TESTIS**
- **ADDITIONAL TESTICULAR CONDITION AFFECTING FERTILITY**
- **PATHOLOGICAL SPERM QUALITY (IN OLDER ADOLESCENTS)**
- **BILATERAL PALPABLE VARICOCELE**
- **SYMPTOMATIC VARICOCELE**

PATERNITY OUTCOMES

- **CAYAN *ET AL.*, ZAMPIERI *ET AL.*, AND MOURSY *ET AL.* FOUND AFTER TEENAGE VARICOCELECTOMY SEMEN ANALYSES BECAME NORMAL**
- **SALZHAUER *ET AL.* AND PAJOVIC AND RADOJEVIC FOLLOWING ADOLESCENT AND TEENAGE VARICOCELECTOMY → HIGH INCIDENCE OF PATERNITY**

CONCLUSIONS

- **STRONG RELATIONSHIP BETWEEN IPSILATERAL HYPOTROPHY AND ABNORMAL SEMEN PARAMETERS IN BOTH ADULTS AND TEENAGE BOYS WITH A LEFT VARICOCELE.**
- **ASYMMETRY AND SEMEN PARAMETERS CAN WORSEN WITH TIME**
- **BEST TO OPERATE EARLY WHEN THE INDICATIONS ARE APPROPRIATE: THE PRESENCE OF 15% OR 20% ASYMMETRY OR GREATER, OR TTV IS LOW FOR A PARTICULAR TANNER STAGE.**
- **WAITING UNTIL A TANNER 5 STAGE OR 17 OR 18 YEARS OF AGE IS REACHED WHEN IT IS EASIER FOR A PHYSICIAN TO REQUEST A SEMEN ANALYSIS LIKELY WILL YIELD ABNORMAL SEMEN PARAMETERS**
- **WAITING UNTIL AN INFERTILITY PROBLEM PRESENTS DOES NOT SEEM TO BE THE BEST OPTION**

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