

Fertility preservation efforts in children, adolescents and young adults with cancer

SPU meeting 2019

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Things we teach our kids

Inquirer

Knowledgeable

Thinker

Communicate

Principled



Open minded

Caring

Risk taker

Balanced

Reflective

Being a risk taker...



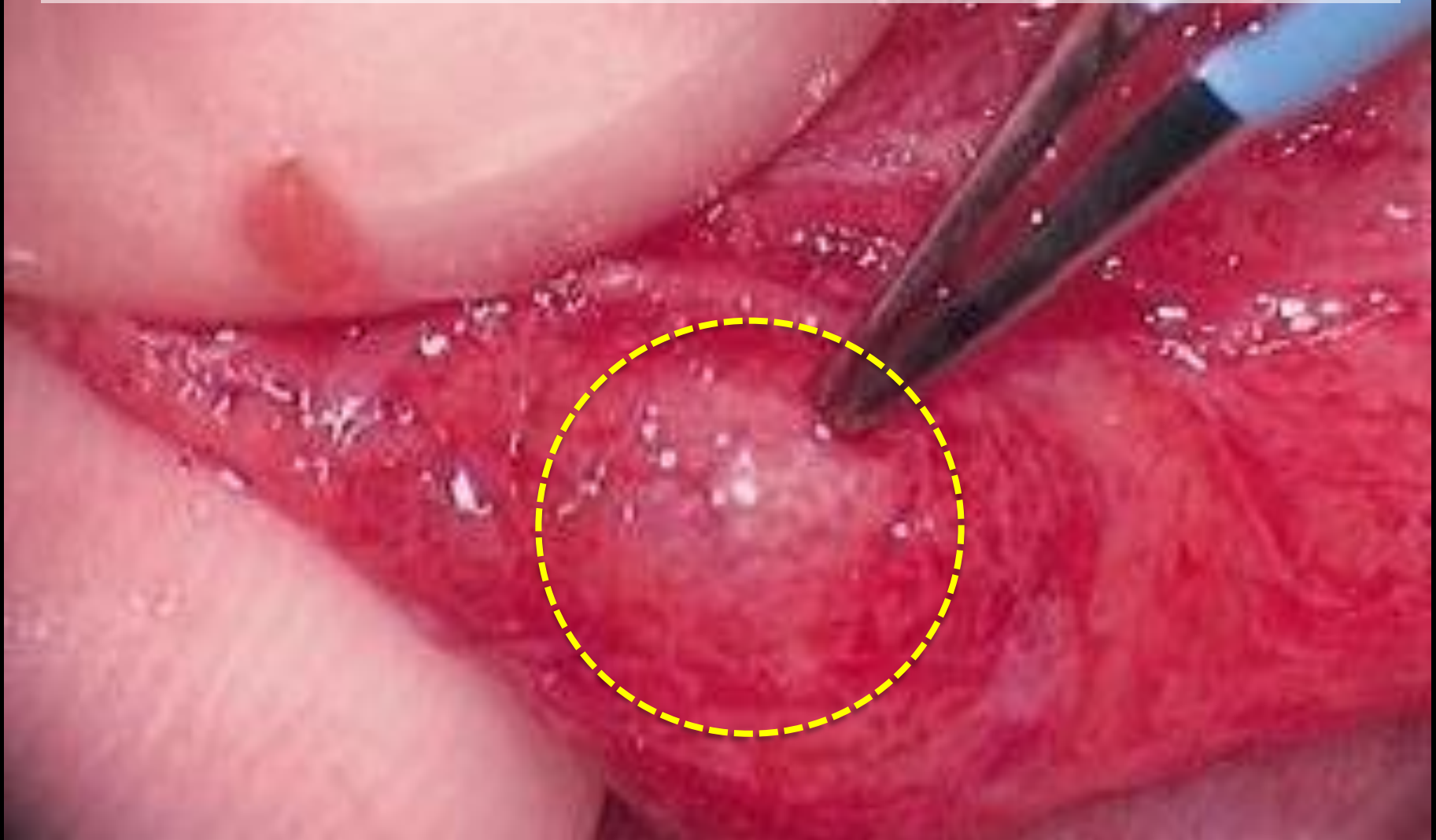
Creative thinking acknowledges and rejects the accepted paradigm to come up with new ideas



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Tubules may show residual foci of spermatogenesis



>100 healthy children reported born after ICSI with testicular sperm from non-mosaic KS men following testicular sperm extraction

Human Reproduction, Vol.28, No.5 pp. 1155–1160, 2013



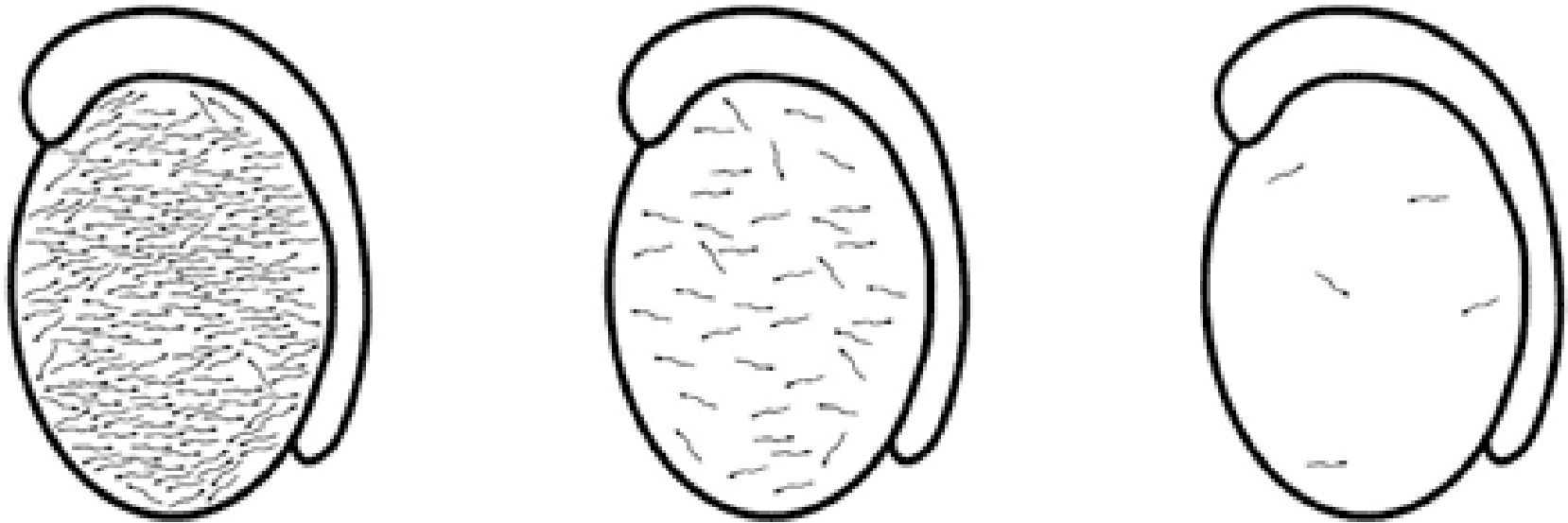
What can we learn from this?

- **Assumptions are dangerous**
- **Lack of foresight and restrictive thinking can have important consequences**





Number of sperm needed, over time



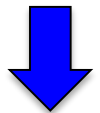
**Keep trying,
and trying**

IUI

IVF

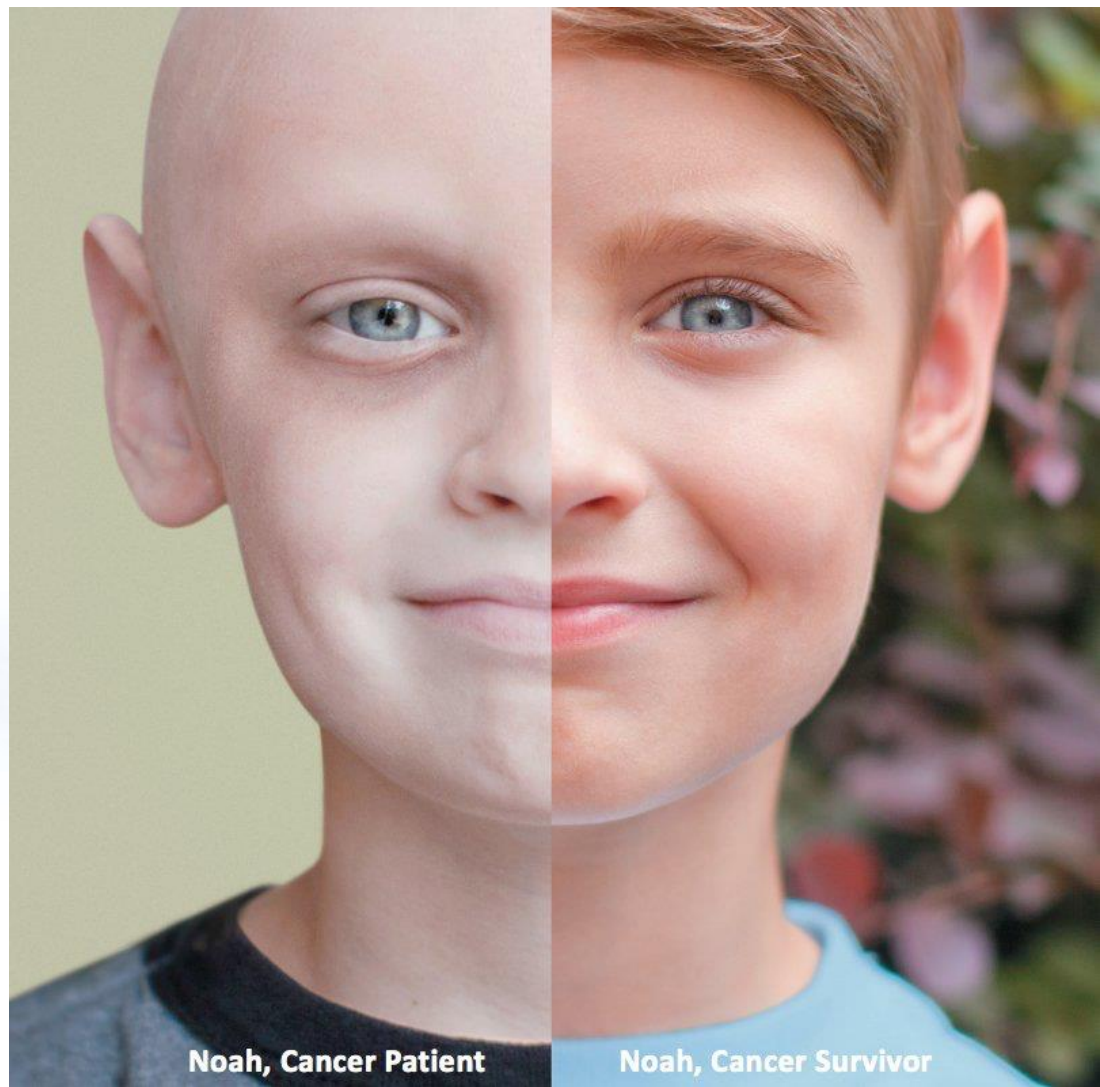
ICSI

TODAY!



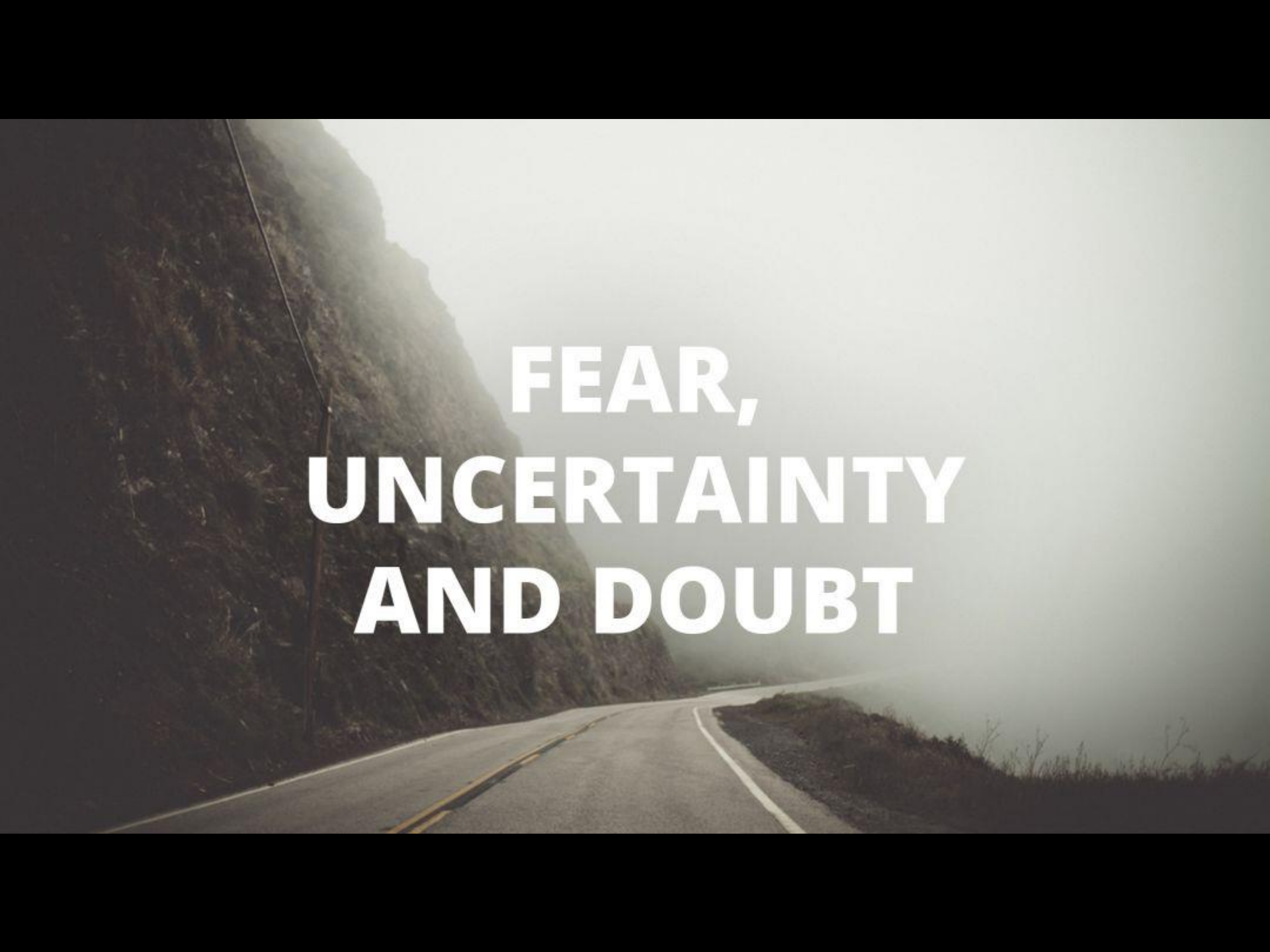


Baby Grady (**GRA**ft-Derived baby; 2 weeks old)

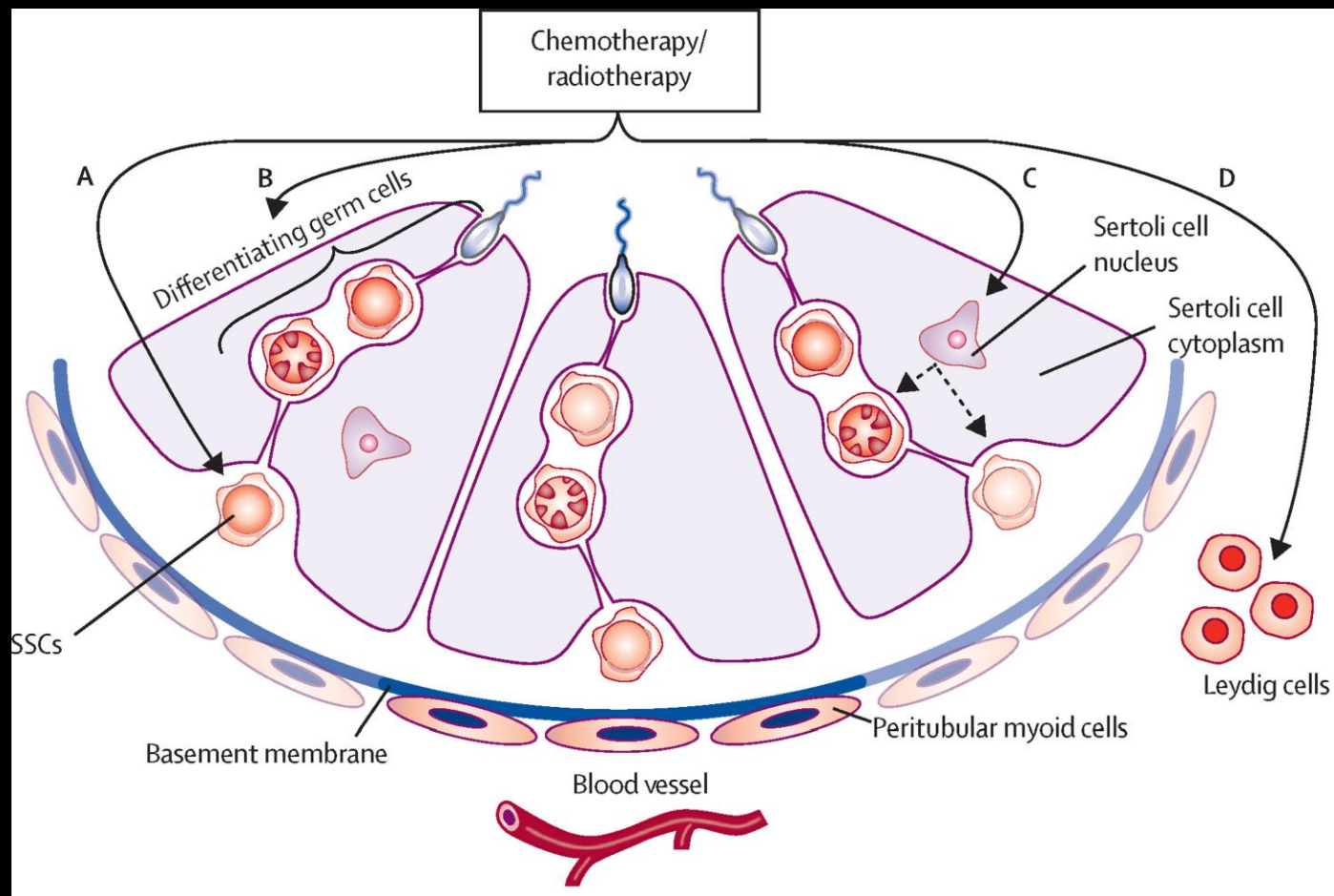


Noah, Cancer Patient

Noah, Cancer Survivor

A photograph of a narrow, winding asphalt road that curves along a steep, dark, and rocky cliffside. The road is marked with a double yellow line in the center and a white line on the right edge. The atmosphere is thick with fog or mist, which obscures the distant view and the top of the cliff. The sky is a uniform, pale grey. The overall mood is somber and mysterious.

FEAR, UNCERTAINTY AND DOUBT



- Oncological surgery, chemotherapy and radiation can have a dramatic and long lasting impact on fertility
- **Best case scenario, its subclinical**

Post-pubertal males

	Risk of Infertility	
	Low	High
Post-pubertal boys	Sperm bank	Sperm bank

Standard of Care

Pre-pubertal males

	Risk of Infertility	
	Low	High
Pre-pubertal boys	?	Testicular Biopsy

~~EMERADNA~~

Unproven Technology

Fertility Preservation for Patients With Cancer: American Society of Clinical Oncology Clinical Practice Guideline Update

*Alison W. Loren, Pamela B. Mangu, Lindsay Nohr Beck, Lawrence Brennan, Anthony J. Magdalinski,
Ann H. Partridge, Gwendolyn Quinn, W. Hamish Wallace, and Kutluk Oktay*

ALL!!!

Key Recommendations

- Discuss fertility preservation with **all** patients of reproductive age (and with parents or guardians of children and adolescents) if infertility is a potential risk of therapy
- Refer patients who express an interest in fertility preservation (and patients who are ambivalent) to reproductive specialists
- Address fertility preservation as early as possible, before treatment starts
- Document fertility preservation discussions in the medical record
- Answer basic questions about whether fertility preservation may have an impact on successful cancer treatment
- Refer patients to psychosocial providers if they experience distress about potential infertility
- Encourage patients to participate in registries and clinical studies

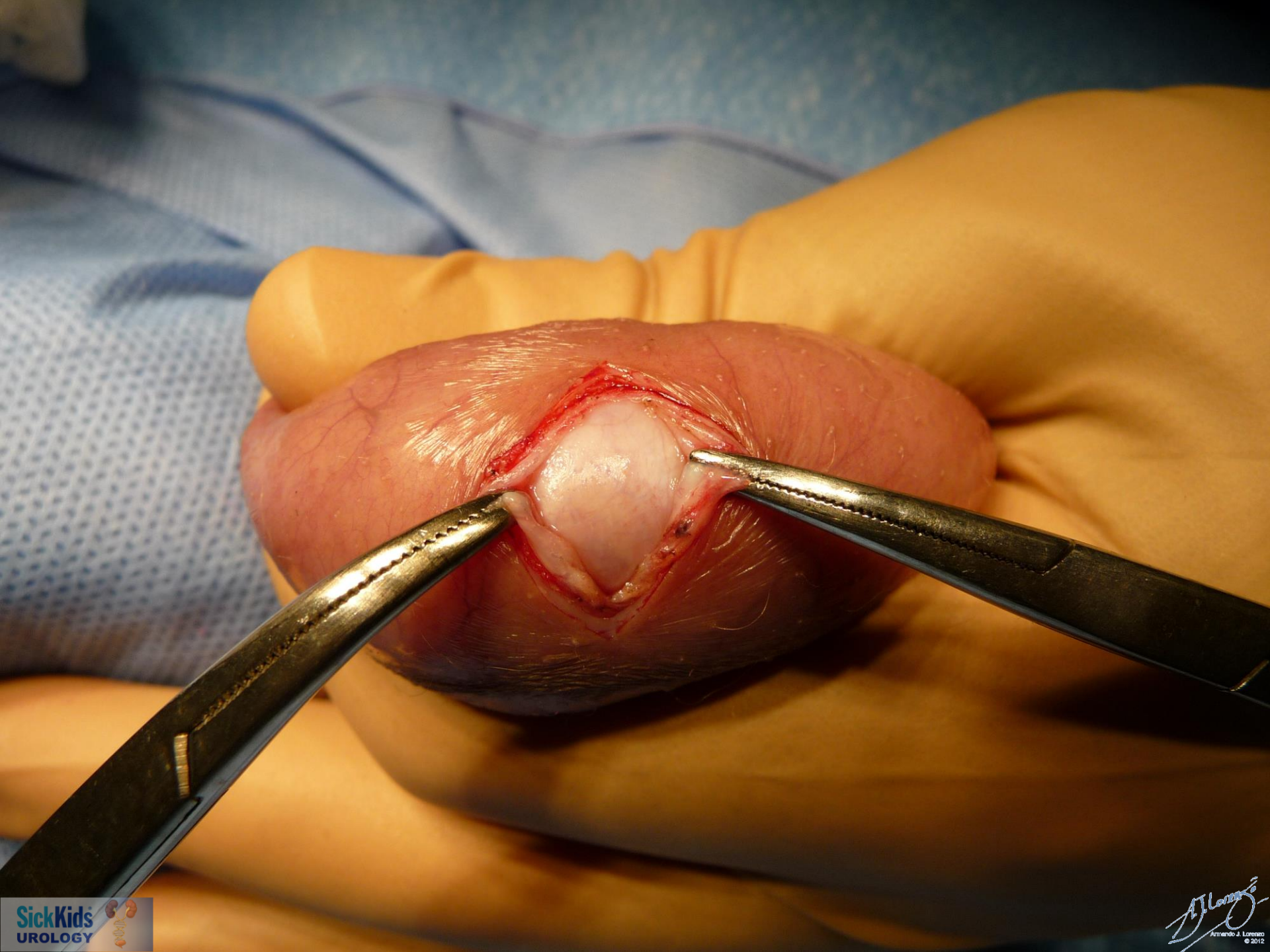
Risk vs. benefit?

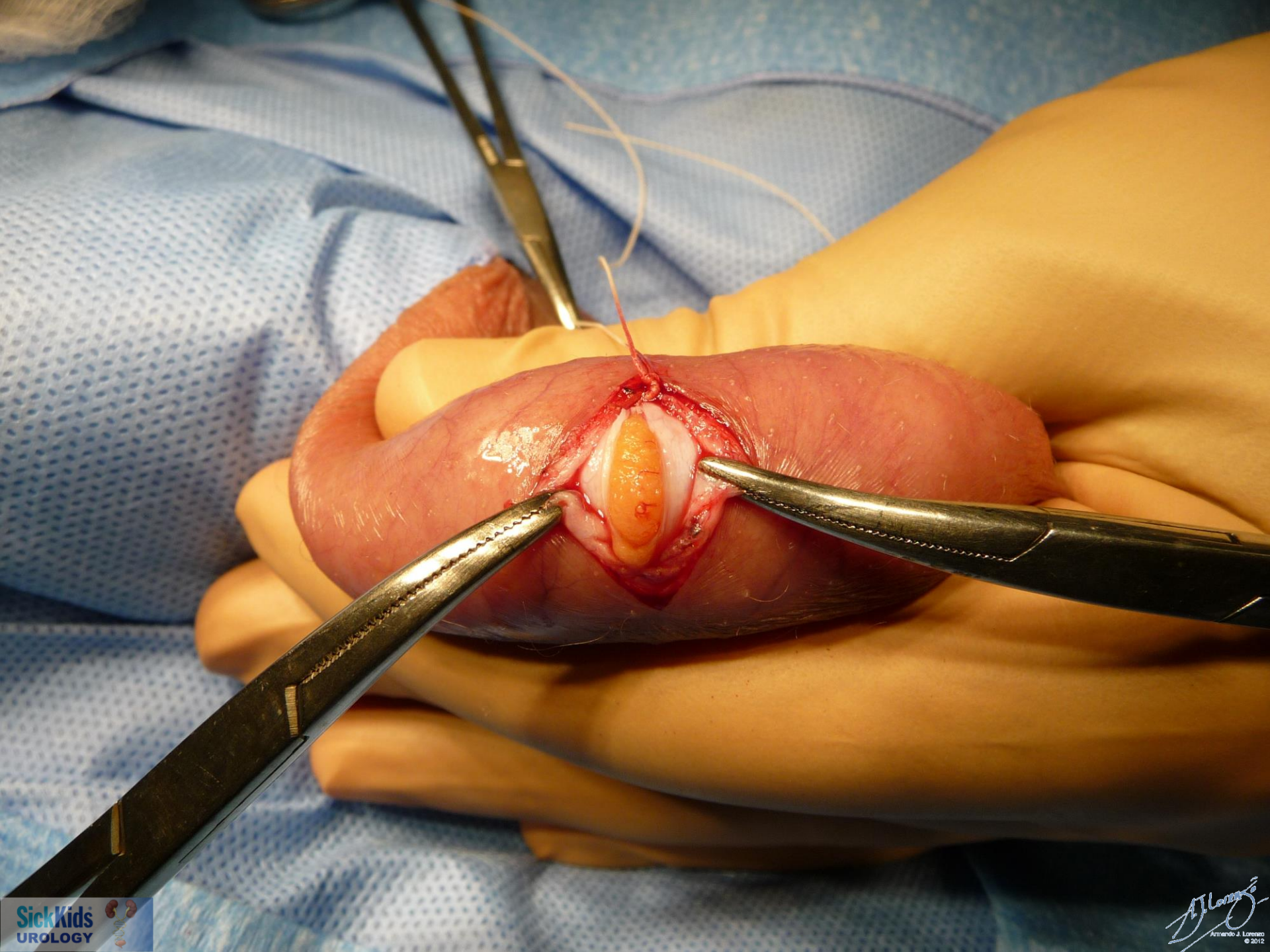
What does the procedure entail?

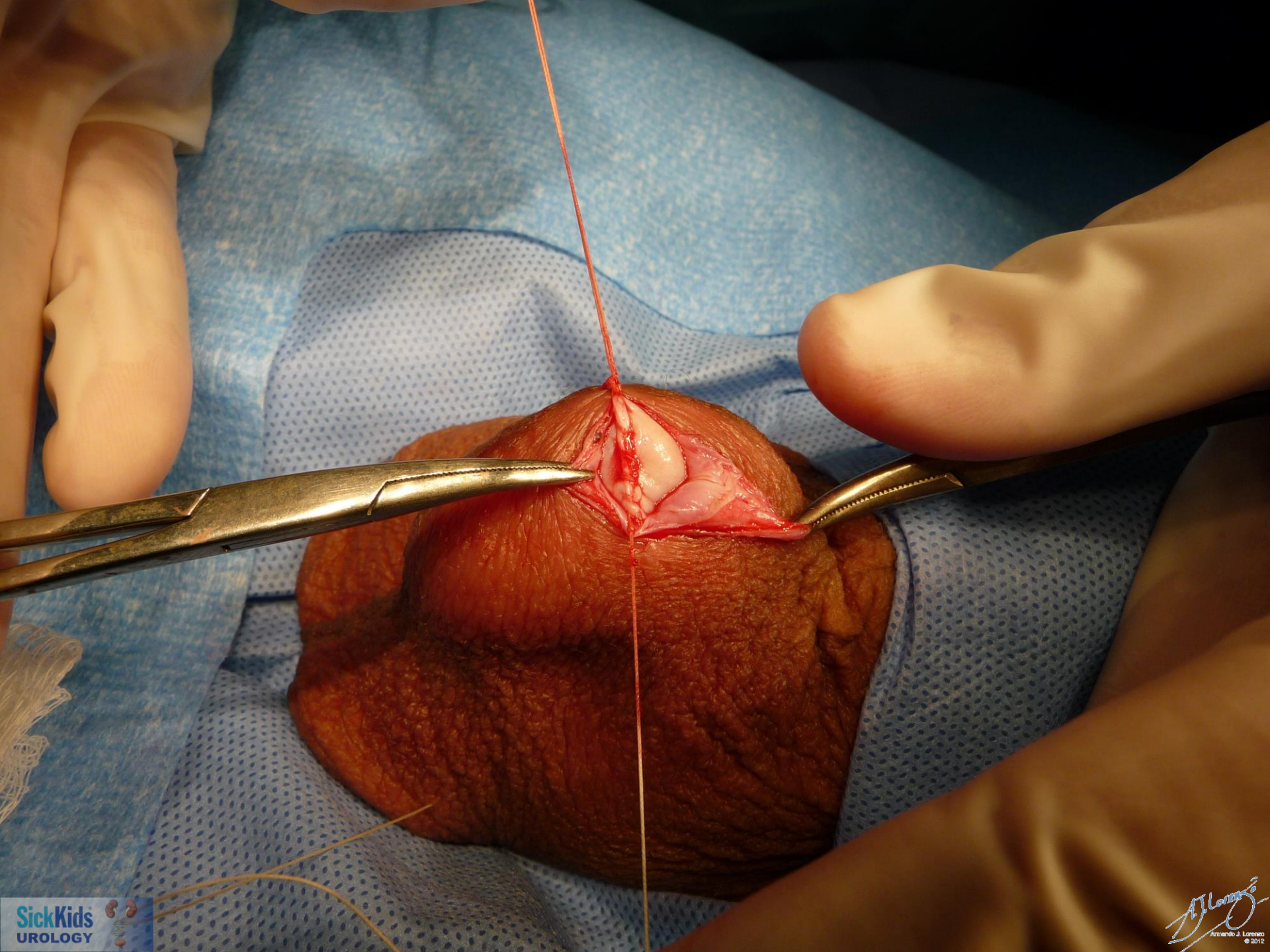
Minimal risk

At time of other
interventions/anesthesia







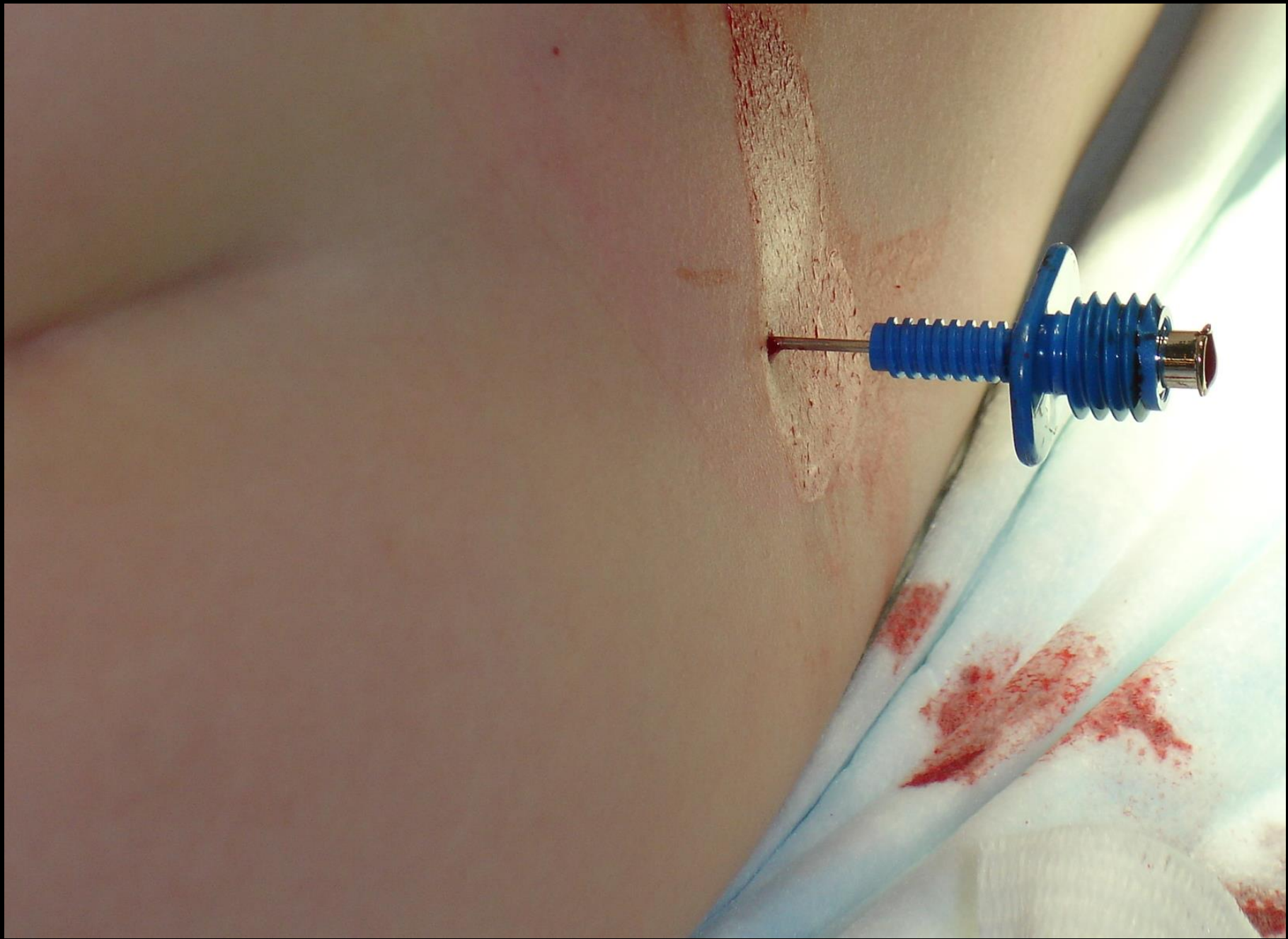




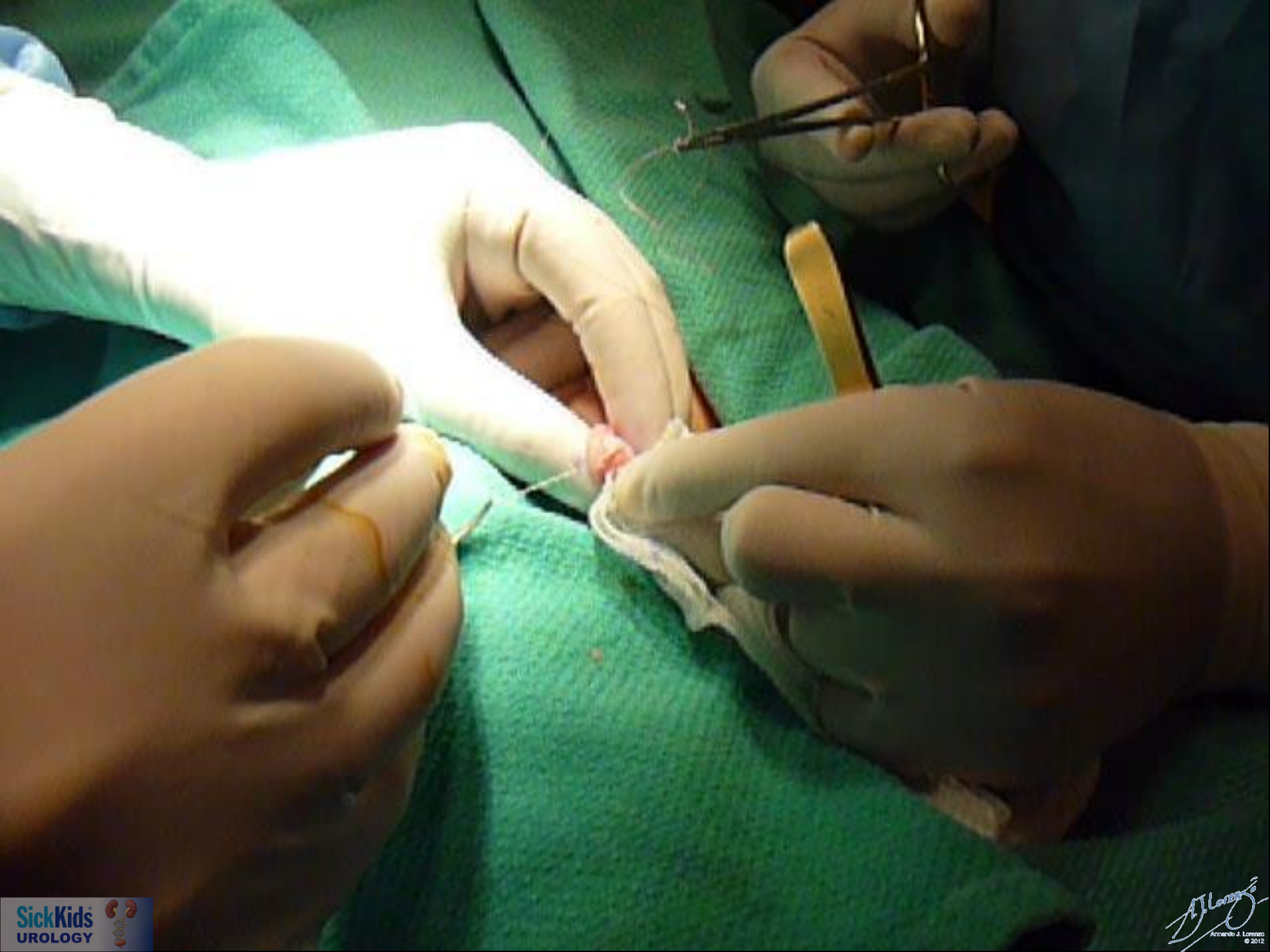


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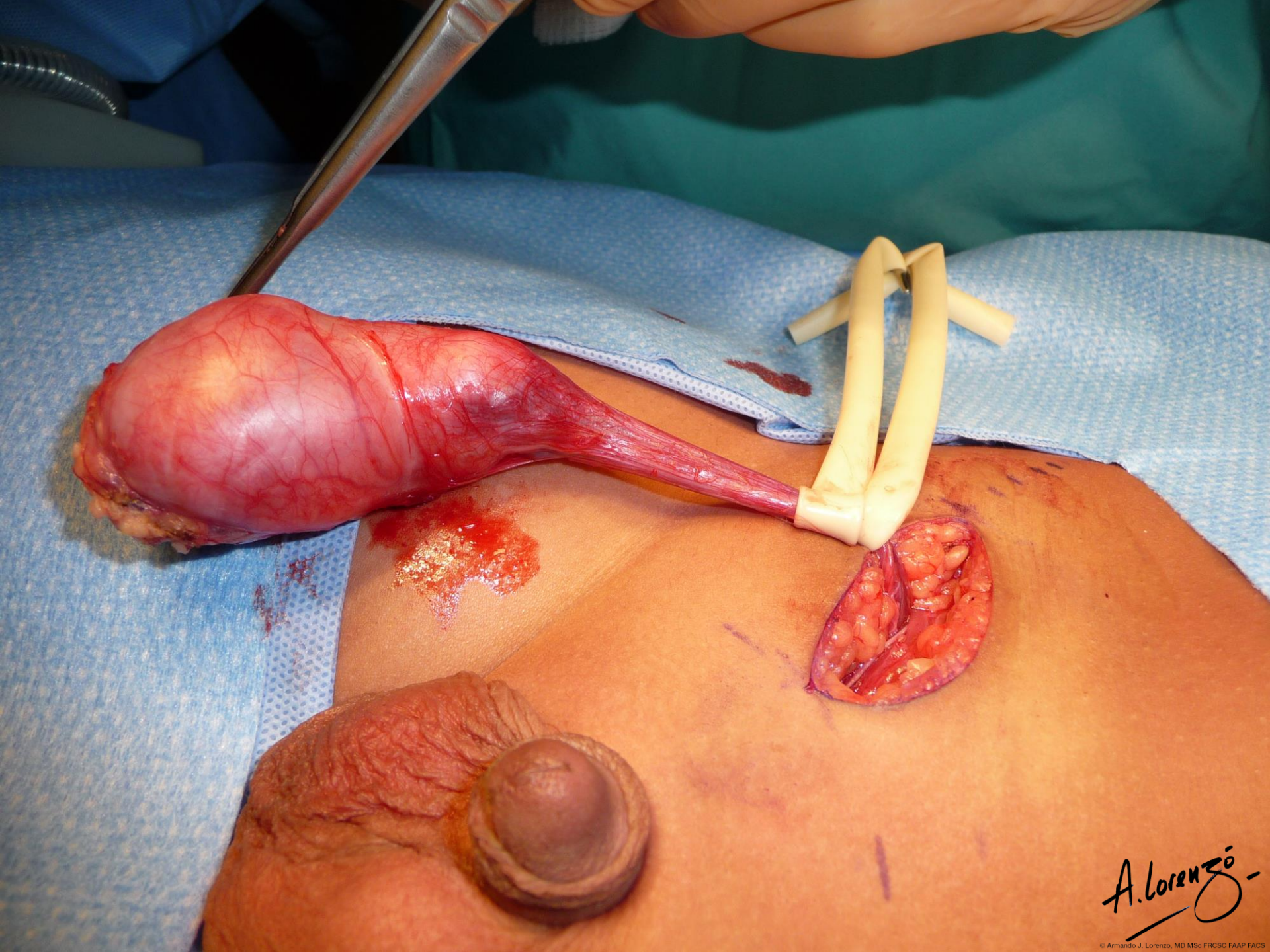
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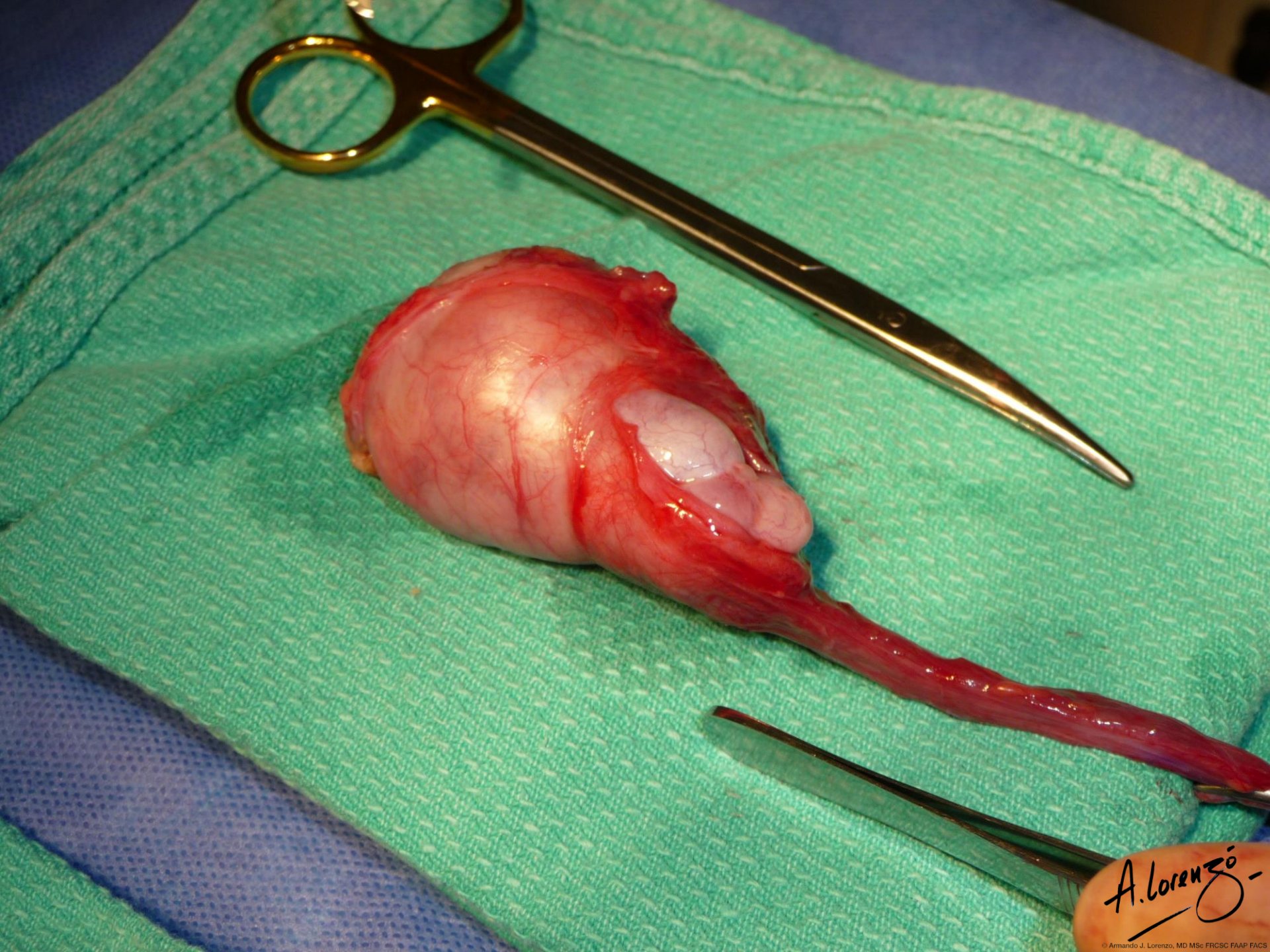




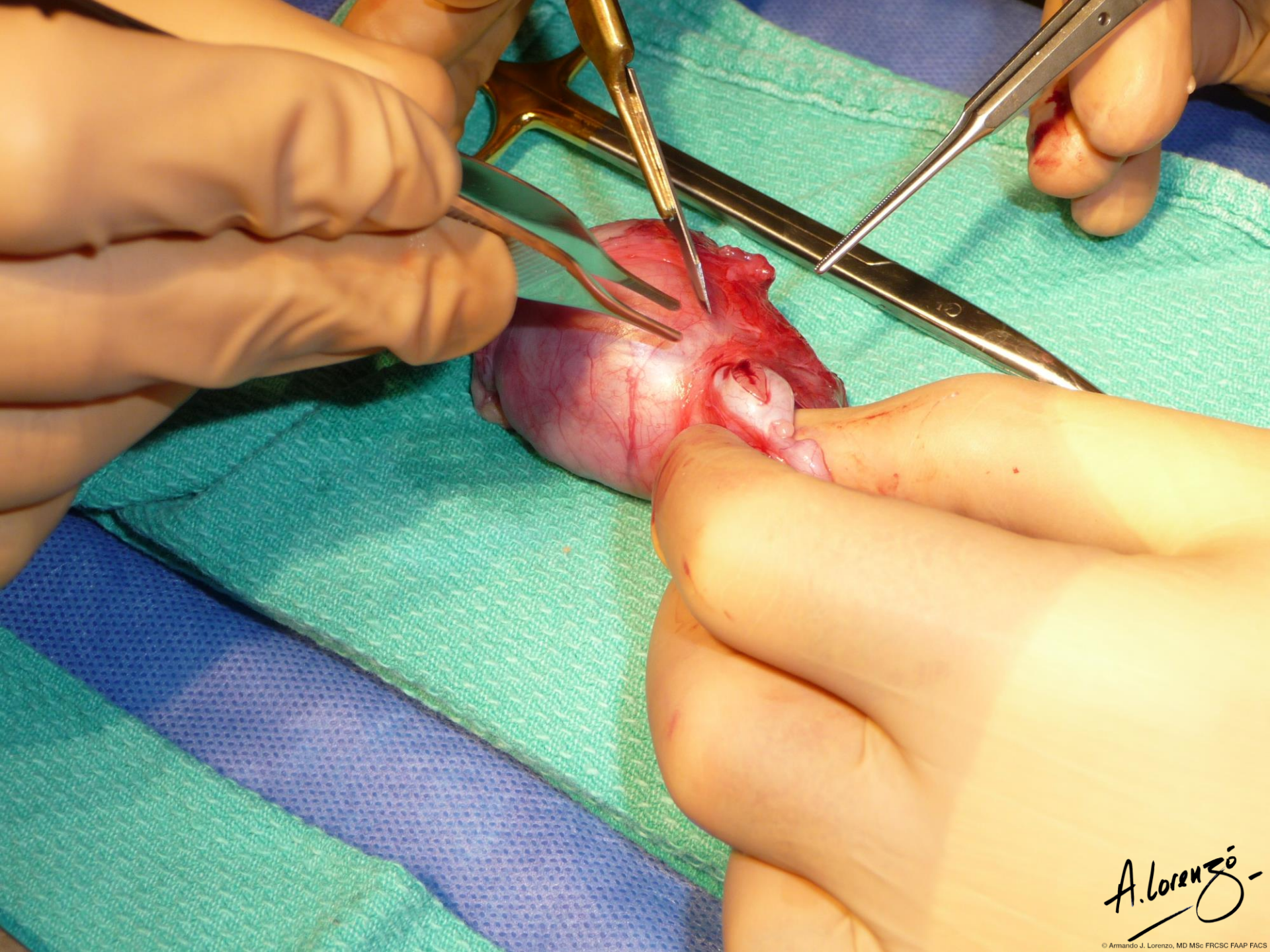


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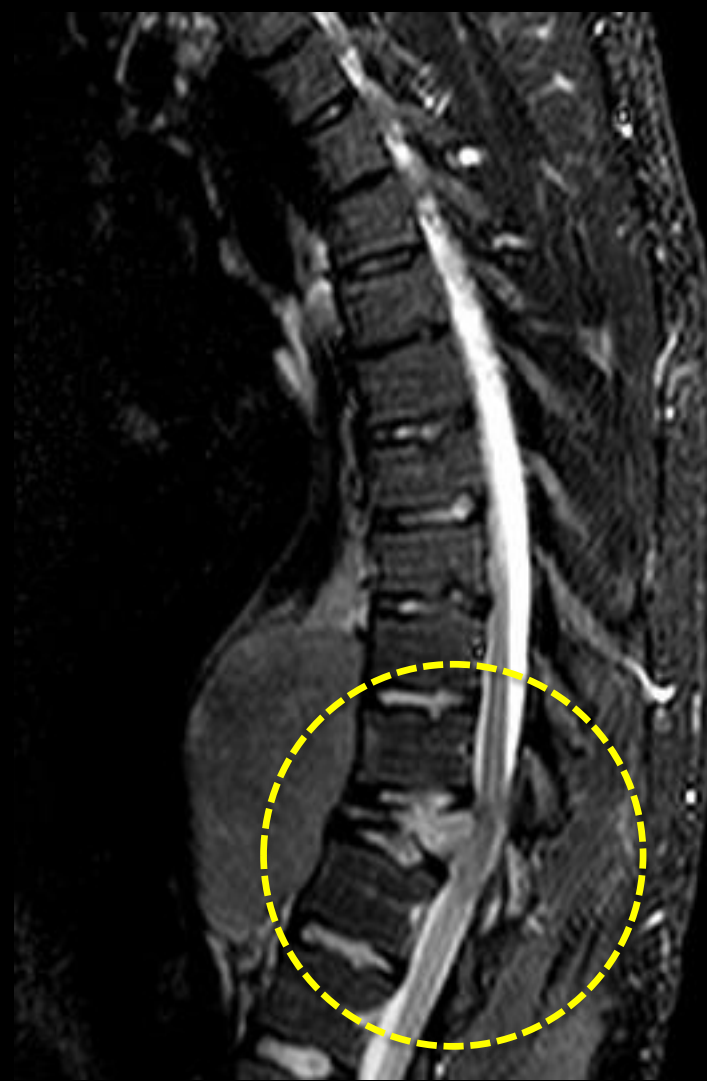
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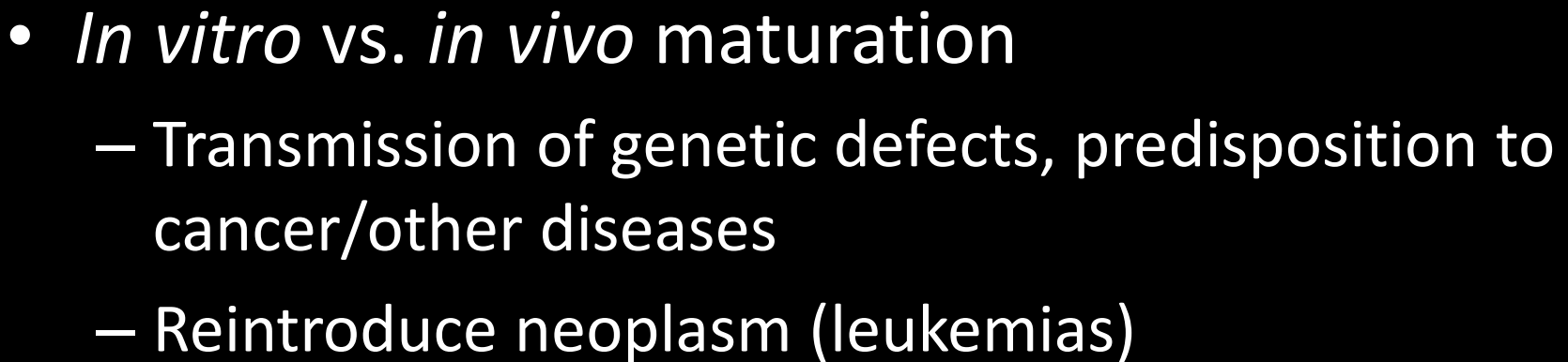




Bottom line

- *In vitro/in vivo* maturation techniques ***very likely to*** evolve and become feasible in the future
- We have time!









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Qscan

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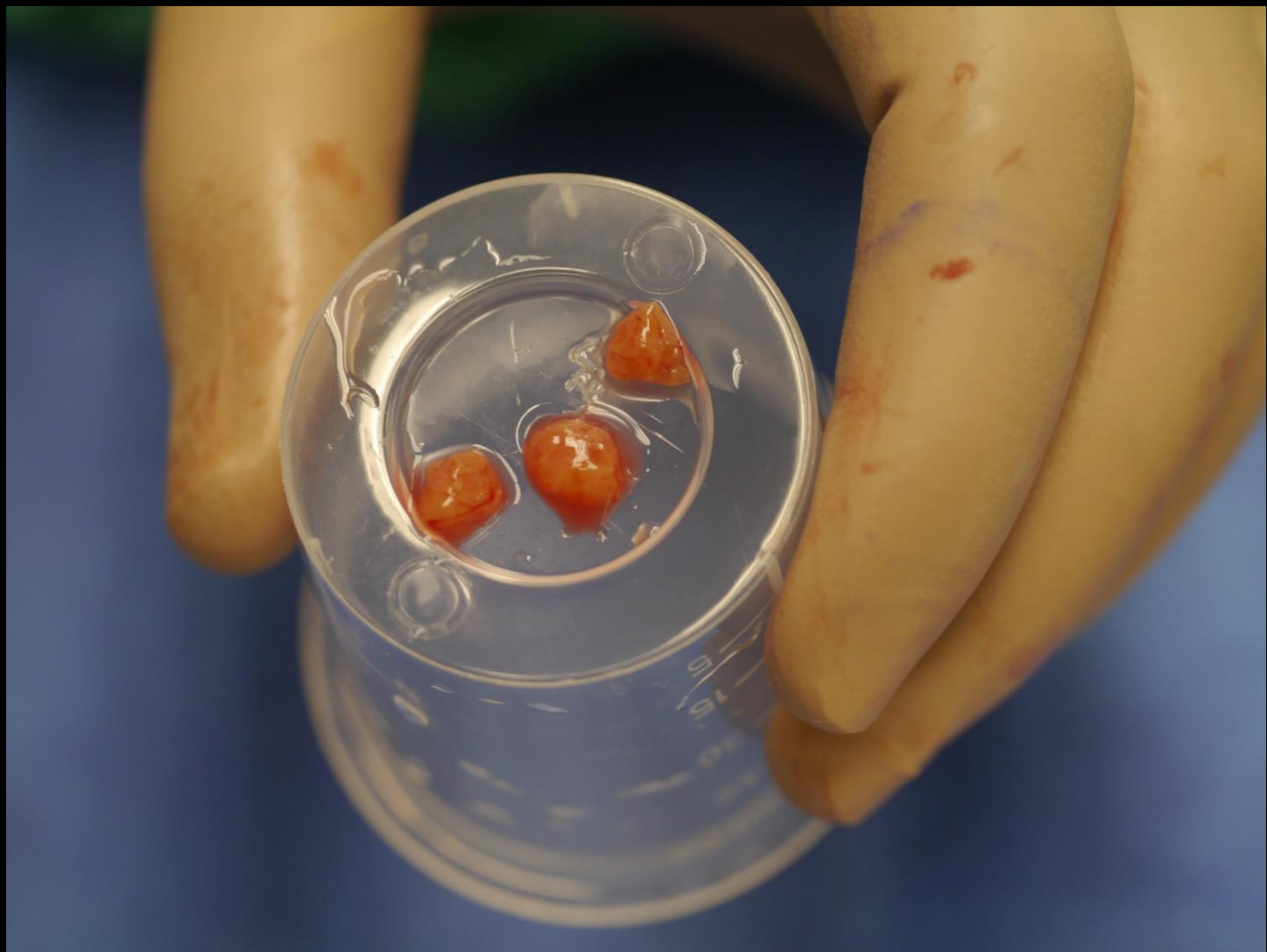
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Too
Much

Too
Little

Just
Right







MOOT POINT LN



Rule #1

Do No Harm

SECOND, DO GOOD

OUR goal





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Learning

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Fertility Preservation Program

For patients at or beyond puberty, egg or sperm samples can be taken and frozen for future use — a relatively novel process itself called “onco-fertility.” Until now, though, there was no way to reverse the sterilizing effects of chemotherapy and radiation on the youngest of patients — babies, toddlers and grade-schoolers.

Enter, the SickKids **Fertility Preservation Program**.

Welcome to our new website! Here, you will find interesting and informative content from some of the world's leading experts in the field.

Keep this site book-marked, as we will be launching more great content to help guide our patients and their families.



Centres

Select one...

Finding new ways of working together, with the ultimate goal of integrating research, education and clinical care to improve children's health.

Health A-Z by AboutKidsHealth

Quick search by first letter

A	B	C	D	E	F	G	H
I	J	K	L	M	N	O	P
Q	R	S	T	U	V	W	X
Y	Z						

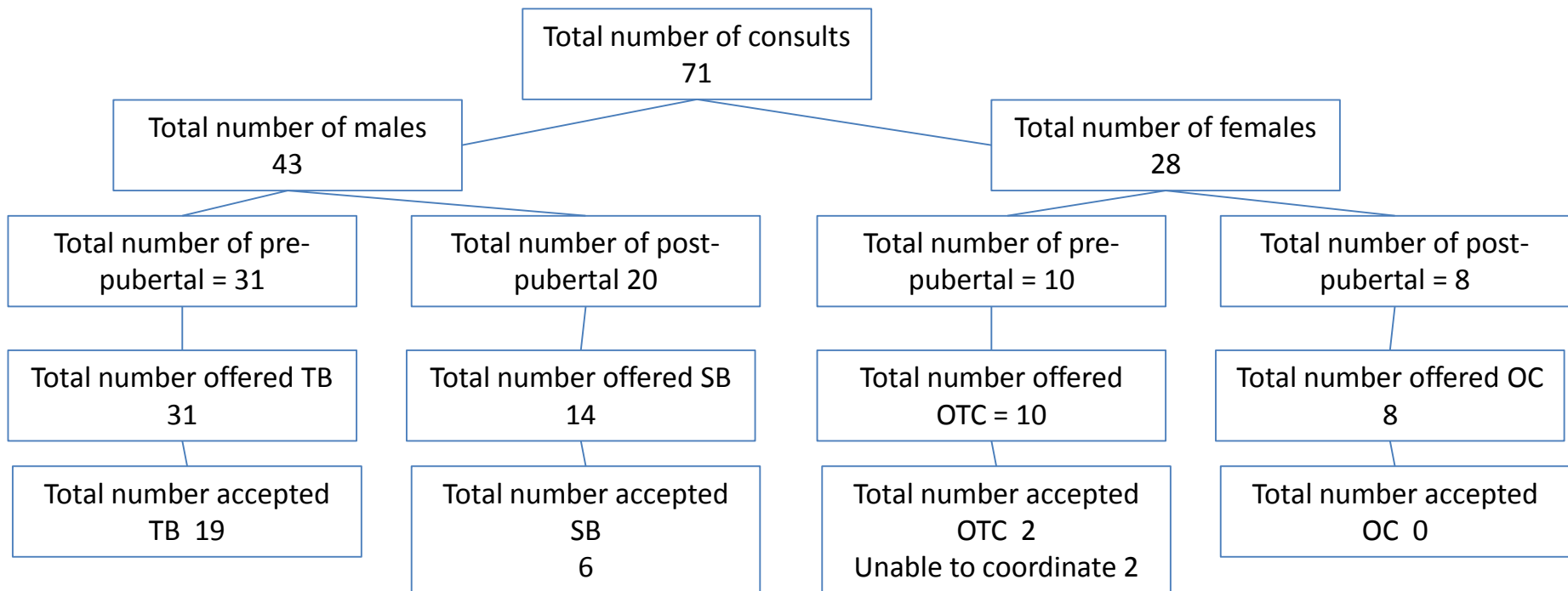
Support SickKids

Your donation makes a difference. Support SickKids and help us achieve our vision of Healthier Children. A Better World.

Visit www.sickkidsfoundation.com



SKFPP yearly activity



Age at surgery (years)	Diagnosis	Platelet (x10 ⁹ /L)
7.8	Relapse high risk precursor B cell ALL*	270
6.4	Burkitt's lymphoma	520
14.6	Relapsed intravascular large B cell lymphoma*	78
8.8	Rhabdomyosarcoma of R parameningeal	352
13.4	Aplastic anemia	51
12.6	Relapsed precursor B ALL*	134
4.4	Neuroblastoma*	62
3.8	Neuroblastoma	474
10.4	Metastatic medulloblastoma*	338
8.5	Relapse Burkitt's lymphoma*	80
5.7	JMML*	352
12.8	Metastatic medulloblastoma*#	188
12.0	Myelodysplastic syndrome + AML*	182
3.6	Anaplastic large cell lymphoma	146
9.3	Myelodysplastic syndrome	77
0.7	HLH	216
10.0	Embryonal sarcoma of liver	650
2.8	Stage IV Neuroblastoma*	373
15.8	Relapsed T cell ALL*	47
11.6	AML*	68
10.0	Medulloblastoma	380
0.6	HLH	368
2.7	Stage IV Neuroblastoma*	88
4.2	Aplastic anemia	61
8.8	Idiopathic aplastic anemia	55
2.6	Rhabdomyosarcoma of ear	283
3.0	Myelodysplastic syndrome*	116
0.6	HLH*	251
1.0	Hurler syndrome	367
4.4	Stage IV Neuroblastoma*	235
7.4	Neuroblastoma	257
10.1	Pineal NGGCT	204
0.8	Ewing's sarcoma	137
12.4	Medulloblastoma	327
7.2 ± 4.5	* prior chemotherapy	229 ± 150.3
	# prior radiation therapy	



- The message: *"I'm willing to bet on you making it"*
- Parents need **hope** to function effectively in the face of despair (The Oncologist 2012;17:398–404)



Division of Urology