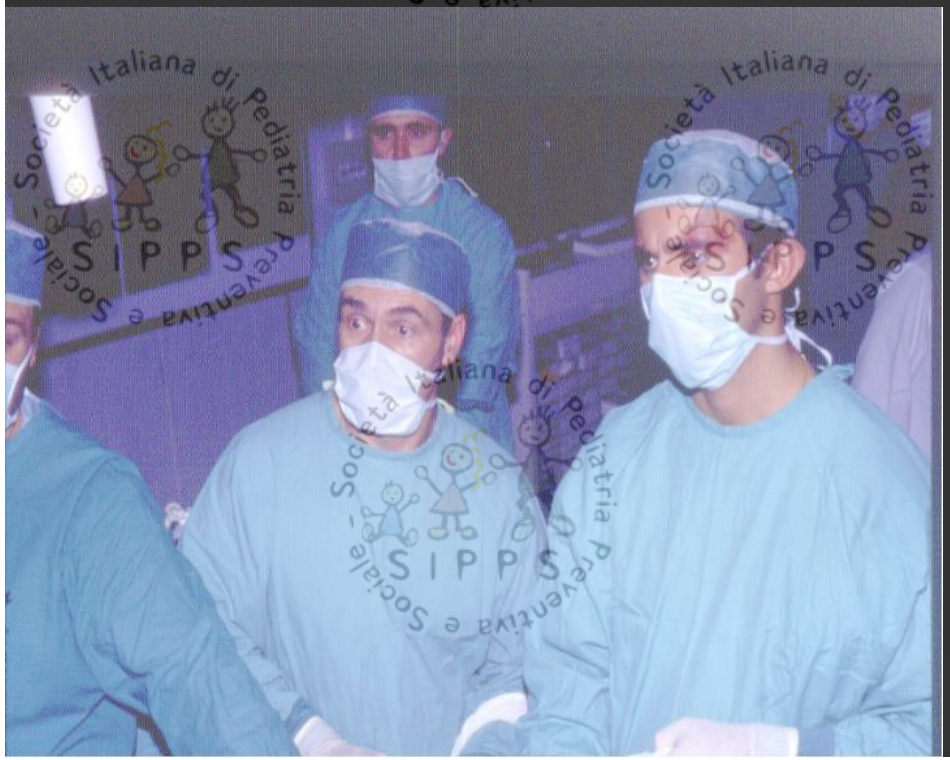
"Federico II" University, Naples Italy
Division of Pediatric Surgery
Chief: Prof Alessandro Settimi

Trattamento delle Uropatie Malformative della alte vie Urinarie

Ciro Esposito MD, PhD, MFAS


S.I.V.I.
Congresso Nazionale

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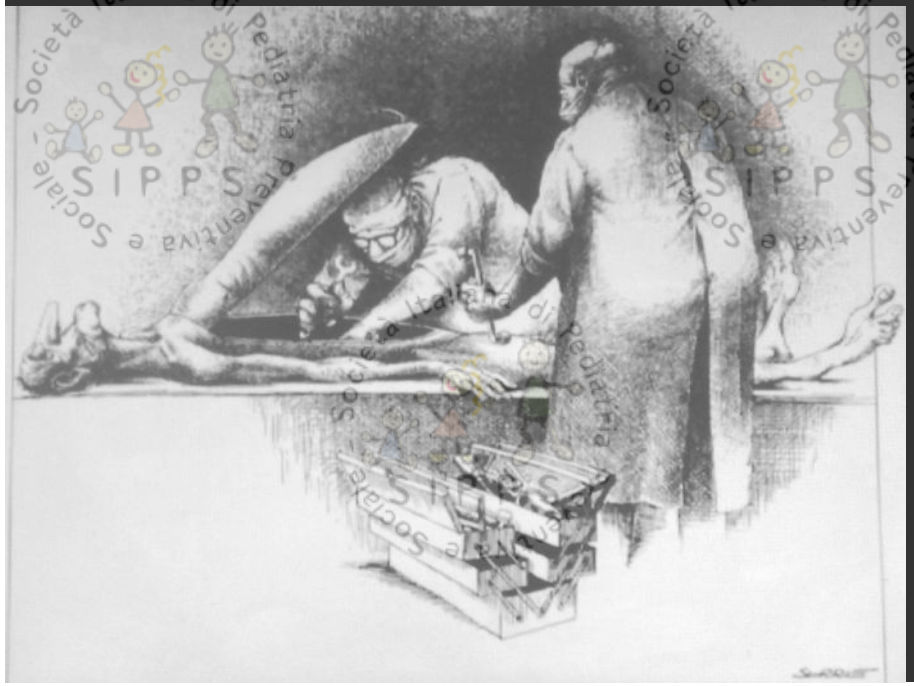
The Hotel is not responsible for clothes, luggage or any other valuables.

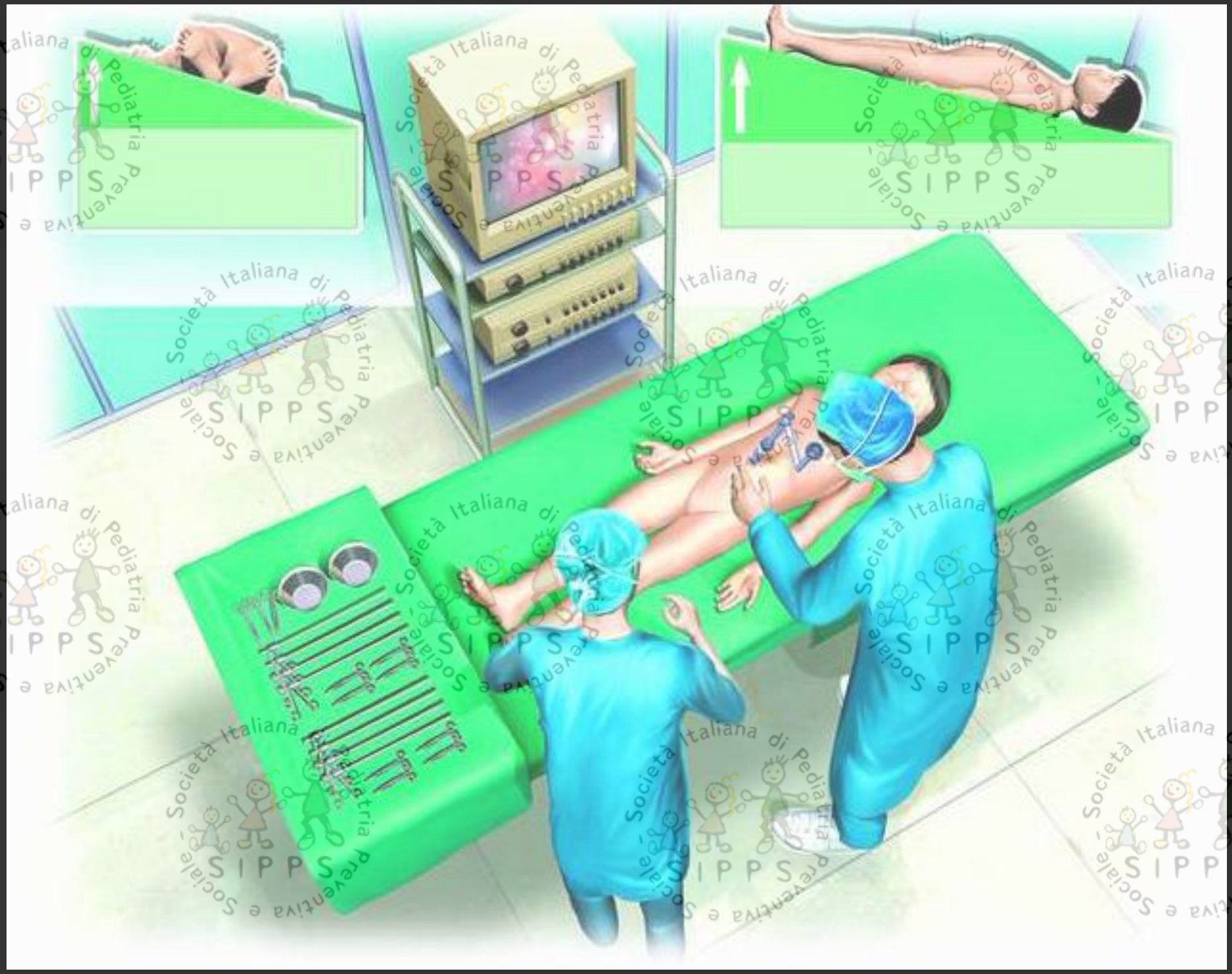
MIS

is an alternative approach to

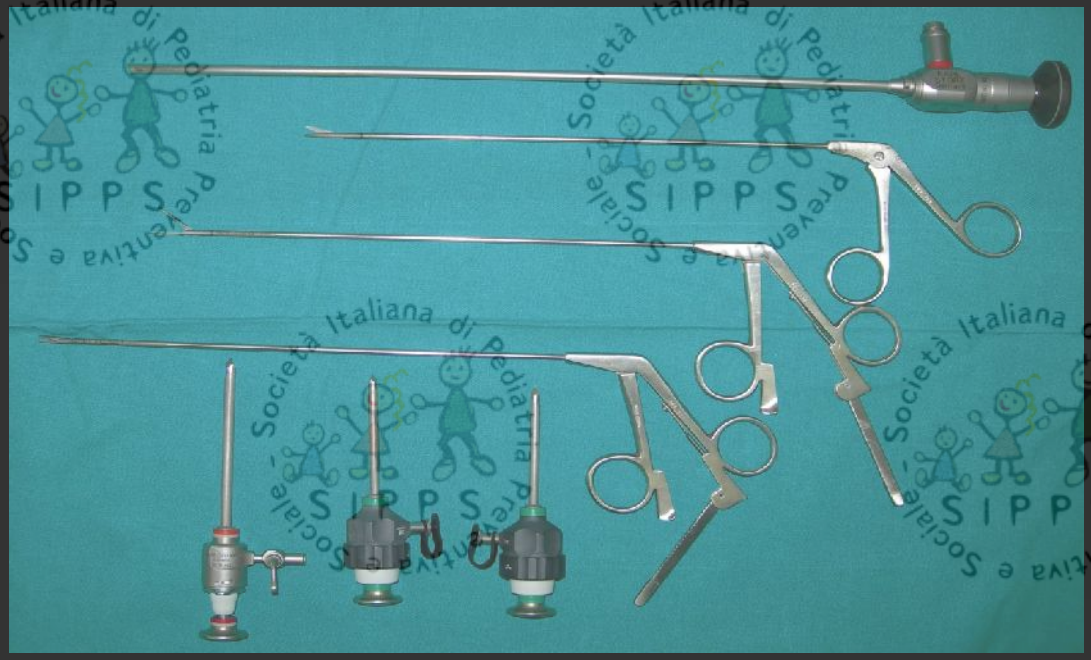
OPEN SURGERY

in Pediatric Urology

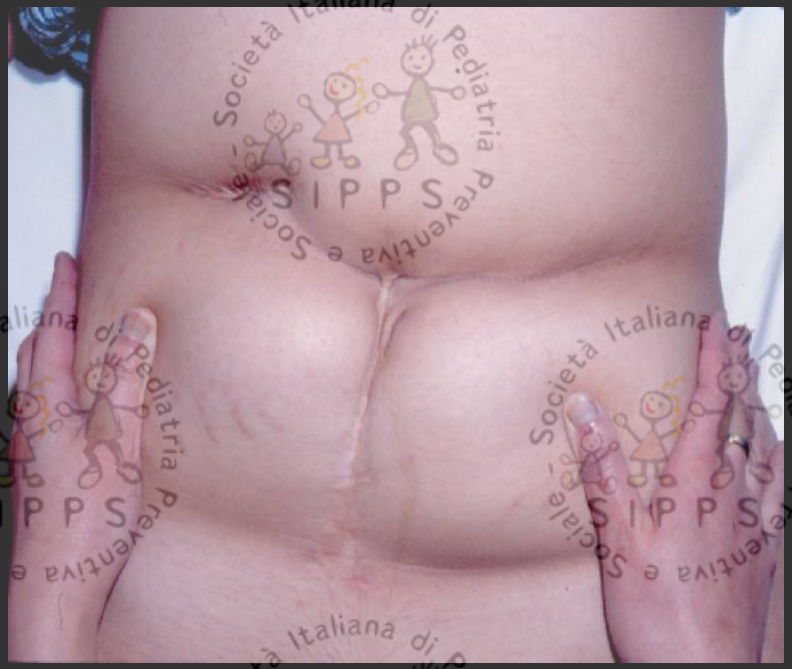


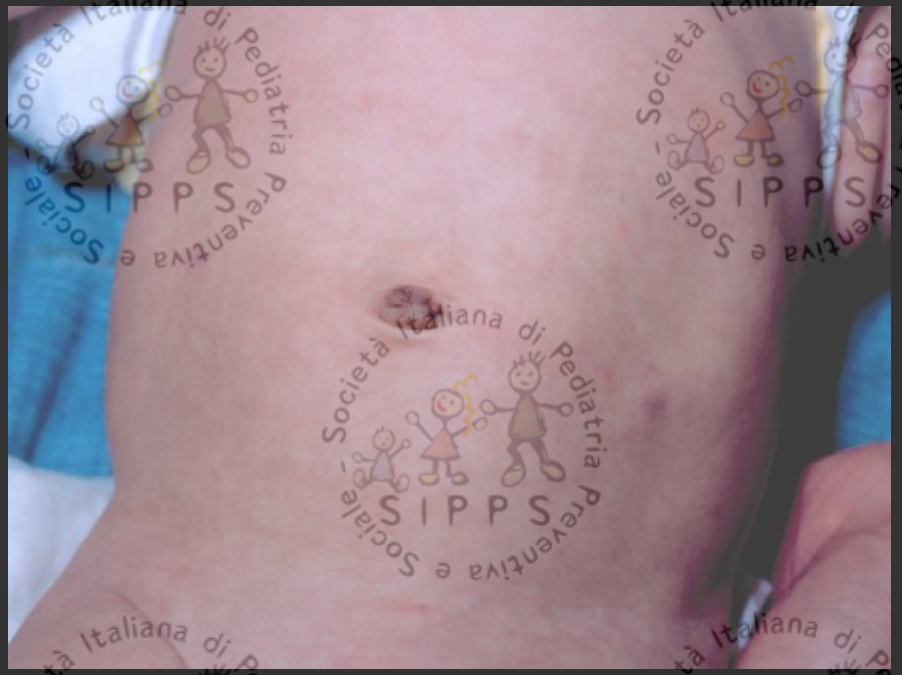


MIS Instruments



COSMETIC ASPECTS





LAPAROTOMY

LAPAROSCOPY

Urologia Pediatrica TORINO

- **Emilio MERLINI**
  Urologia Pediatrica
- Città della Salute e Della Scienza
- Torino

OPEN SURGERY IN PEDIATRIC UROLOGY : A JURASSIC APPROACH?

CONGENITAL HYDRONEPHROSIS

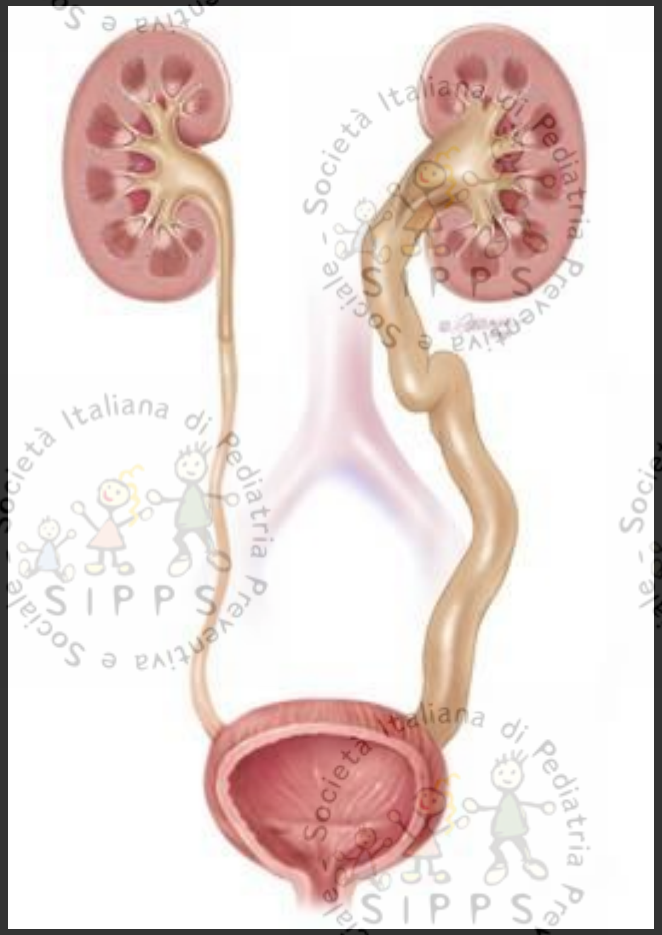
OPEN ANDERSON– HYNES PYELOPLASTY

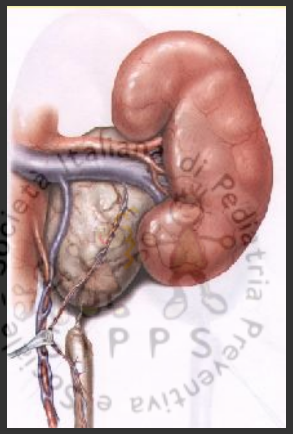
"GOLD STANDARD"
till … yesterday

Prof. Paolo Caione
Division of Pediatric Urology
"Bambino Gesù"
Children's Hospital –
Rome, Italy

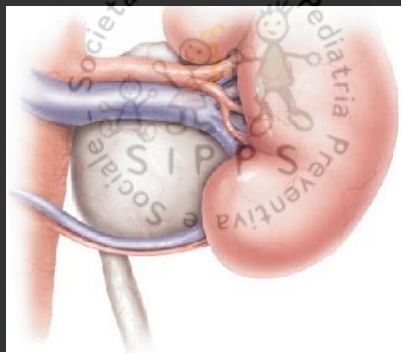
NEW VIDEOLAPAROSCOPIC
MINIMALLY INVASIVE TECHNIQUES
NOWADAYS OFFERED

Urinary tract pathologies

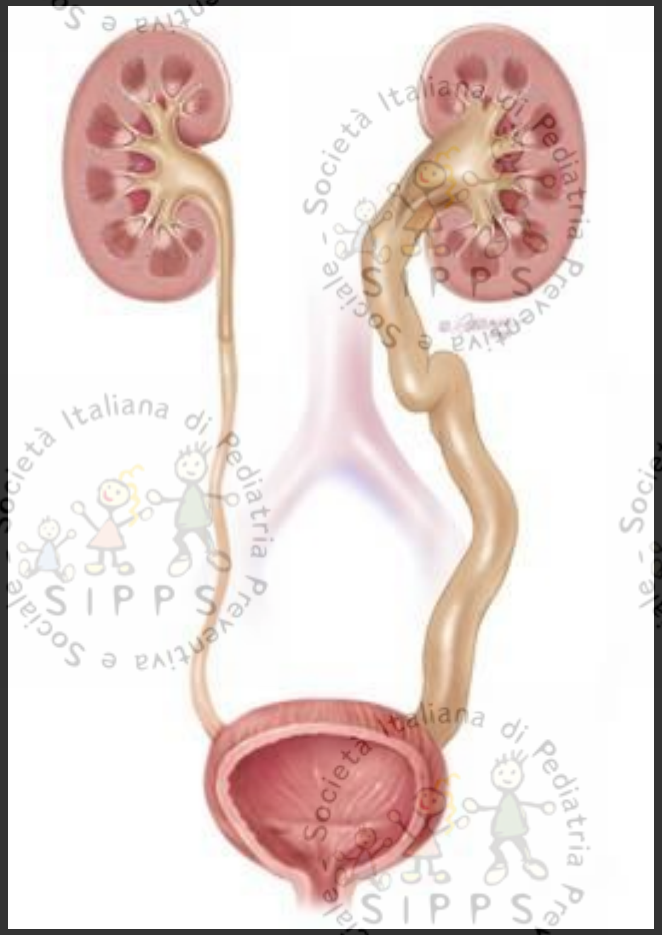


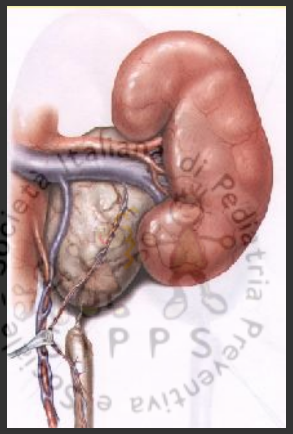


- VUR
- UPJO
- MKDK
- Non functioning Kidney
- Duplex Kidney
- Stones
- Urachal cysts
- Ureter pathology
-Adrenal patholgy



Urinary tract pathologies





- VUR
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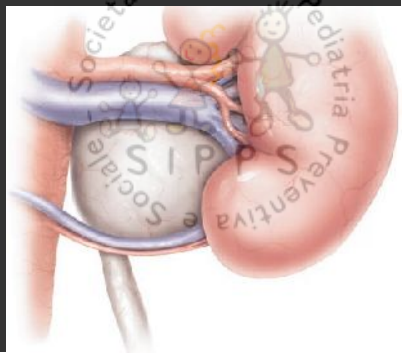


Non functioning Kidney

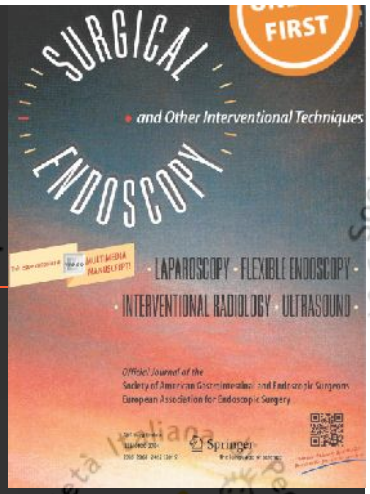
“Nephrectomy”

Nephrectomy

Indication

- Non-functioning kidney secondary to VUR
- Non-functioning kidney secondary to UPJO with an ureterostomy
- Pelvic Kidney
- Previous renal surgery
- Infections
- MKDK

Nephrectomy



- Kidney function at renal scan < 10%
- No age limit
- Laparoscopy it is considered the procedure of choice to perform pediatric nephrectomy
- Lenght of surgery about 60 minutes
- Hospital Stay: 2 Days

Twenty-year experience with laparoscopic and retroperitoneoscopic nephrectomy in children: considerations and details of technique

Ciro Esposito[1] · Maria Escolino[1] · Francesco Corcione[2] · Isabela Magdalena Draghici[3] · Antonio Savanelli[1] · Marco Castagnetti[4] · Francesco Turrà[1] · Mariapina Cerulo[1] · Alessandra Farina[1] · Alessandro Settimi[1]

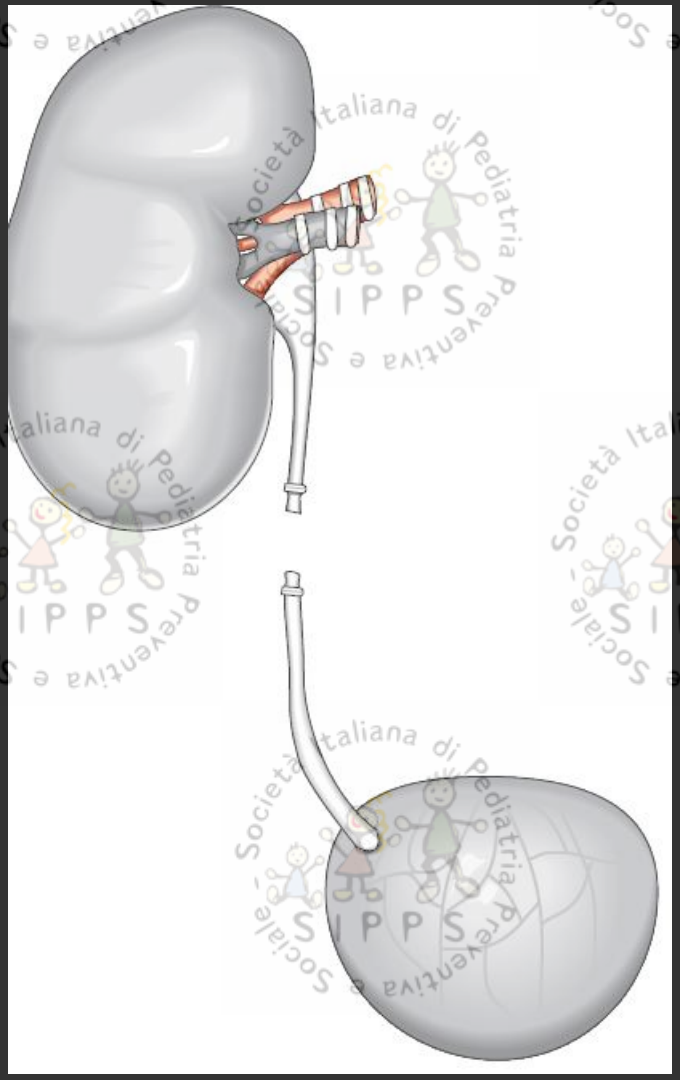
Trocars

1: 10mm

2: 3-5mm

3: 3-5mm

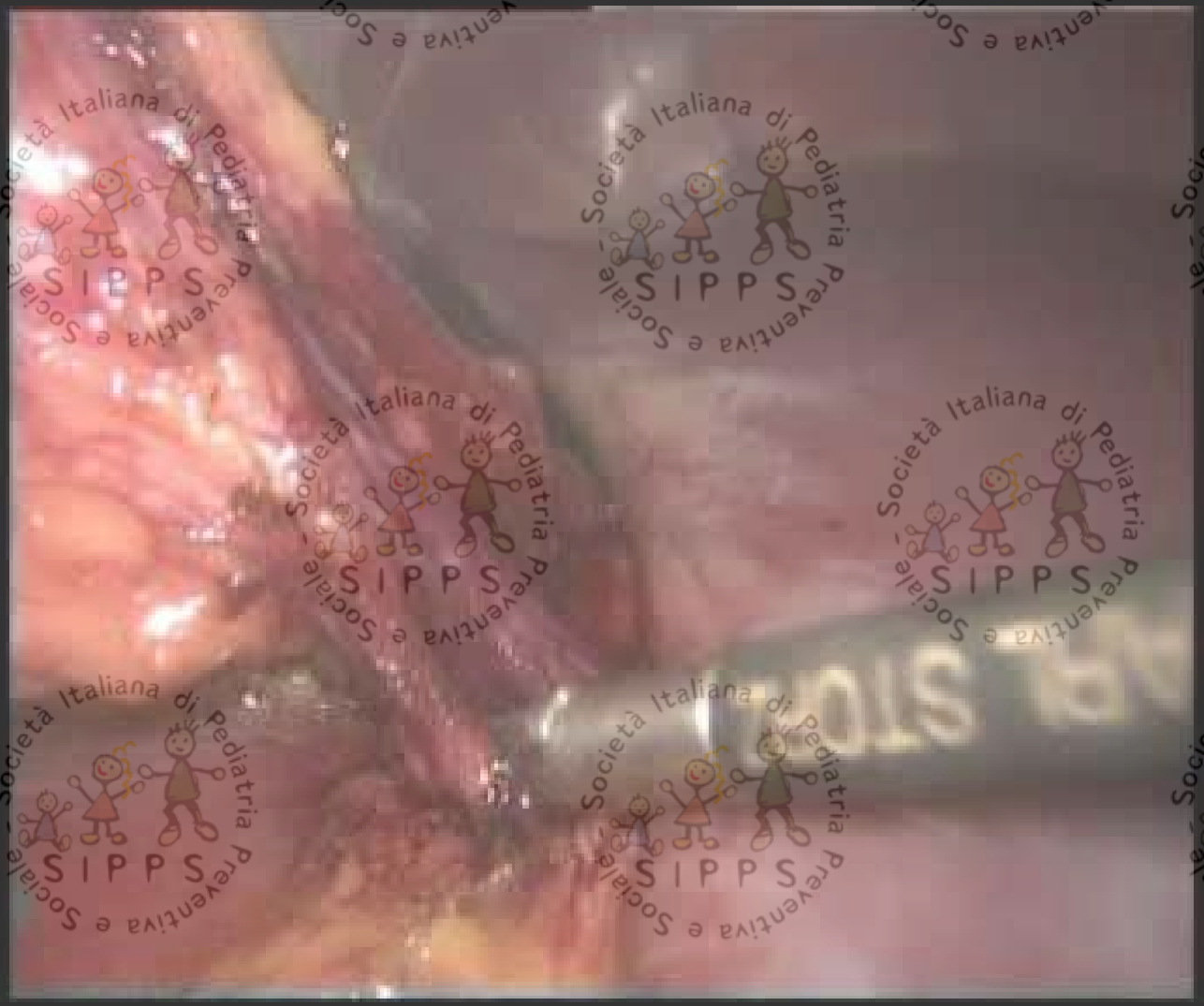
Step # 2

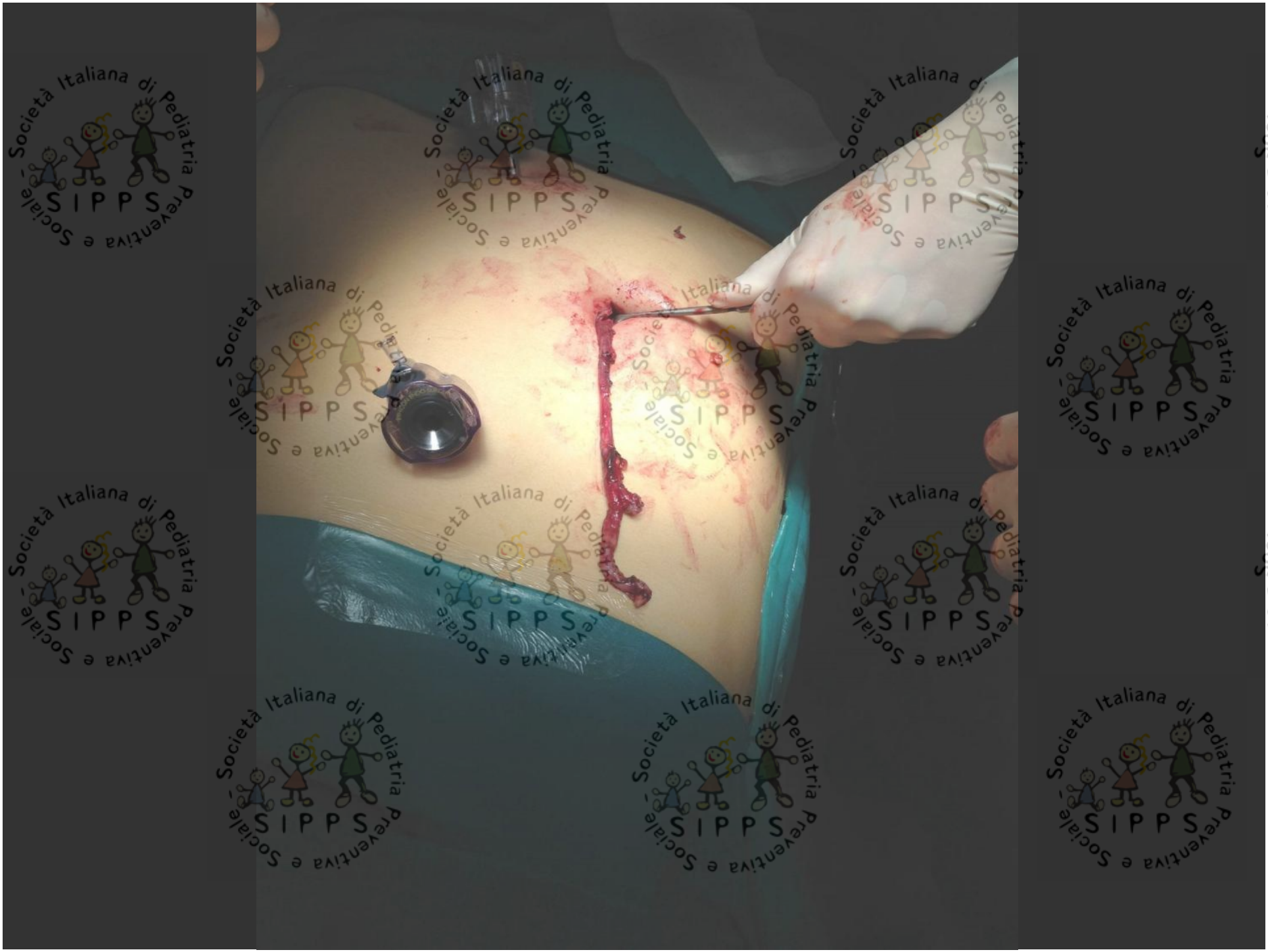


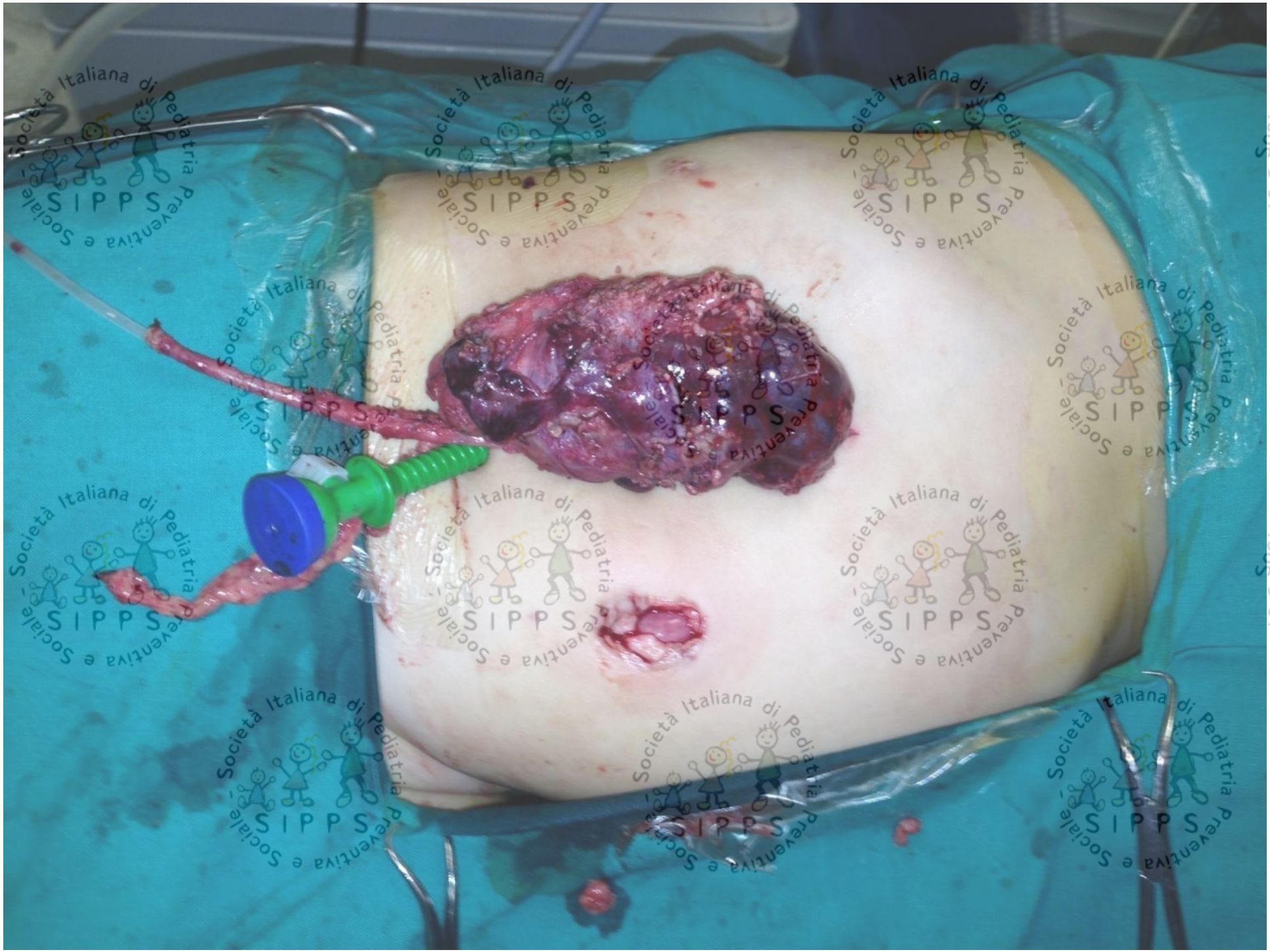
- Isolate Kidney and ureter
- Vessels clipped and sectioned
- Ureter clipped and sectioned
- Remove the Kidney

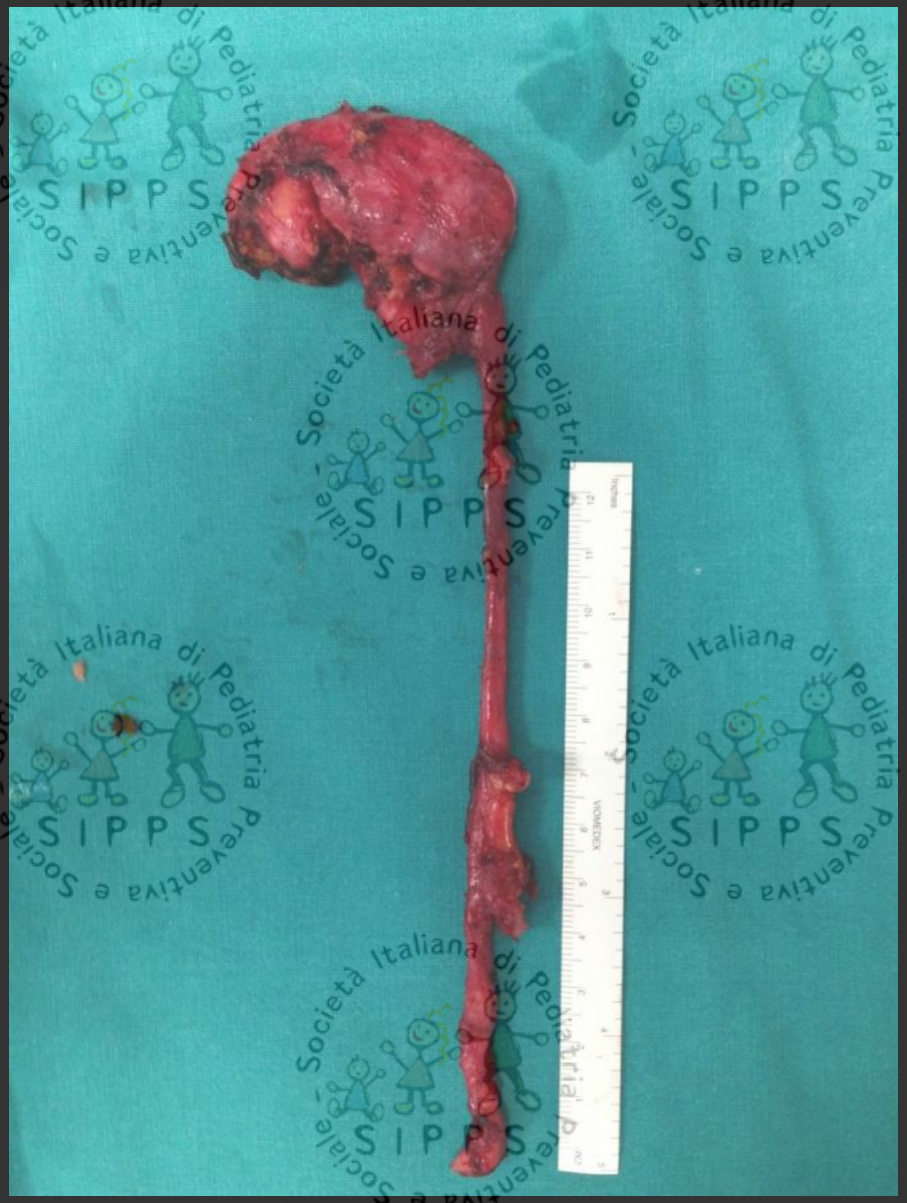
Step # 1 ureter

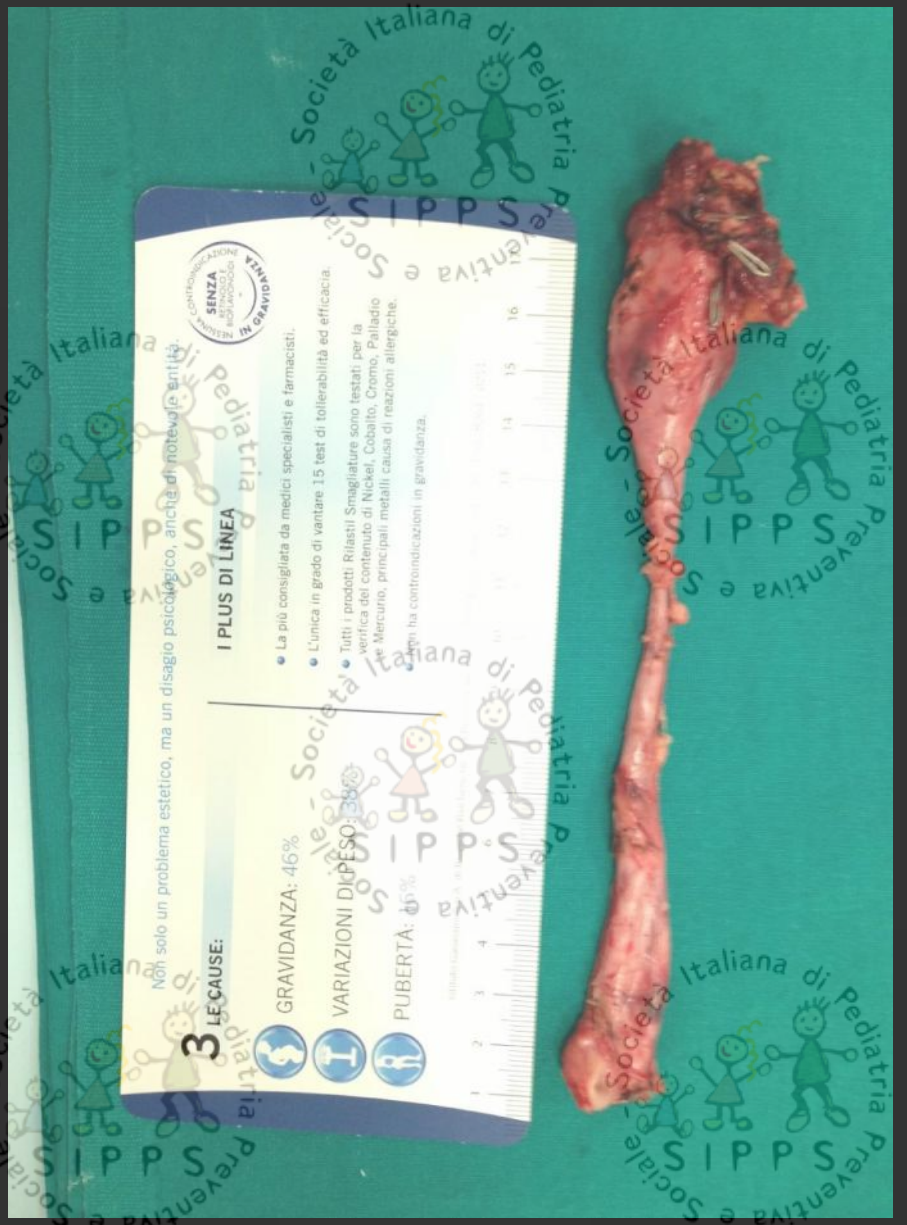
Step # 2 vessels







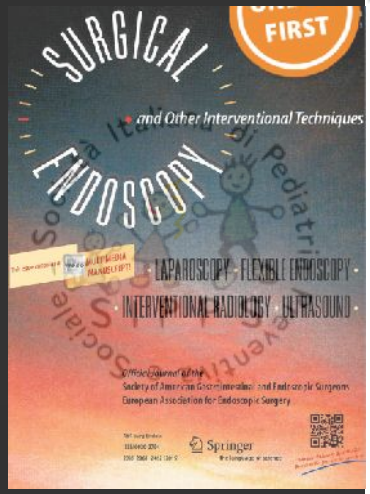




Results

Results We had no conversion in laparoscopy. As for RN, we had 2 conversions to laparoscopy at the beginning of experience due to peritoneal opening. Operative time varied from 30 to 130 min in laparoscopy (average 47 min) and from 60 to 150 min (average 78 min) in retroperitoneoscopy. We recorded 8 complications (5.3 %): 3 small bleedings (2 RN, 1 LN) during dissection, 2 peritoneal perforations during RN requiring conversion in LN, 1 abdominal abscess in case of xanthogranulomatosis pyelonephritis after LN requiring a redo surgery to drain the abscess, 1 instrumentation failure (LN) and 1 refluxing ureteral stump after RN requiring a redo surgery to remove it.

Conclusions LN is easier and faster to perform compared to RN. Complication rate was higher after RN compared to LN. In case of xanthogranulomatous pyelonephritis or other kidney infections or in case of previous renal surgery, retroperitoneoscopy is contraindicated. In case of VUR, LN is preferable to RN because it is fundamental to remove all the ureter. On the basis of our 20-year experience, we clearly prefer to perform nephrectomy using laparoscopy rather than retroperitoneoscopy leaving the indication to adopt RN only for the rare cases of MKDK.



Twenty-year experience with laparoscopic and retroperitoneoscopic nephrectomy in children: considerations and details of technique

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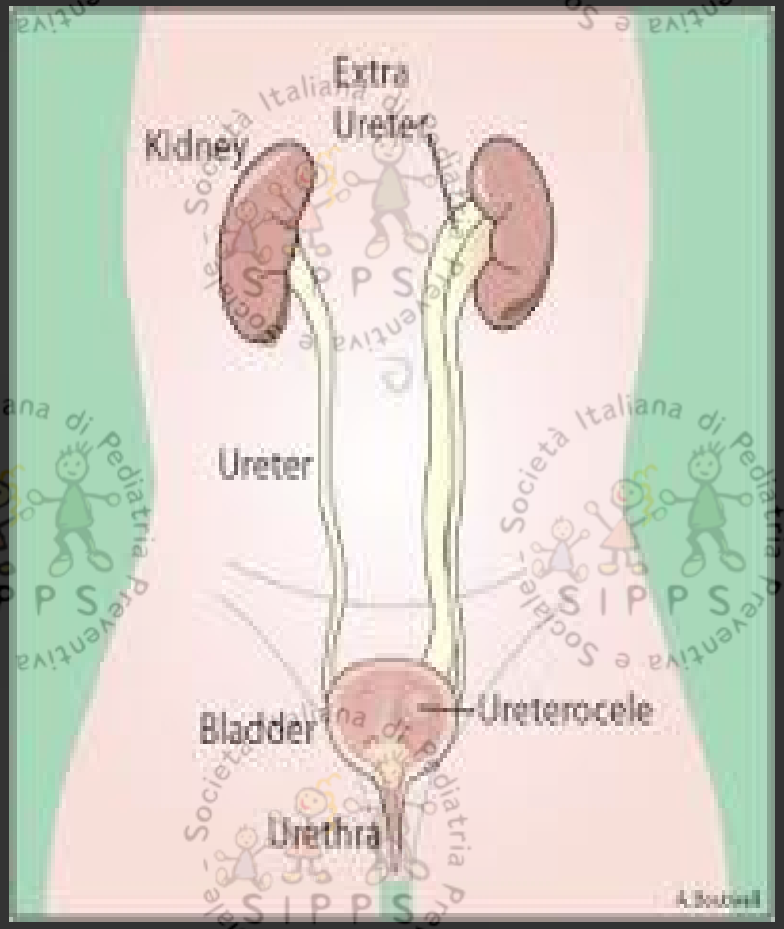
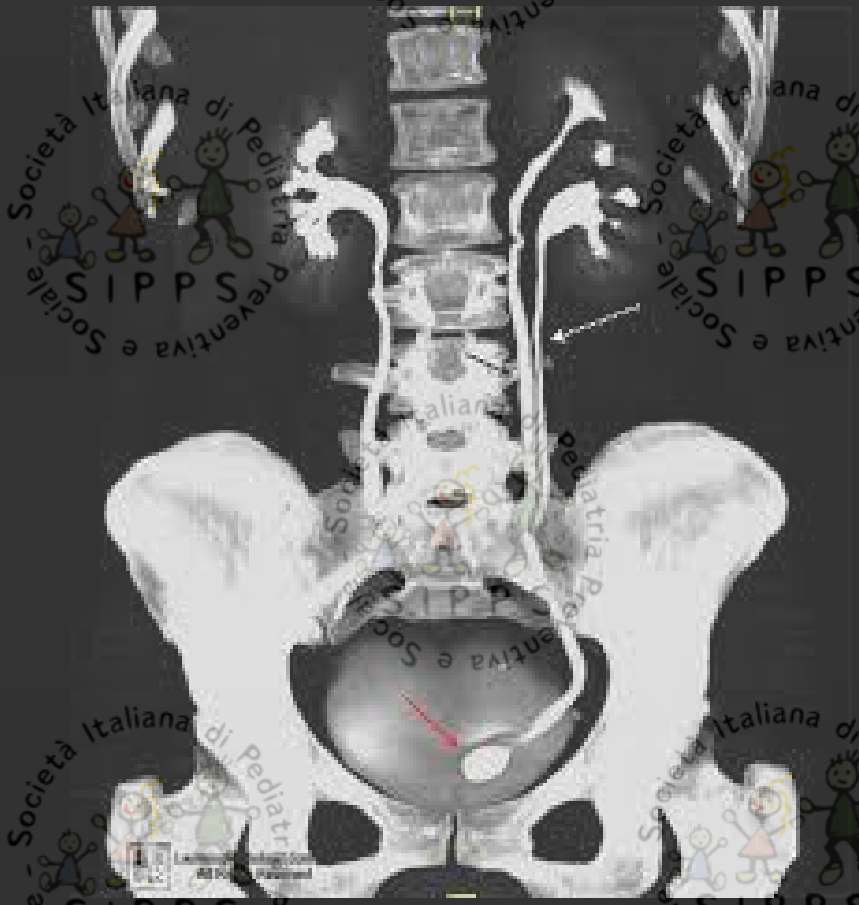
Duplex Kidney

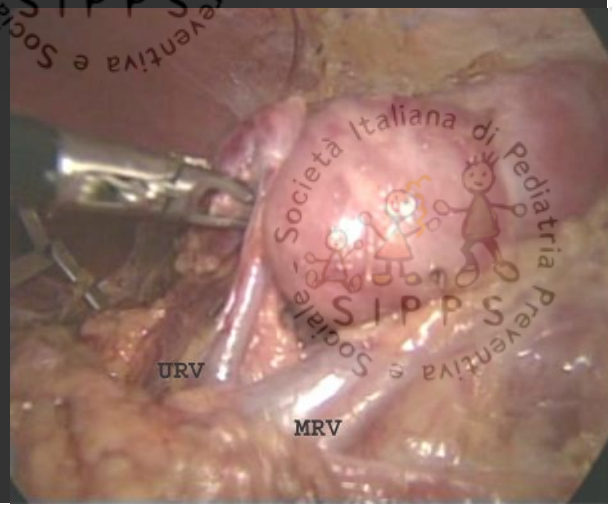




Partial - Nephrectomy

Indication

- Non-functioning upper or lower pole secondary to complicated duplex anomalies of the kidney
- The usual pathology of the upper pole is obstruction associated with a ureterocele or incontinence secondary to an ectopic ureter
- The usual pathology in the lower pole is reflux



Partial Nephrectomy

- Partial nephrectomy is technically more demanding than total nephrectomy
- Currently, this procedure is performed only in few pediatric surgey centers

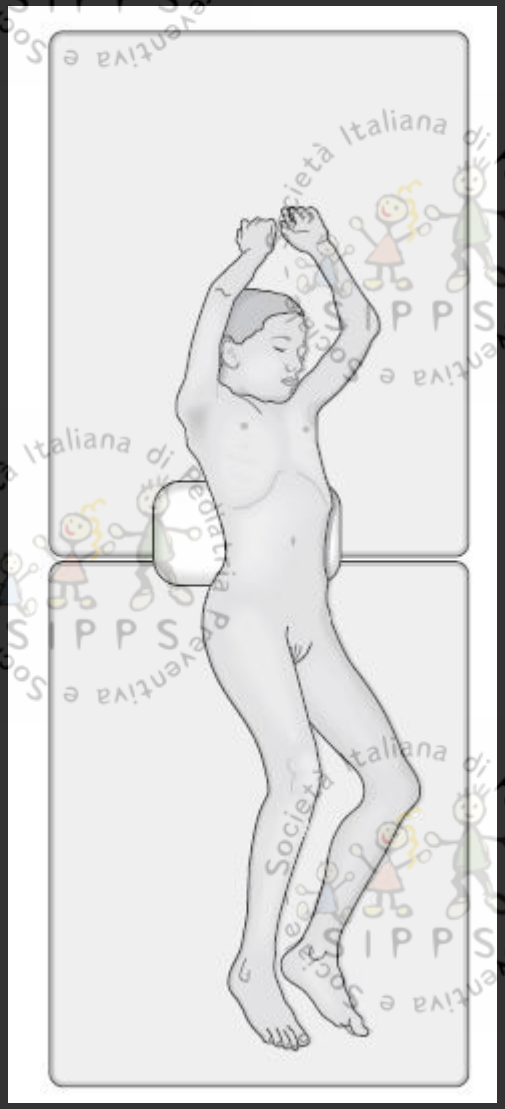
Laparoscopic partial nephrectomy in duplex kidneys in infants and children: results of an European multicentric survey

Ciro Esposito · Francois Varlet · Dariusz Patkowski · Marco Castagnetti · Maria Escolino · Isabela Magdalena Draghici · Alessandro Settimi · Antonio Savanelli · Holger Till

SURGICAL ENDOSCOPY and Other Interventional Techniques

LAPAROSCOPIC PARTIAL NEPHRECTOMY (LPN)

Patient's Position

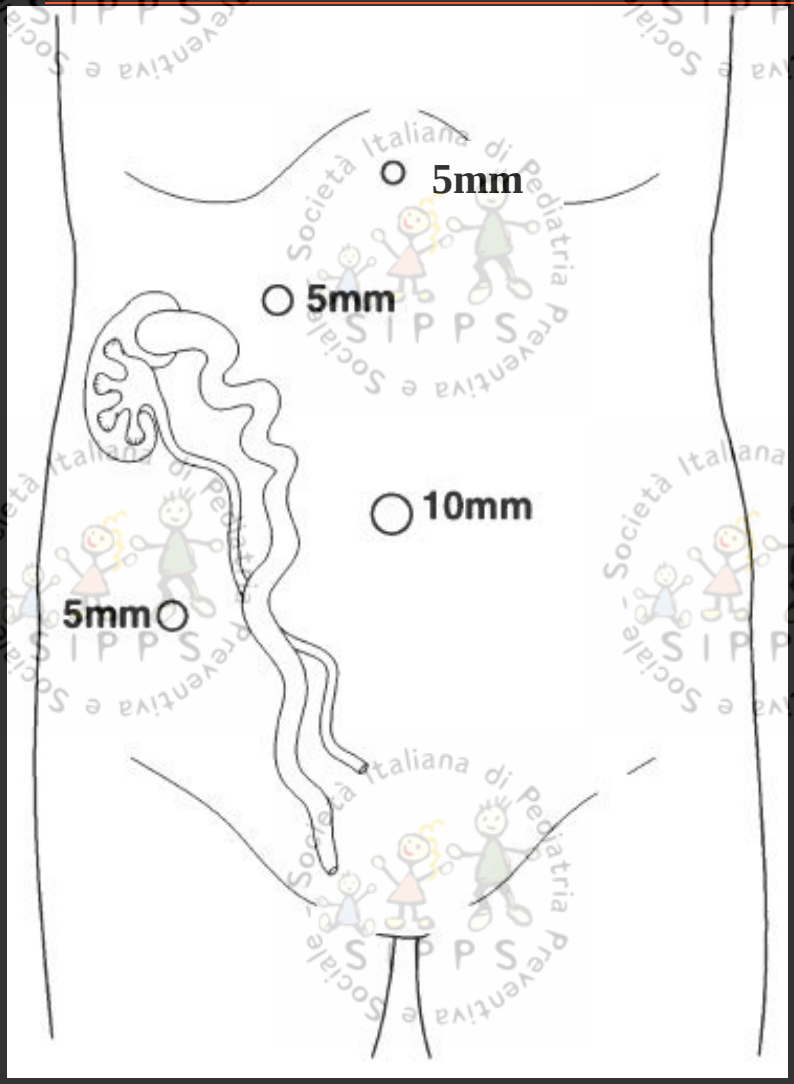


Position for a right Nephrectomy

LATERAL POSITION

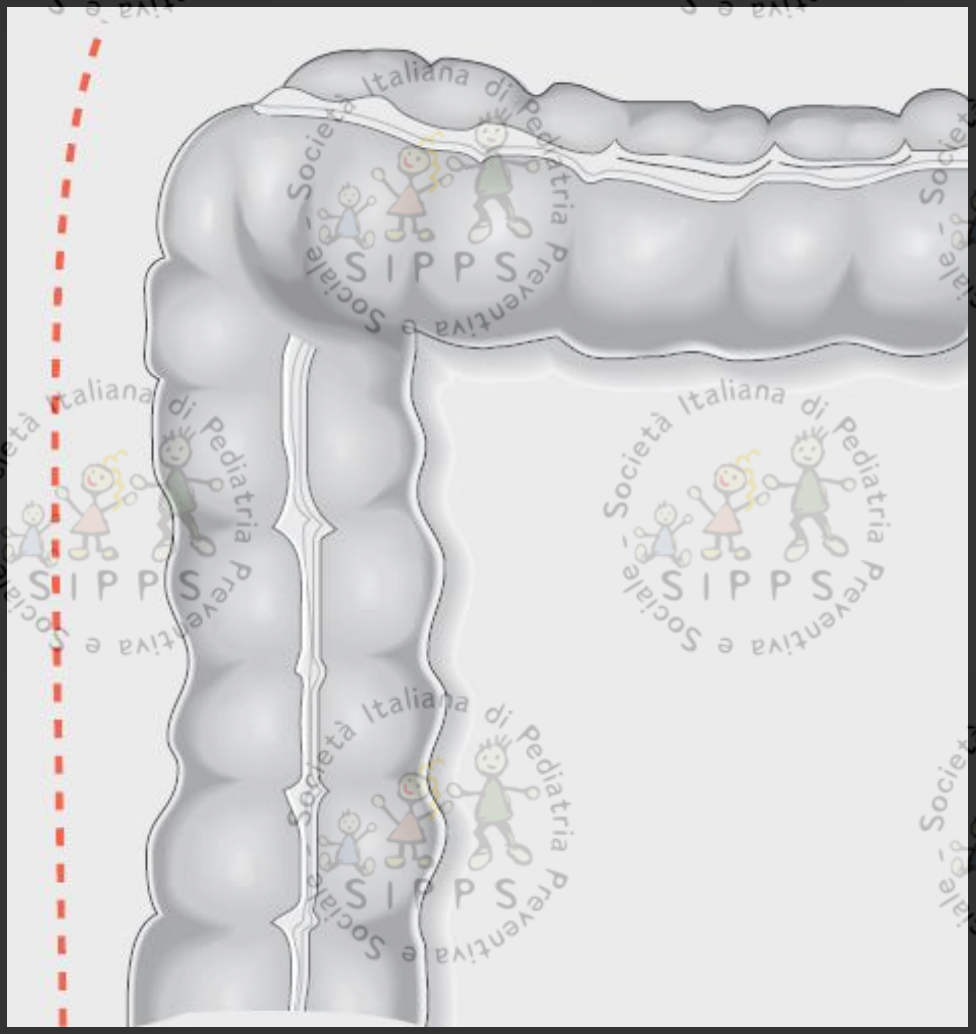
A ballast is placed under the patient

Trocars



1: 10mm
2: 3-5mm
3: 3-5mm
4: 3-5mm

Step # 1

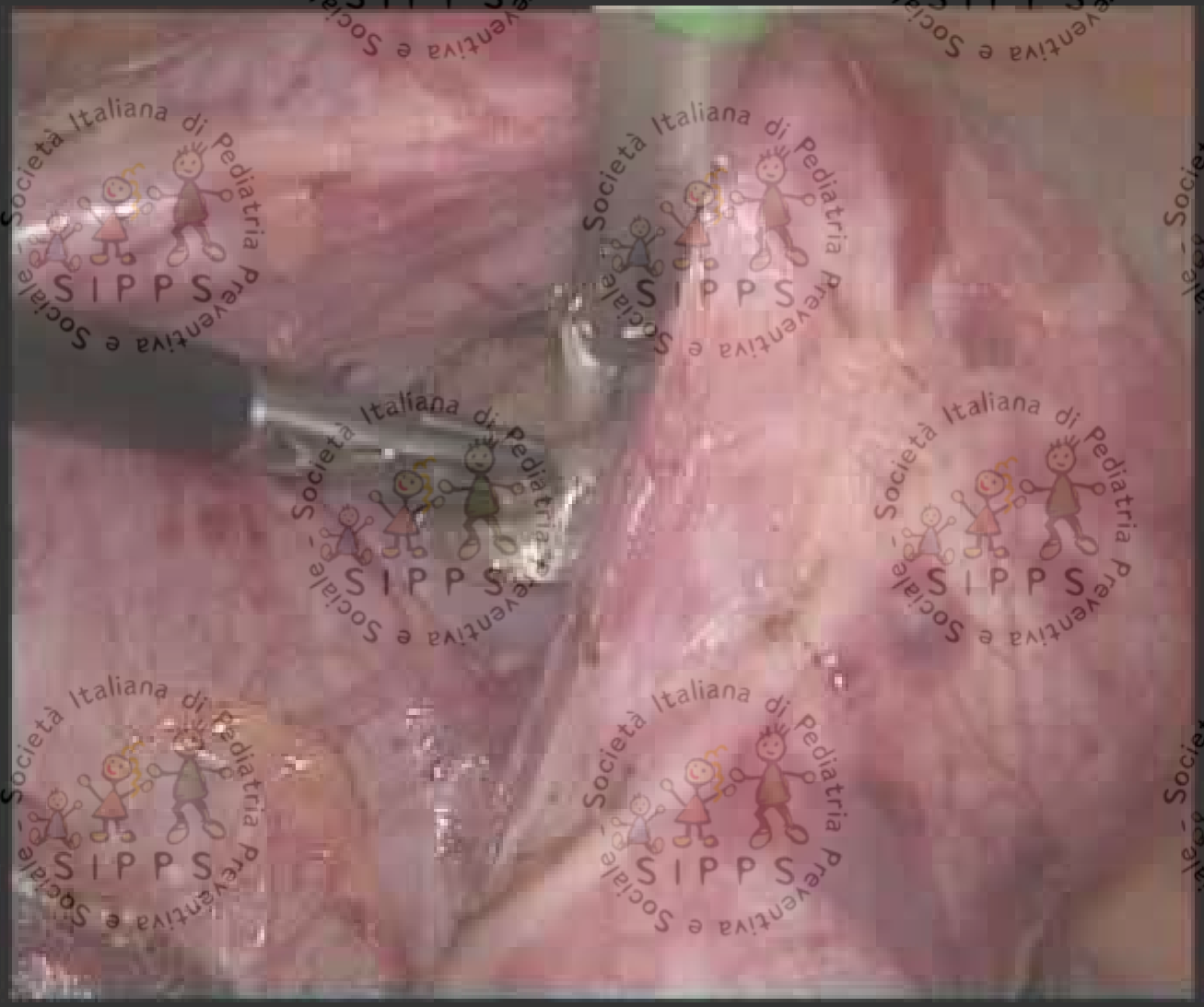


Stent positioning

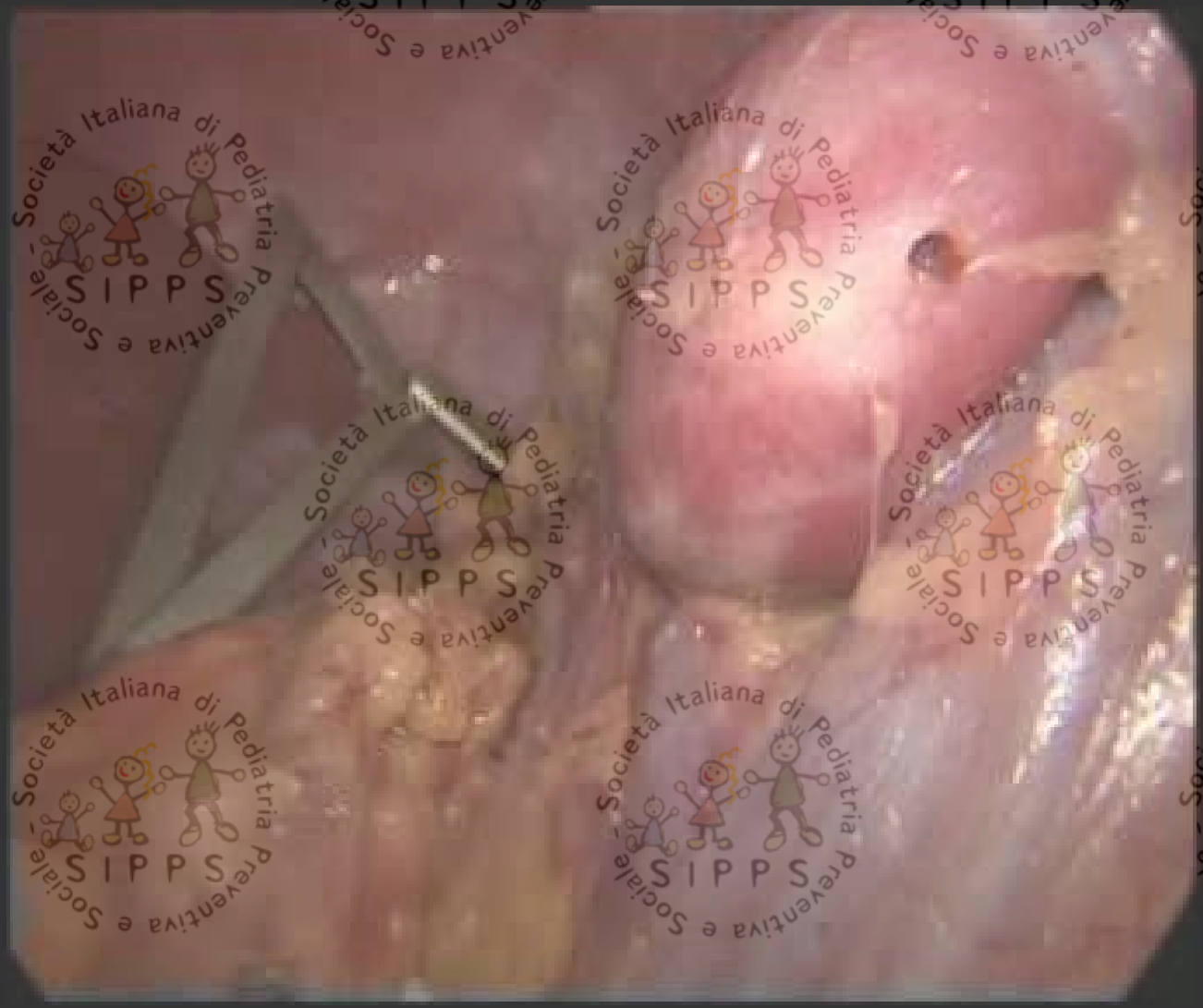
Incision of the lateral peritoneal fold

STEP # 2 Colon

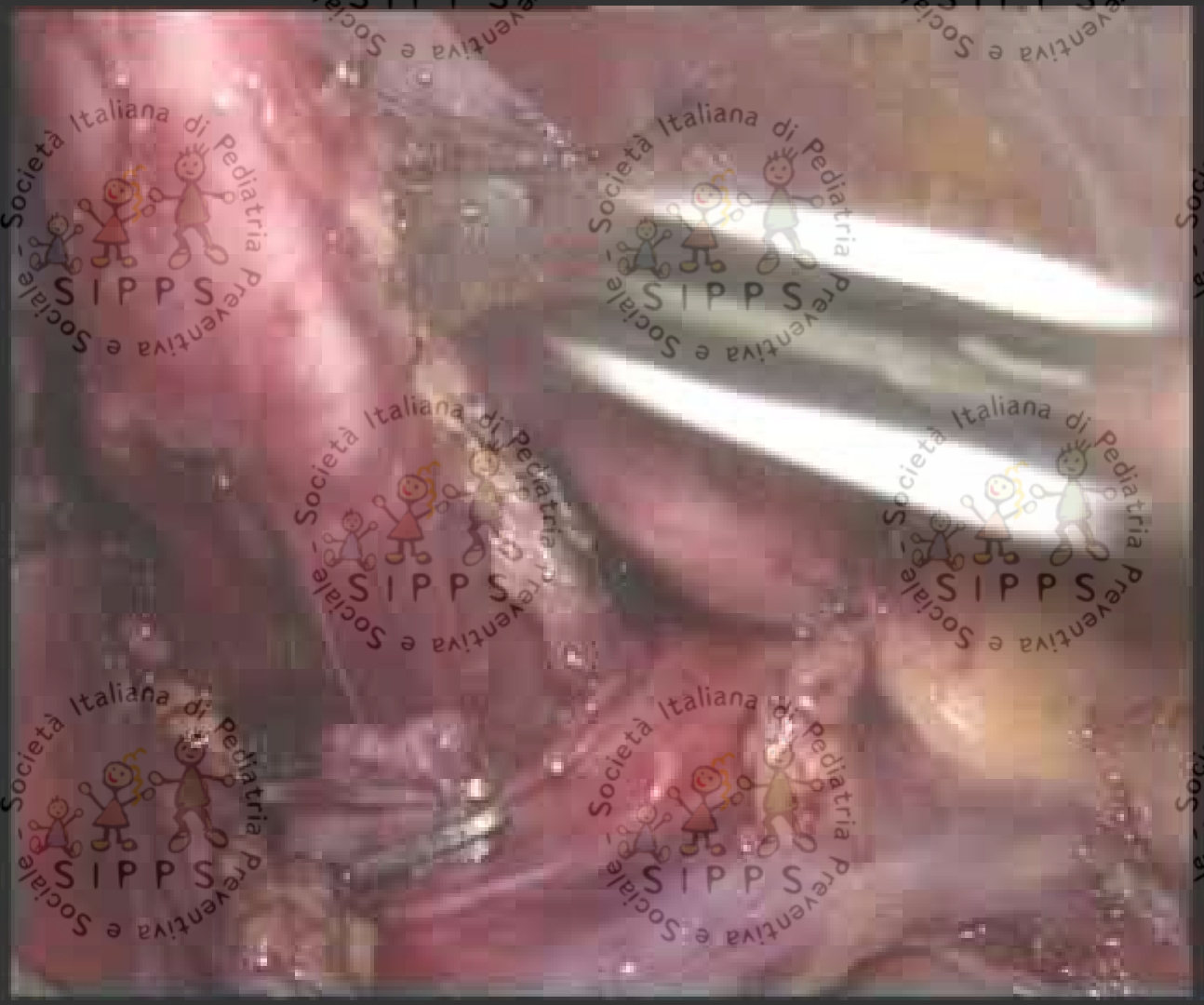
STEP # 3 Ureteral section



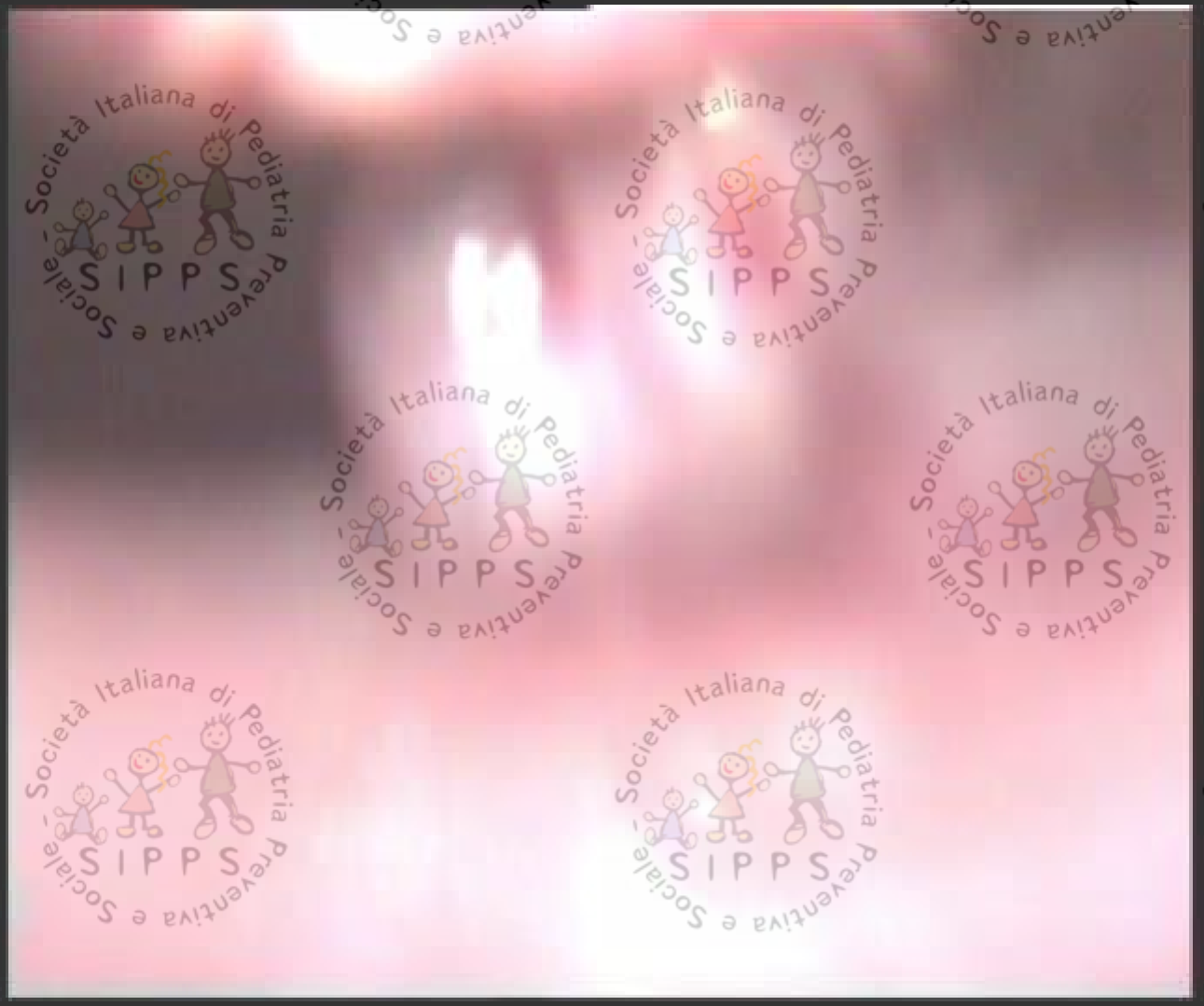
STEP # 4 Kidney



STEP # 5 Hemi-nephrect u.p.

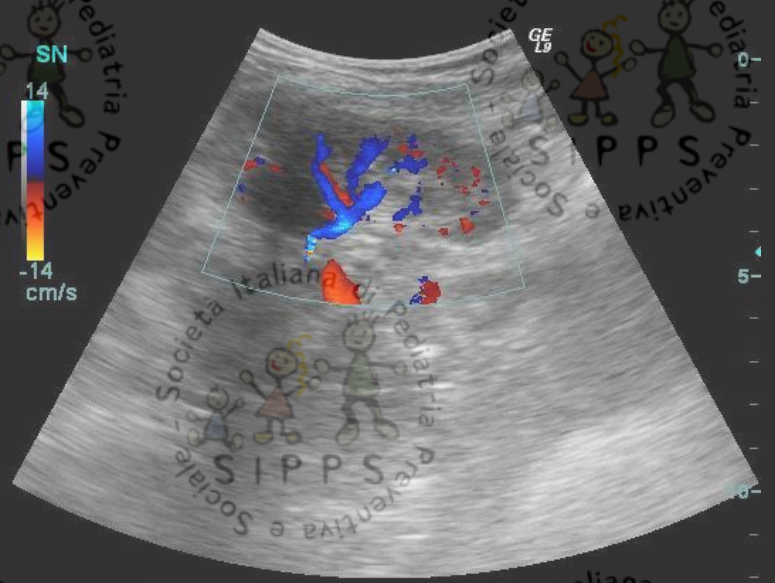


STEP # 6 Specimen removal



LPN Results

- Operative time: 90 min (70 to 120)
- Lenght of stay: 3-5 days
- Conversions: 0
- Complications rate: 15%
- Follow-up: 100% good residual kidney function



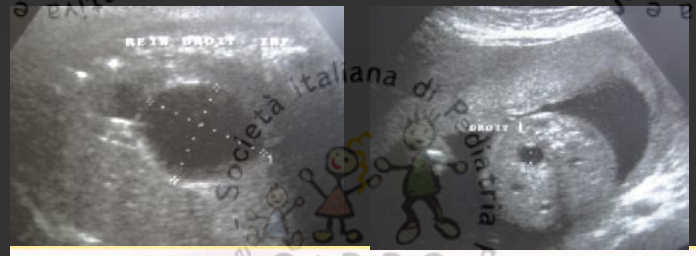
A comparison between laparoscopic and retroperitoneoscopic approach for partial nephrectomy in children with duplex kidney: a multicentric survey

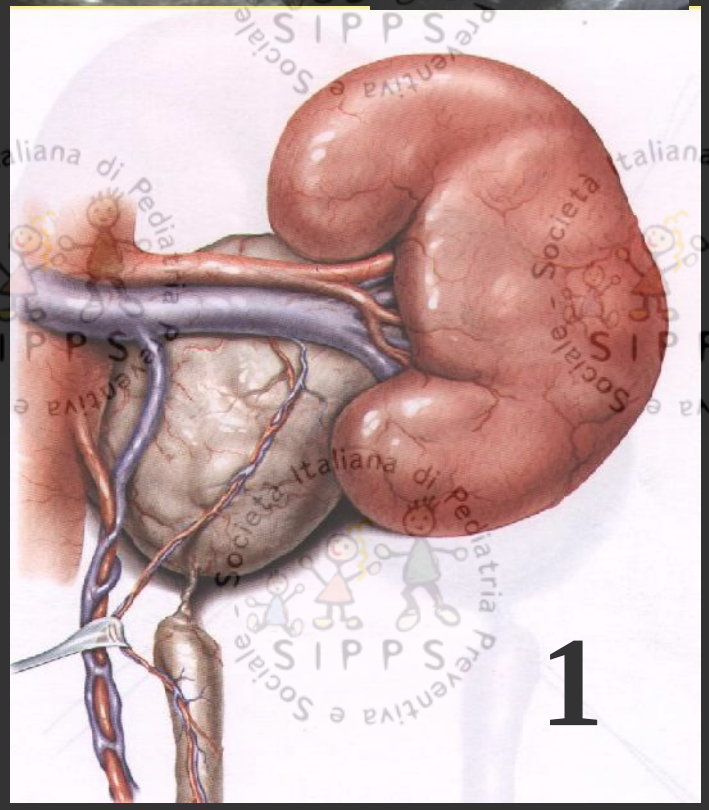
Ciro Esposito[1] · Maria Escolino[1] · Go Miyano[2] · Paolo Caione[3] · Fabio Chiarenza[4] · Giovanna Riccipetitoni[5] · Atsuyuki Yamataka[2] · Antonio Savanelli[1] · Alessandro Settimi[1] · Francois Varlet[6] · Dariusz Patkowski[7] · Mariapina Cerulo[1] · Marco Castagnetti[8] · Holger Till[9] · Rosaria Marotta[10] · Angela La Manna[10] · Jean-Stephane Valla[11]

World J Urol
DOI 10.1007/s00345-015-1728-8
Received: 8 August 2015 / Accepted: 3 November 2015

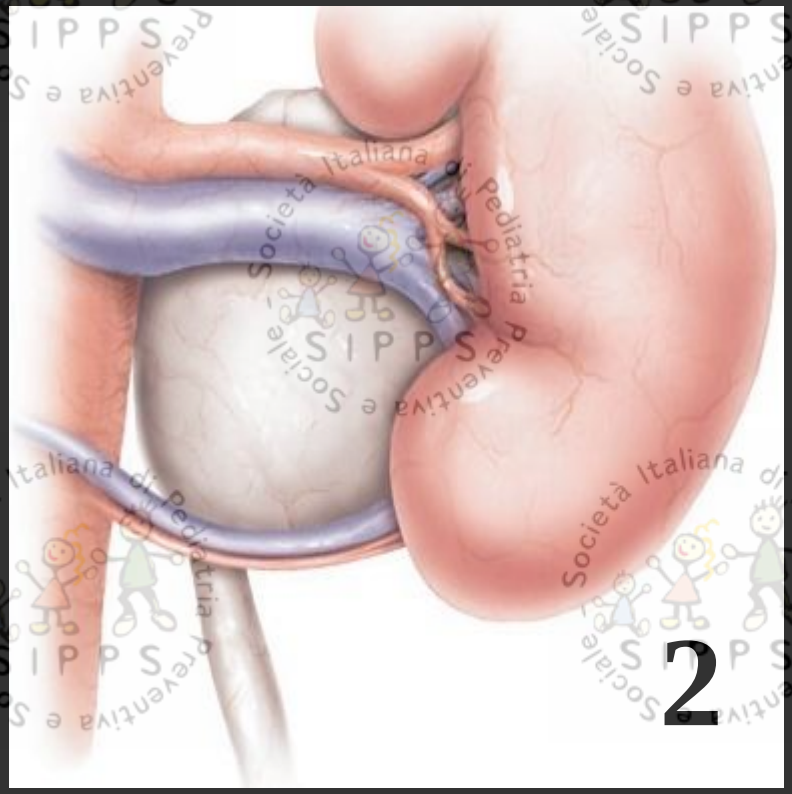
ORIGINAL ARTICLE

Uretero Pelvic Junction Obstruction (UPJO)



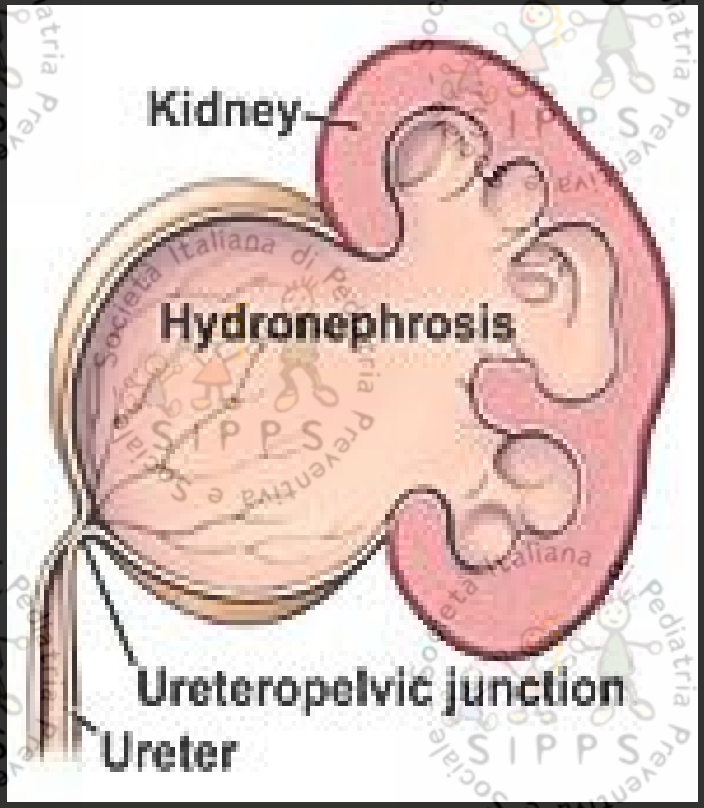


1



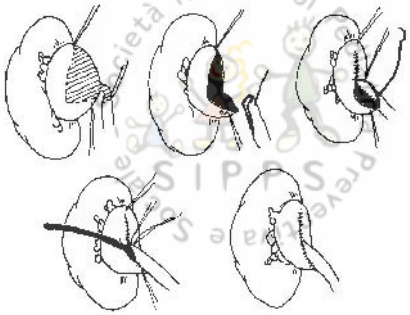
2

Classic UPJO



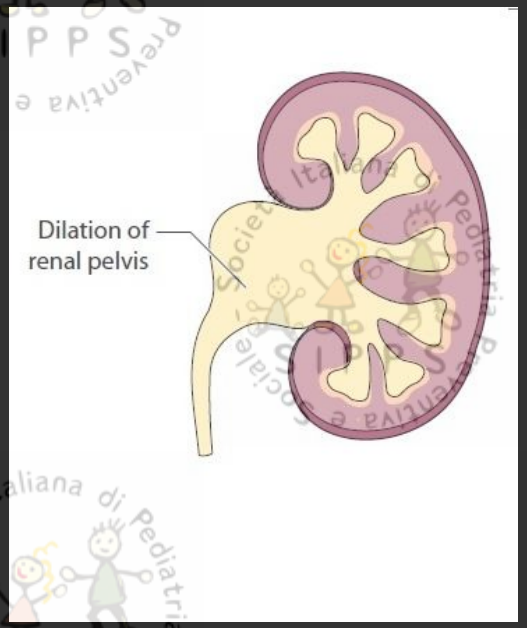
Classic UPJO

- The essence of repair consists of excision of the narrowed segment, spatulation, and anastomosis of renal pelvis with spatulated ureter (PYELOPLASTY)
- OPEN or Laparoscopic Pyeloplasty
- Less than 24 months OPEN Approch
- In Older Children LAPAROSCOPY



Indications for surgery

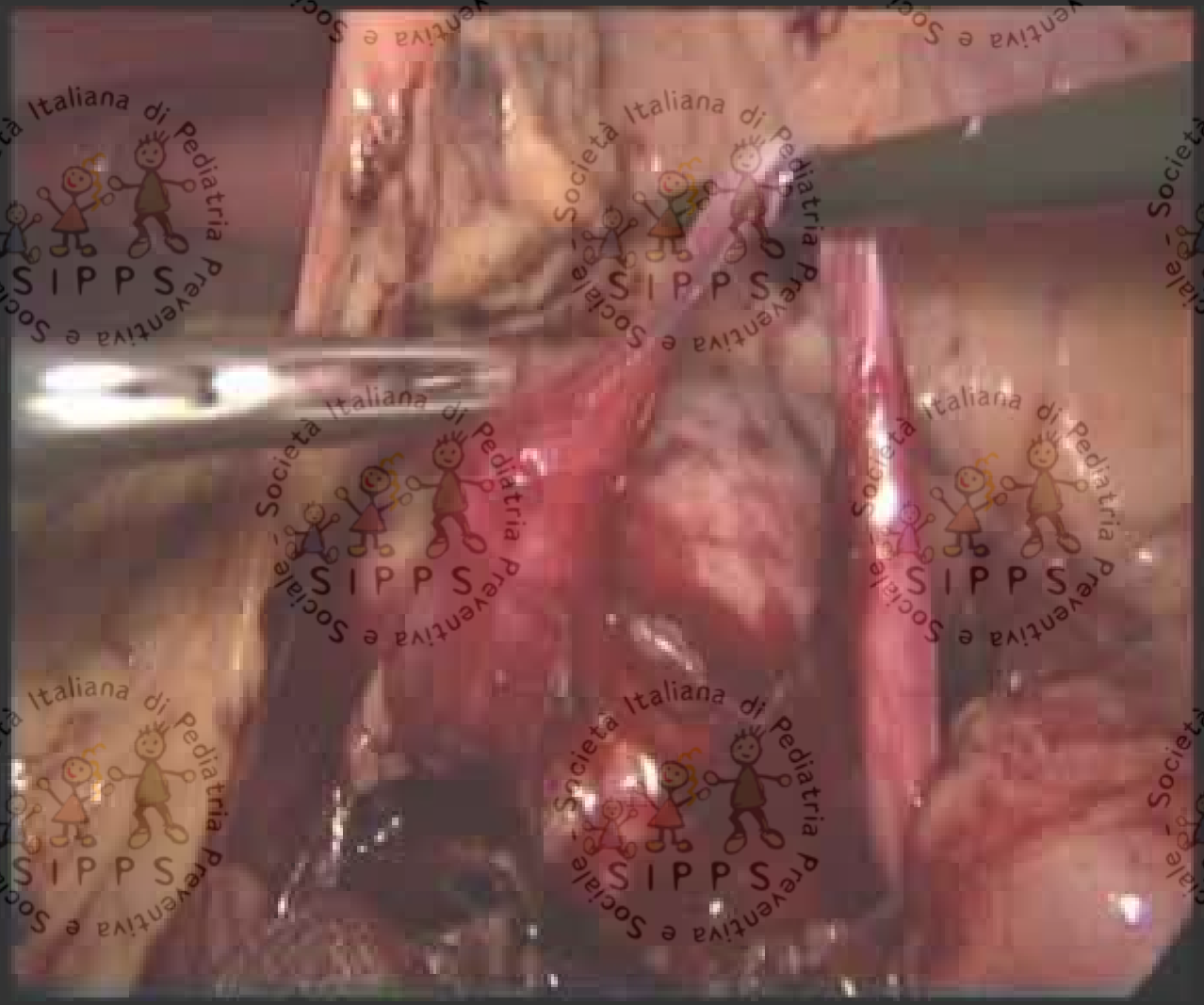
- APD (USound) > 40 mm
- Differential renal function <40%
- Reduction of DRF >5%
- Progressive worsening of Hydronephrosis
- Symptoms and UTI



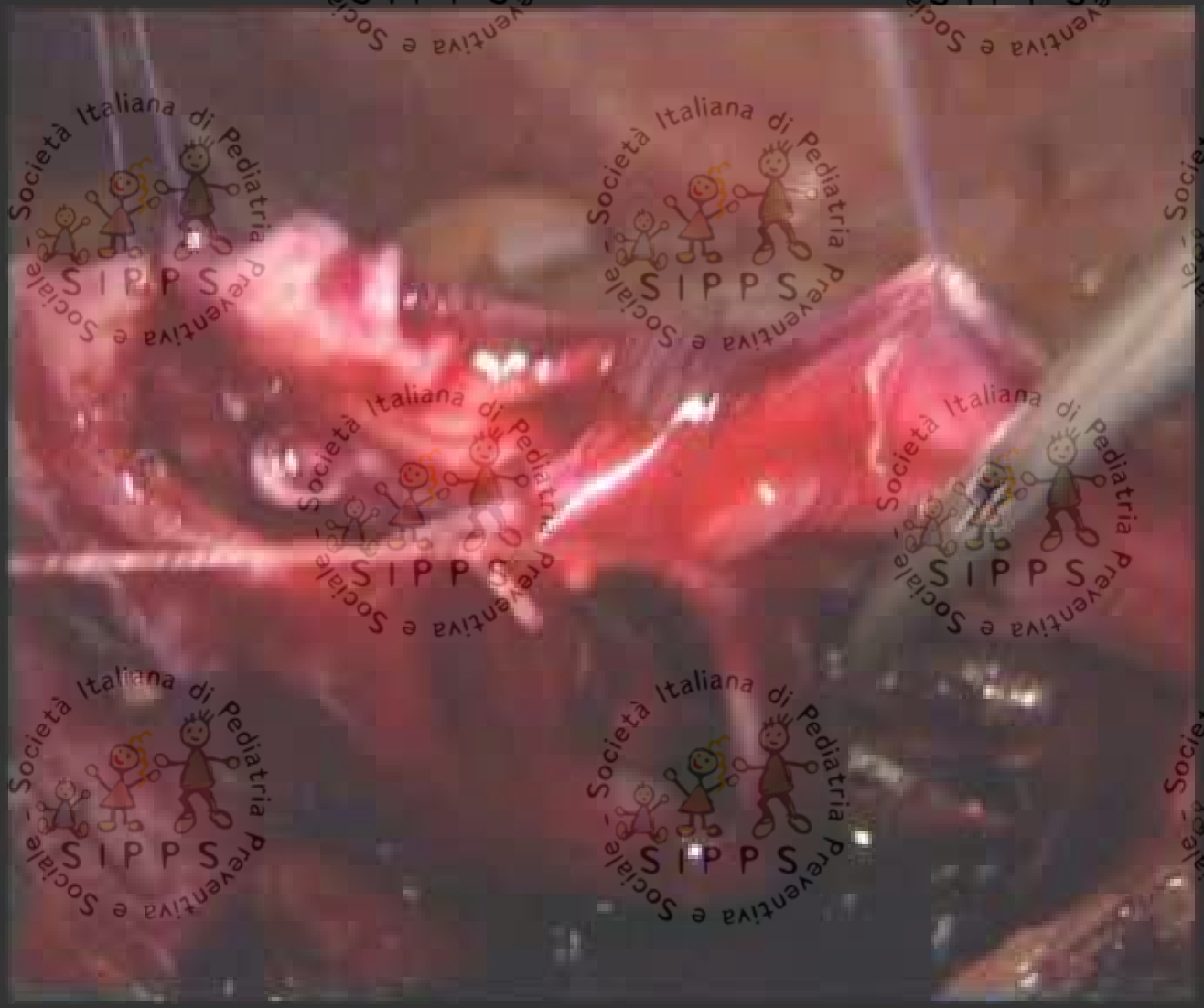
Trocars

1: 10mm
2: 5mm
3: 5mm

Lap Pyeloplasty # 1



Lap Pyeloplasty # 2



UPJO Results

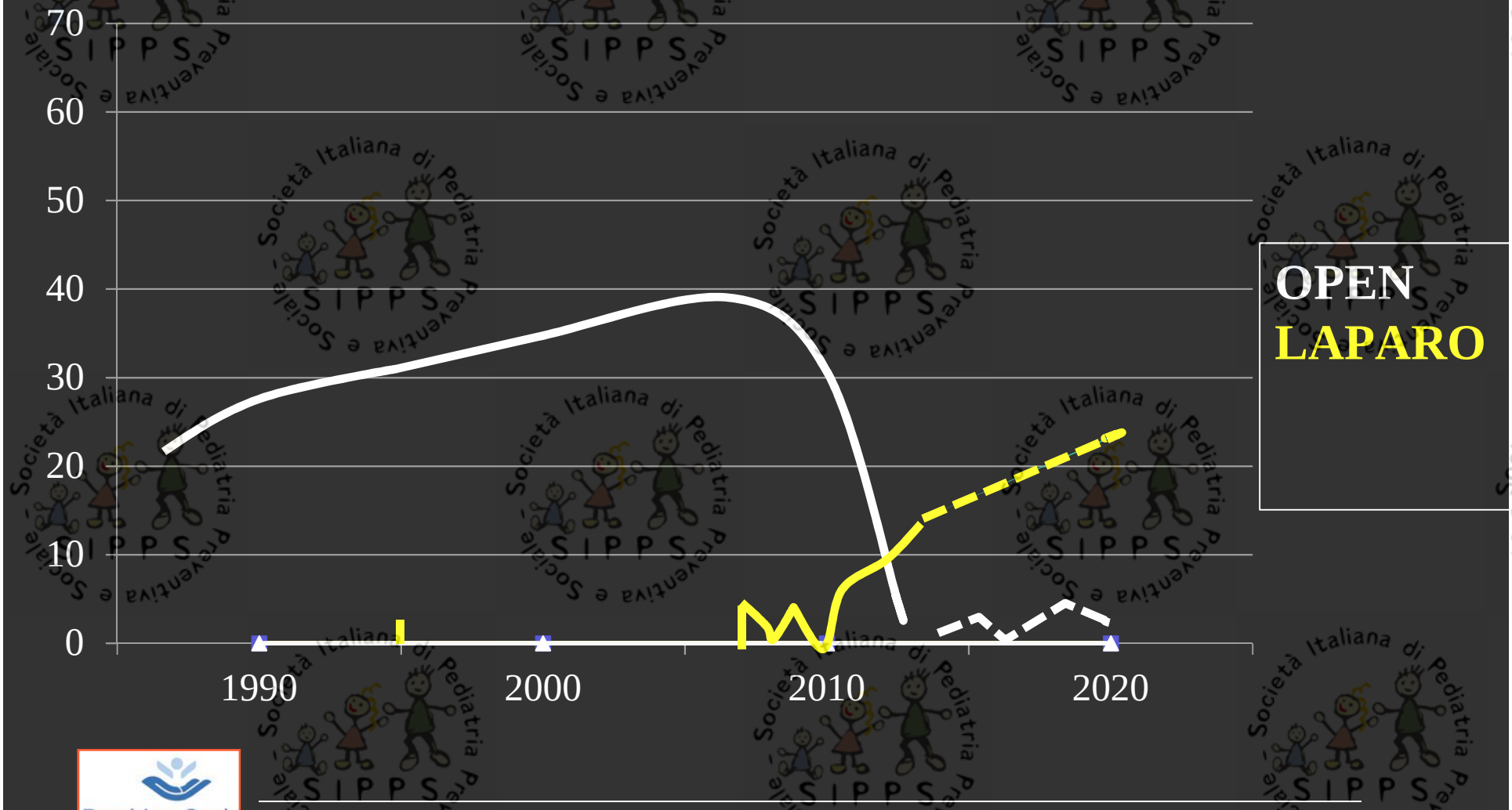
- Open and Laparoscopy give similar results
- Laparoscopy Results: 99.5% vs 97.3%
- Complication rate: 3-7 %
- All recieved a JJ stent during surgery
- Hospitalisation: 3-4 days

Global minimally invasive **pyeloplasty** study in **children**: **Results** from the Pediatric Urology Expert Group of the European Association of Urology Young Academic Urologists working party.

Silay MS, Spinoit AF, Undre S, Fiala V, Tandogdu Z, Garmanova T, Guttilla A, Sancaktutar AA, Haid B, Waldert M, Goyal A, Serefoglu EC, Baldassarre E, Manzoni G, Radford A, Subramaniam R, Cherian A, Hoebeke P, Jacobs M, Rocco B, Yuriy R, Zattoni F, Kocvara R, Koh CJ.

J Pediatr Urol. 2016 May 12. pii: S1477-5131(16)30031-6. doi: 10.1016/j.jpurol.2016.04.007. [Epub ahead of print]

Pieloplasty: evolution of the adopted techniques



Bambino Gesù
OSPEDALE PEDIATRICO

Division of Urology-Andrology
"Bambino Gesù" Children's Hospital - Rome

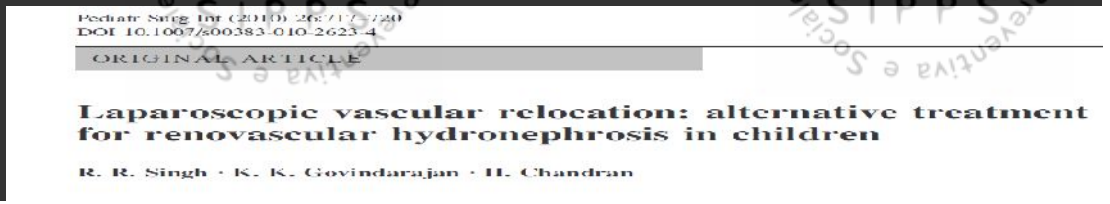
Laparoscopic transposition of lower pole crossing vessels in extrinsic uretero-pelvic junction (UPJO) obstruction in children

Background # 2

- A recent study demonstrated that 58% of older children with symptomatic PUJO had lower pole crossing vessels

- The traditional management for lower pole vessels causing PUJO has been dismembered pyeloplasty

- The Hellstrom procedure , in which crossing polar vessels are relocated, has been an option in adult urological practice



Pediatr Surg Int (2010) 26:717–720
DOI 10.1007/s00383-010-2623-4

ORIGINAL ARTICLE

Laparoscopic vascular relocation: alternative treatment for renovascular hydronephrosis in children

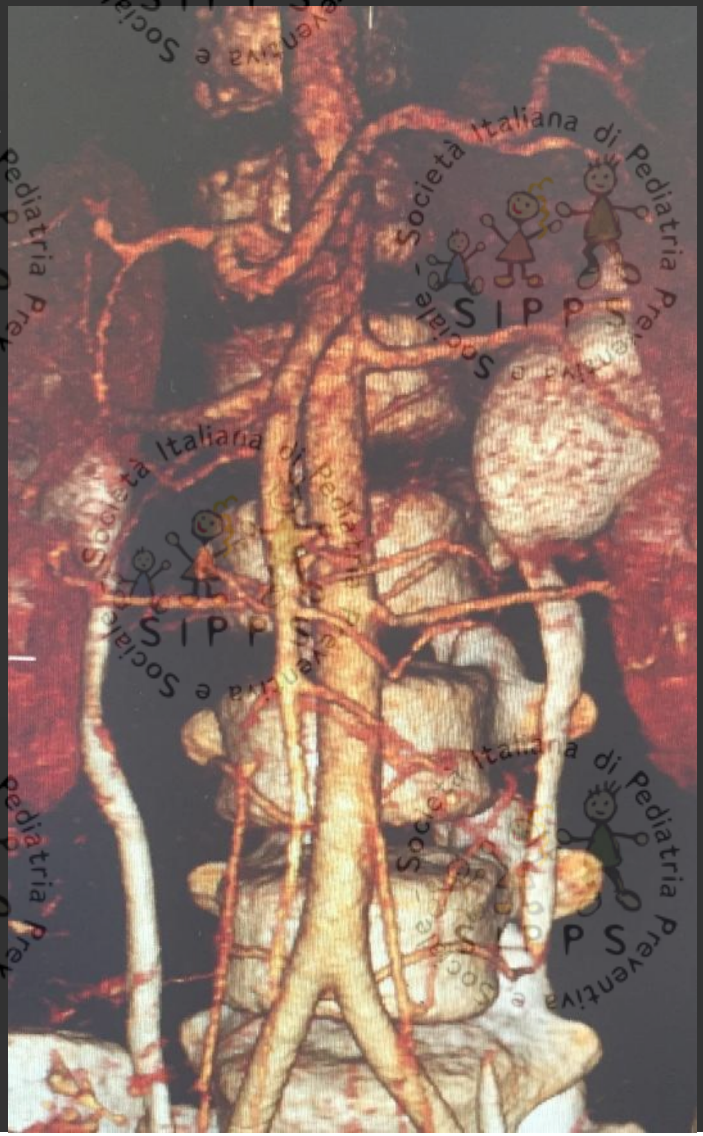
R. R. Singh · K. K. Govindarajan · H. Chandran

Clinical findings

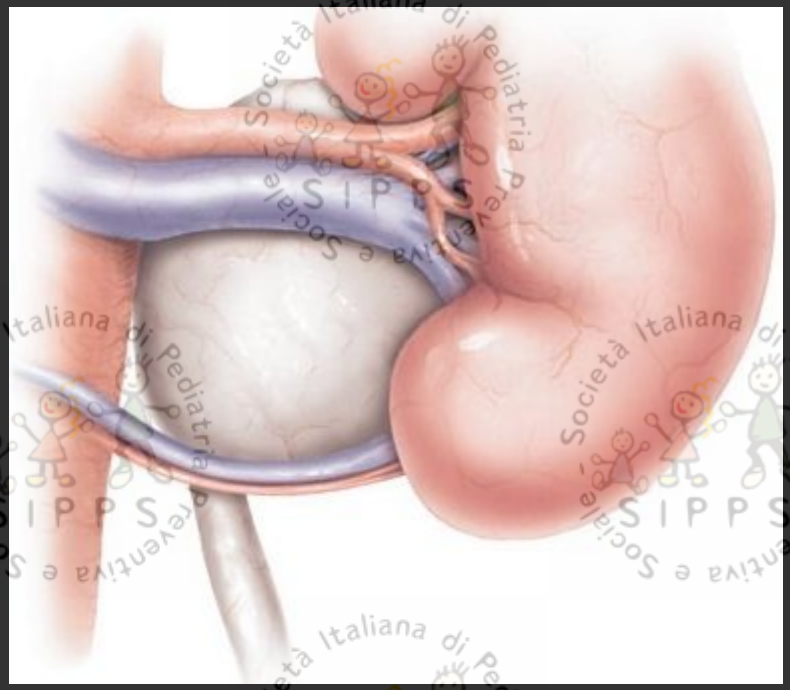
- Indication: abdominal pain presenting as Dietl's crisis , UTI and rarely haematuria
- Median age of presentation > 6 years
- Absence of pre-natally detected hydronephrosis

Pre-operative work-up

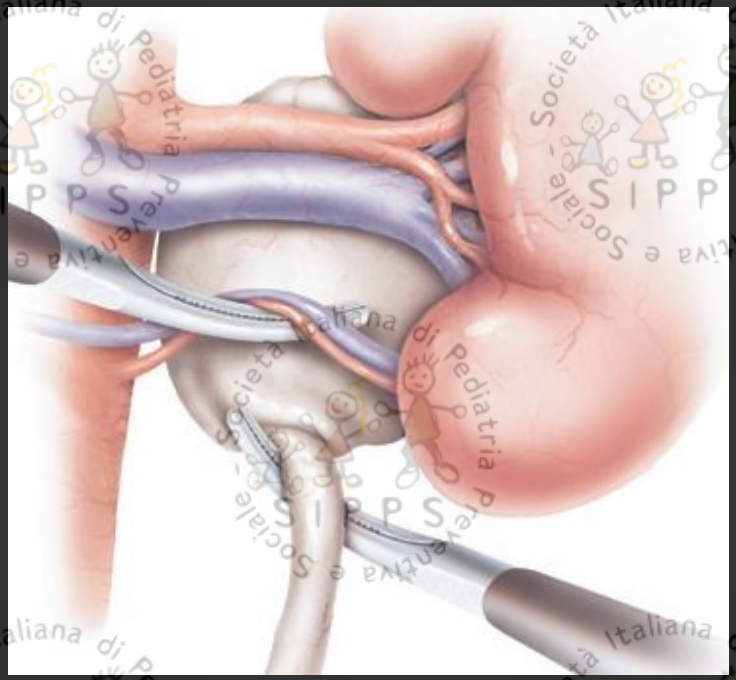
- Renal ultrasonography
- Doppler ultrasound
- Scintigraphy
- MRI



Technique # 1

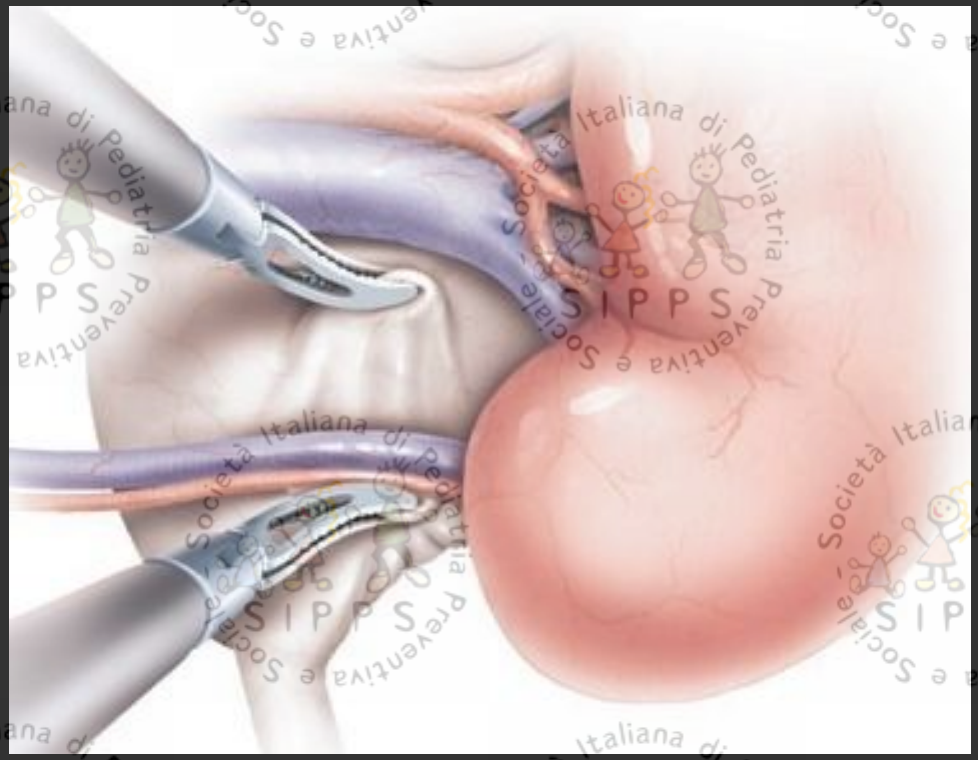


At laparoscopy the presence of a lower pole vessel is confirmed in the absence of a narrow PUJ



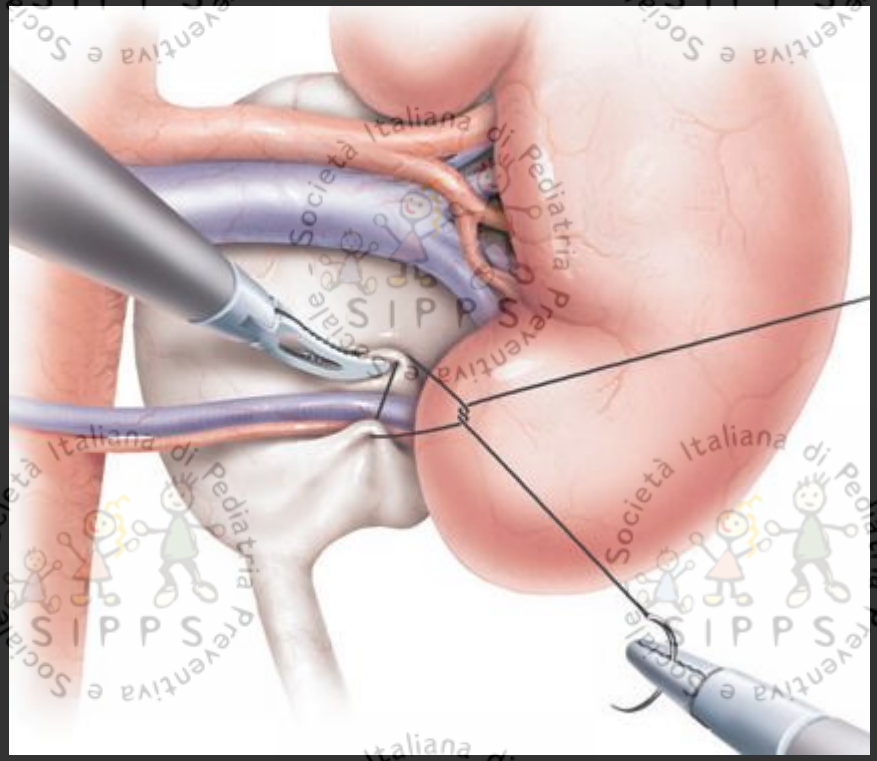
The PUJ and the pelvis are adequately mobilised achieving easy displacement of vessels

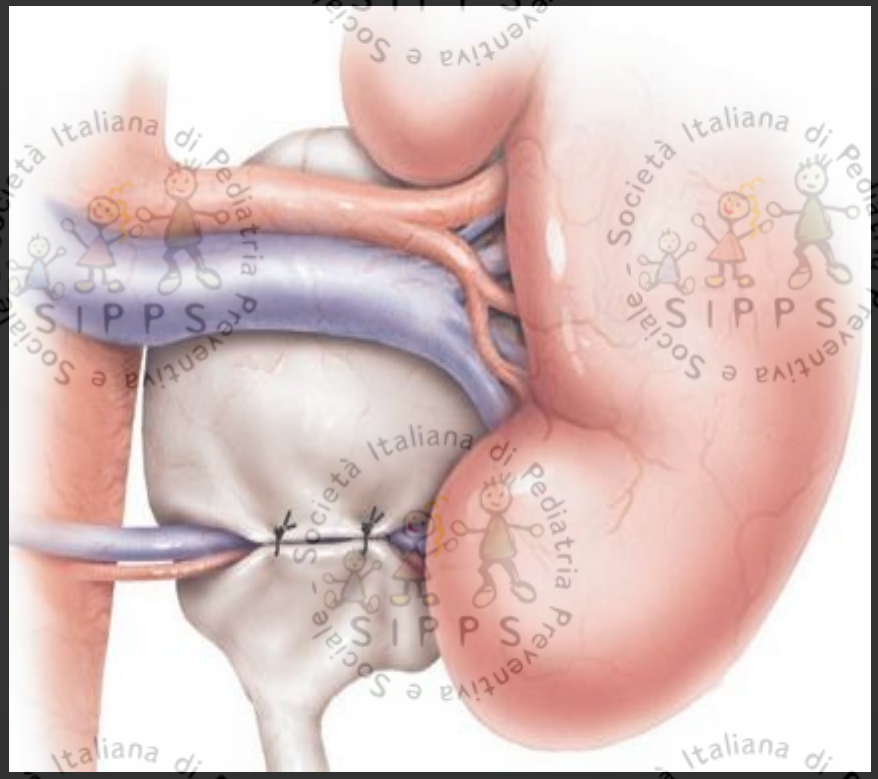
Technique # 2



The ‘ shoe-shine ’ manoeuvre of the mobilised anterior pelvis behind the lower pole vessels confirms adequate availability of the pelvis to perform a loose wrap around the vessels

Technique # 3



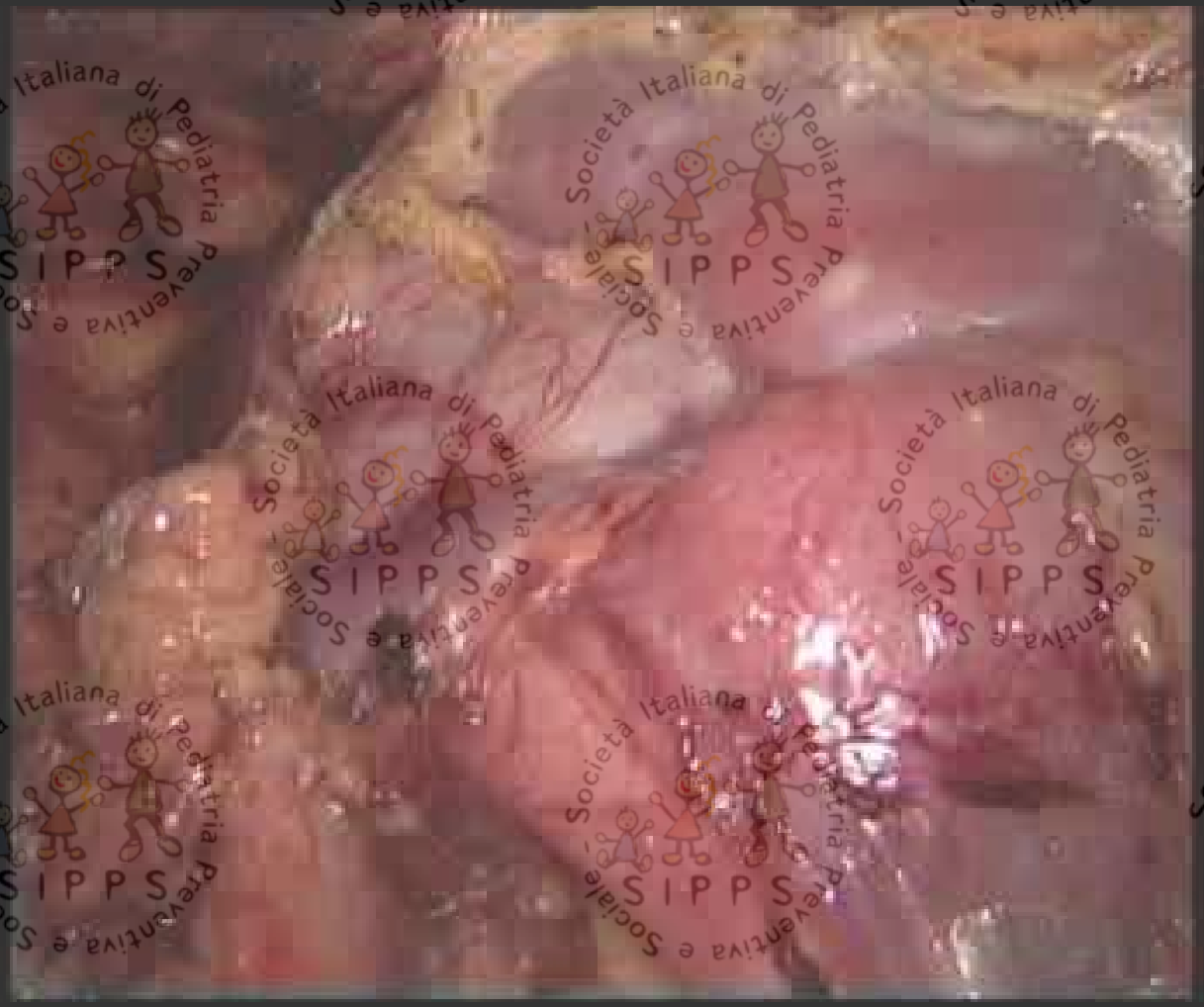


Two or three interrupted sutures may be necessary to achieve an adequate tunnel within the anterior pelvic wall

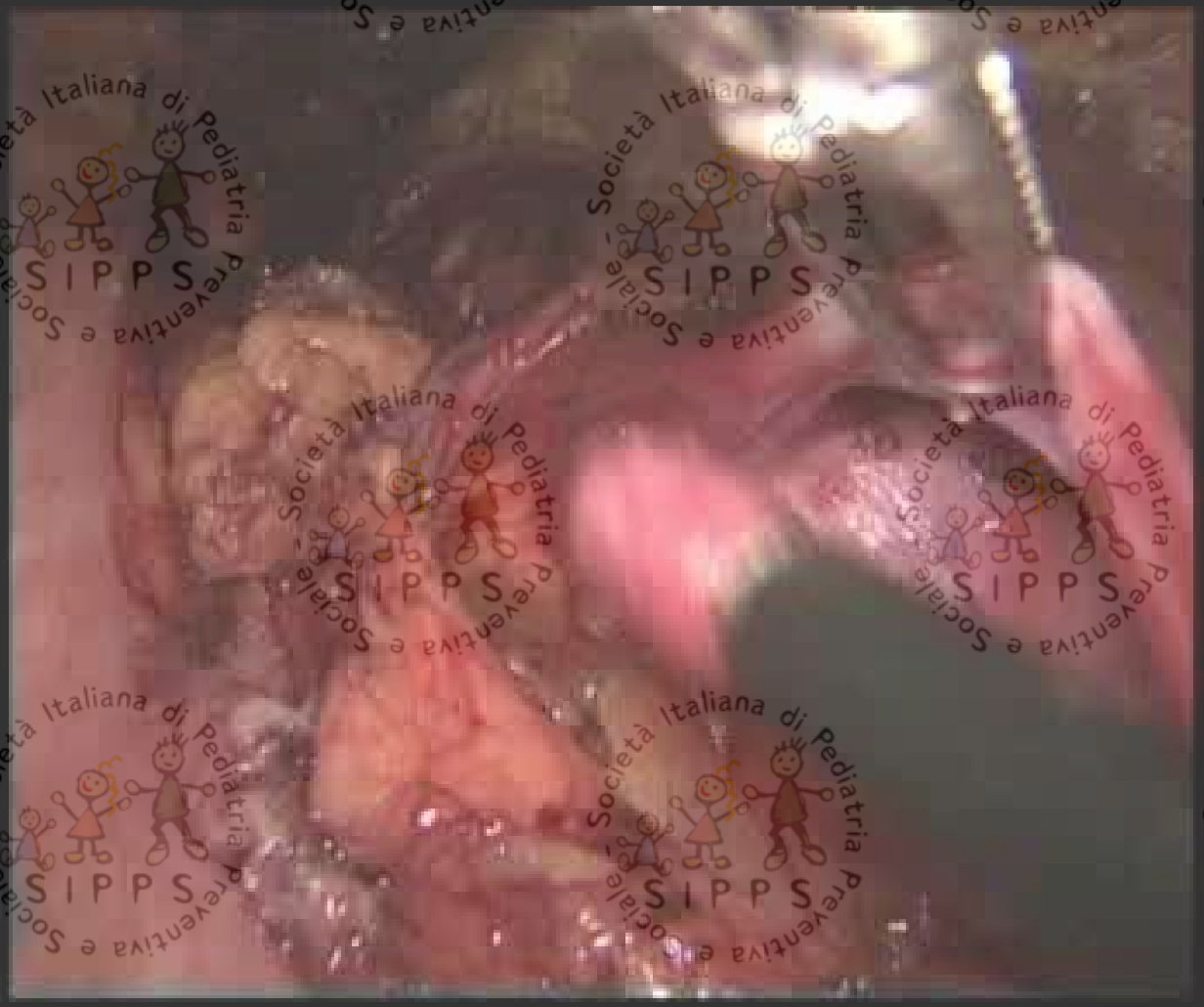
Trocars

1: 10mm
2: 5mm
3: 5mm

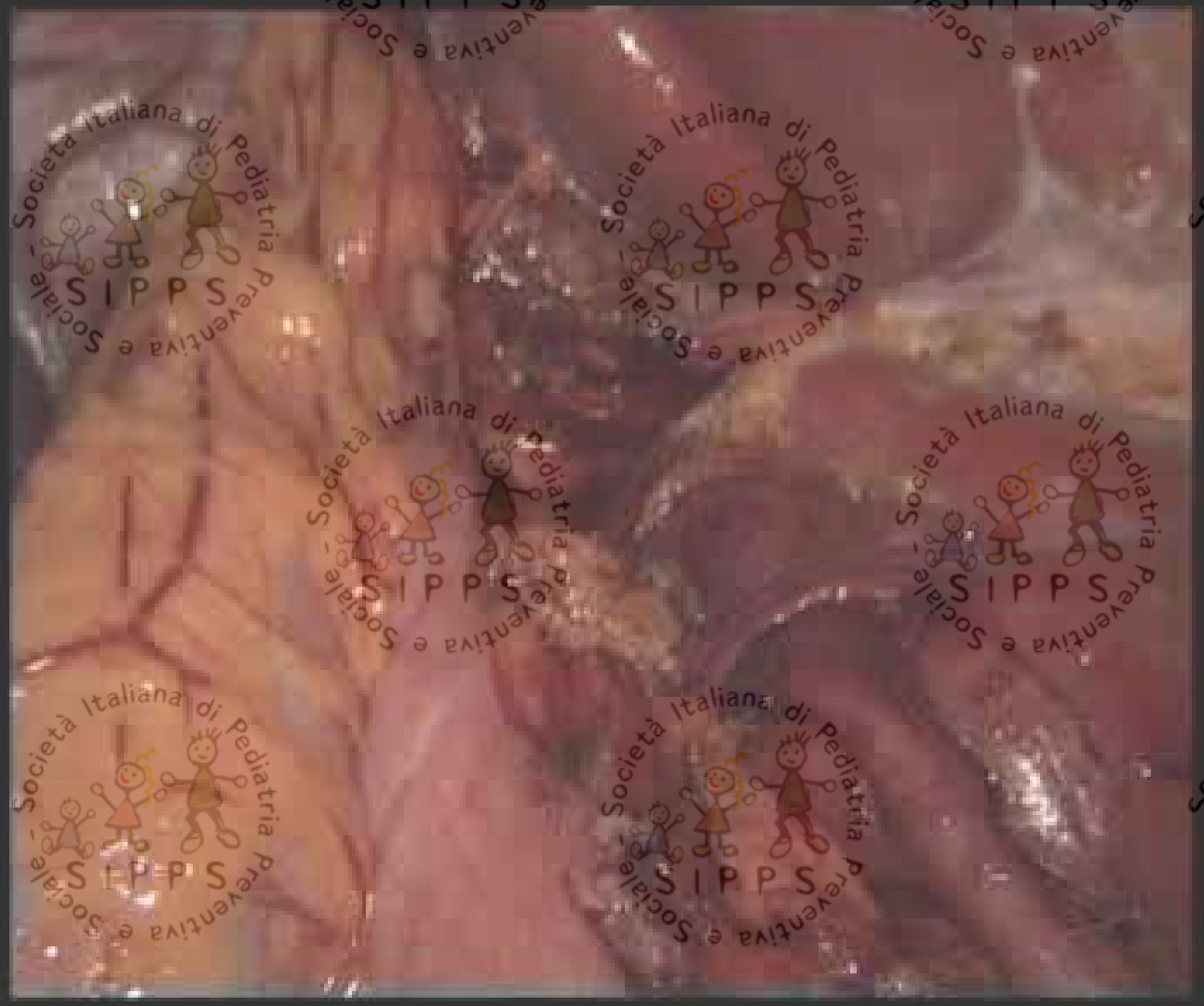
STEP # 1 Dissection



STEP # 2 pelvis



STEP # 3 wrap



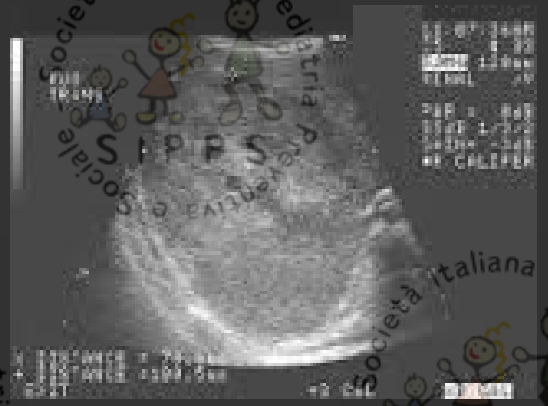
Pediatric Adrenalectomy

Background

- Minimally invasive adrenalectomy (MIA) is the criterion standard for removal of small adrenal tumors in adults
- Scanty reports exist in pediatric population

Pre-Operative Work-up

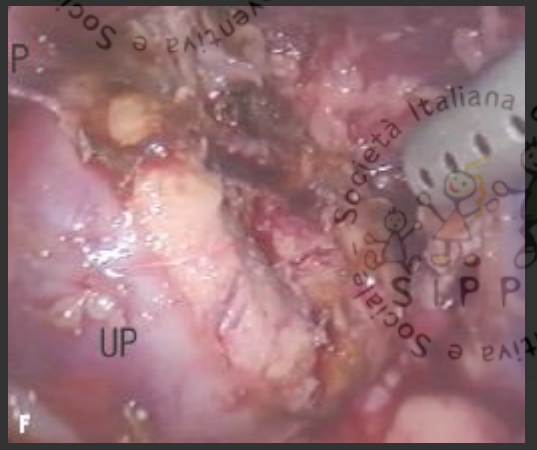
- Tumoral markers
- Ultrasonography
- MRI or CT scan



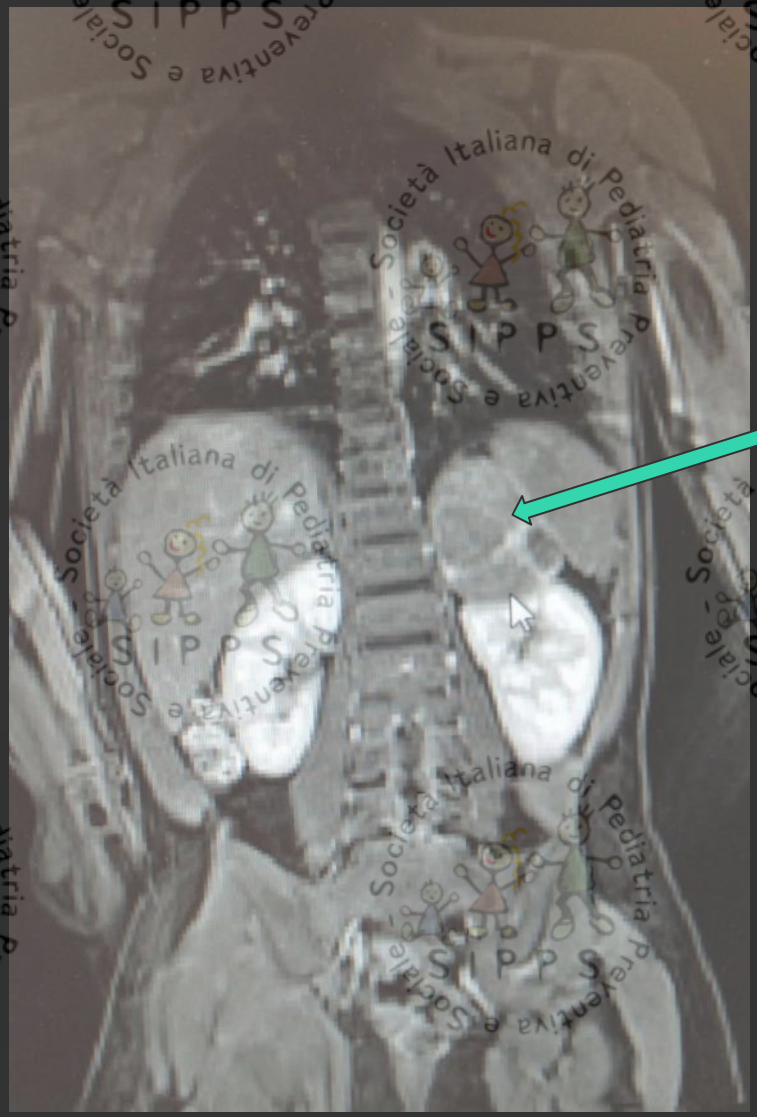
Adrenalectomy

Indication

- Adrenal Mass (Adenomas)
- Feocromocitomas
- Neuroblastomas

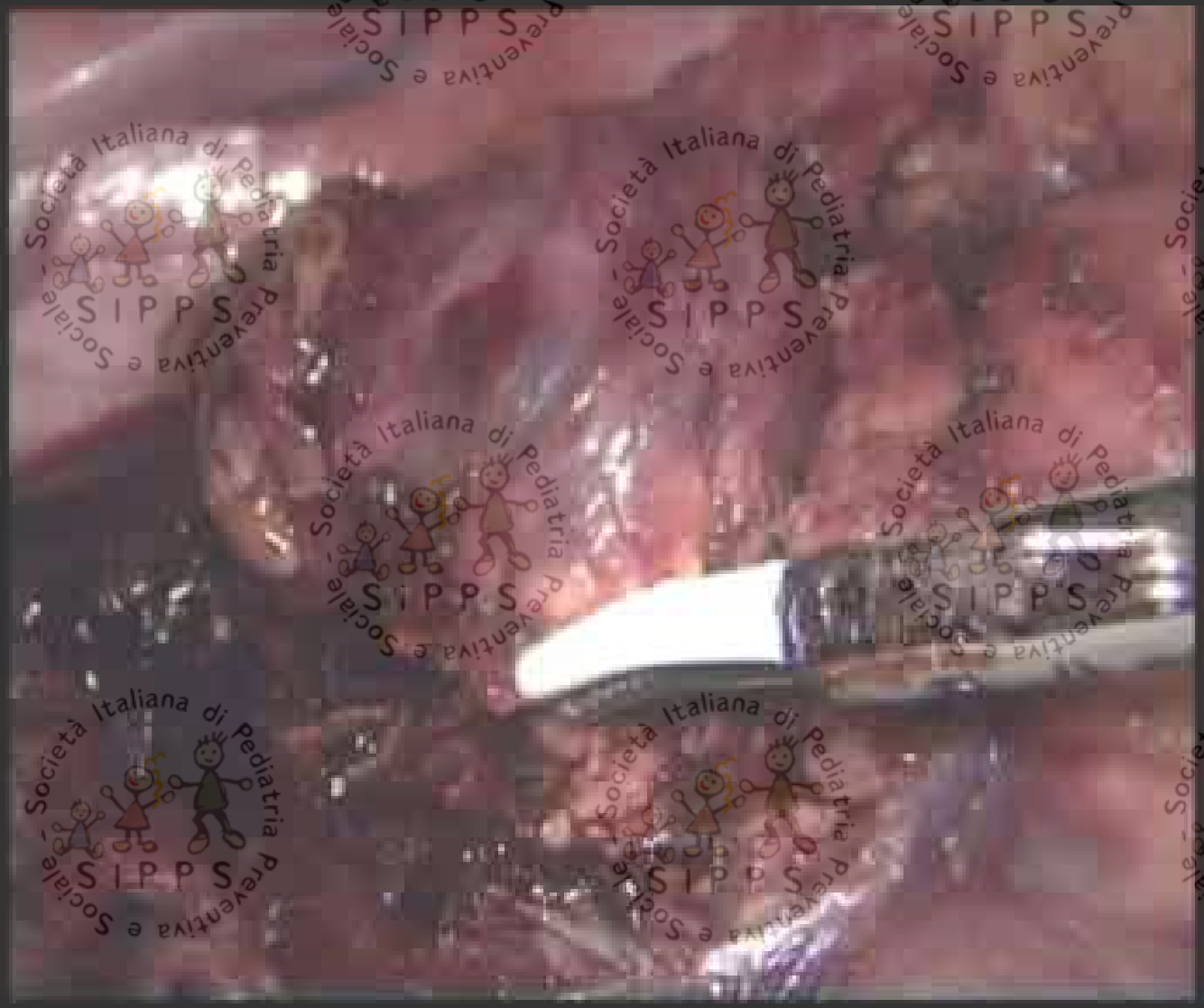


Pre-Operative Work-up



Adrenal Technique # 1

Adrenal Technique # 2



Adrenal Technique # 3

Advanatages of MIS in Pediatric Urology

- Improve precision thanks to magnified view
- Less Pain
- Less Drugs
- Shorter Hospital Stay
- Better Cosmesis
- Same good long term results of open surgery
- Centralized Patients in center of Experience

Società Italiana di Videochirurgia Infantile

fondata nel 1995

La Società Italiana di Videochirurgia Infantile conferisce

all'UOC di Chirurgia Pediatrica dell'Azienda

Ospedaliera Universitaria "Federico II" di Napoli

il titolo di

"Centro di Riferimento Nazionale in Chirurgia

Mini-invasiva e Laparoscopia Pediatrica"

Il Presidente

S.I.V.I.

Roma, 17 Settembre 2015

More than *400 pediatric surgeons* from 35 different countries from all over the World have attended *our MIS center (2006-2016)*

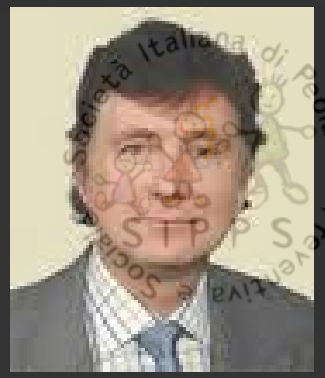
Pediatric Surgery
Federico II University
European Center of Reference
for Training in Pediatric
Laparoscopy GI and Urology

CONCLUSIONS

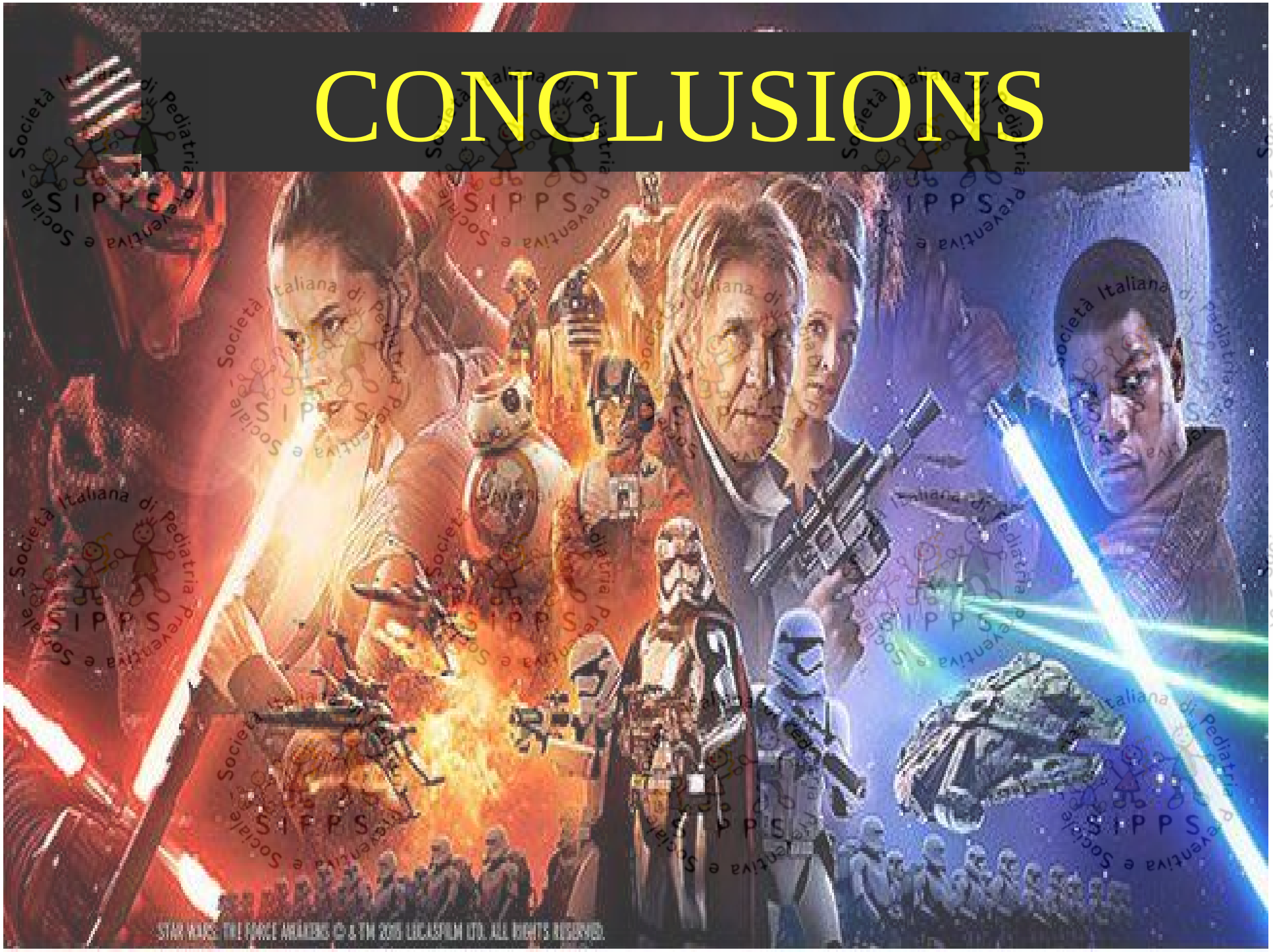
In the 21° century it is unacceptable to perform any surgical procedure on a child by the open route if it can be safely and easily be carried out through minimally invasive surgery

Gordon Mc Kinlay

(IPEG President)



CONCLUSIONS



CONCLUSIONS

- UPJO patients < 18-24 m Open Pieloplasty
- UPJO patients > 24 m Laparoscopy
- UPJO polar vessel: Laparoscopy Hellstrom
- Partial Nephrectomy: Laparoscopy gold standard
- Nephrectomy : Laparoscopy gold standard
- Benign Adrenal Pathology: Laparoscopy
- Key Factor is to send patients in centers of excellence to achieve good results