Robotics in hospital

J.H. Roelink urologist UCT

19 March 2024

Disclosures

Topzorg voor uw levenskwaliteit

zgt

- None

Open surgery

Topzorg voor uw levenskwaliteit

Advantages

- Longest experience
- Haptic feedback
- Broad 3d vision
- Short(er) learning curve
- Cheap operation
- Often faster

Disadvantages

- Significant more blood loss
- Largest trauma
- Longer p/o recovery
- Indirect costs
- Less intraoperative novelties
- Poor ergonomics

Laparoscopy

Topzorg voor uw levenskwaliteit

Advantages

- Vision on spot
- Less morbidity
- Less blood loss
- Less adhesions
- Less inflammatory reaction
- Faster recovery
- Cosmetics
- Cheaper?

Disadvantages

- Even worse ergonomics
- Difficult learning curve
- Crossing and scaling
- Less haptical feedback
- Direct costs
- Time consuming

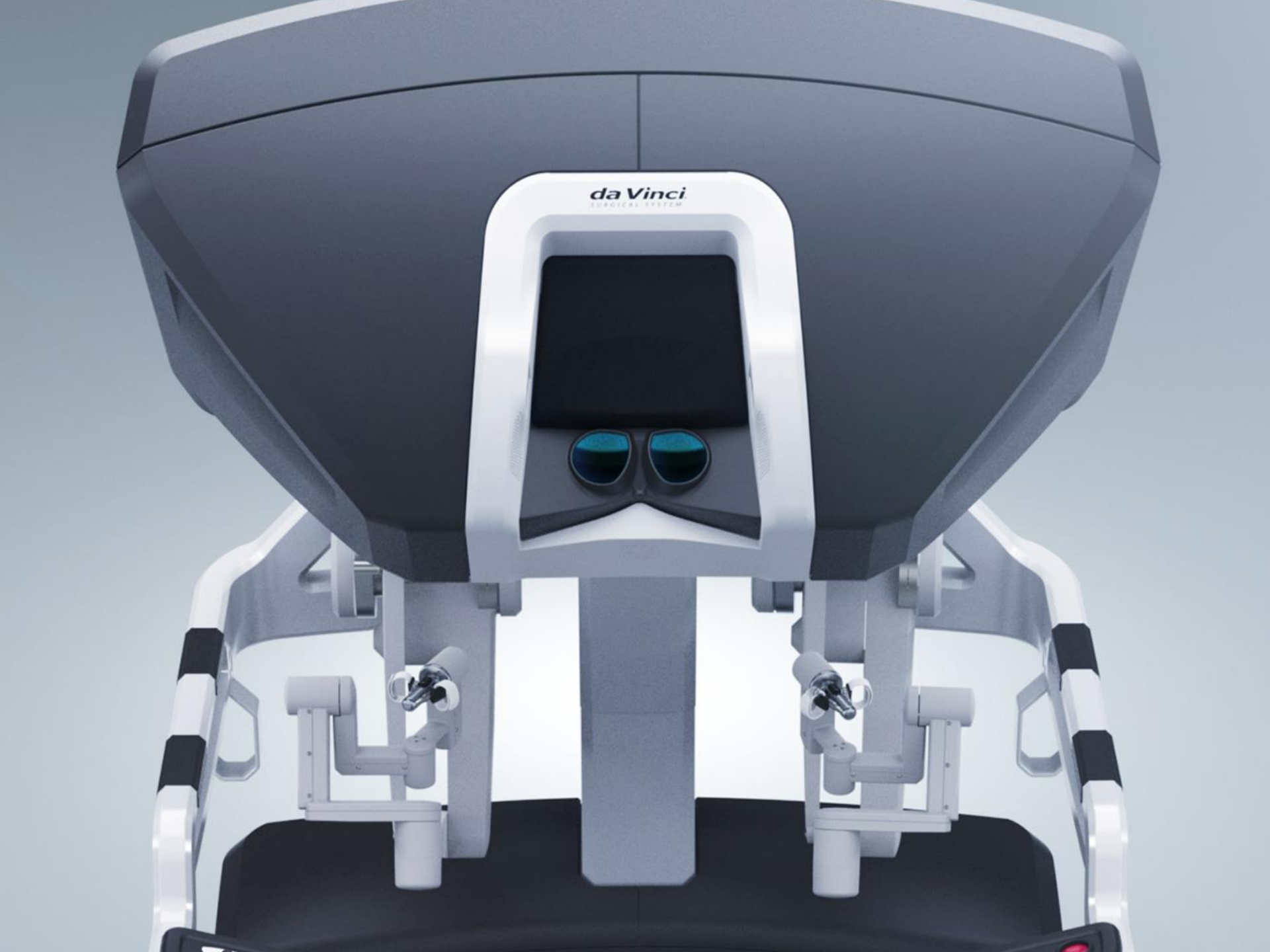
Robot assisted surgery

- Meester-slave configuration
- …it makes laparoscopy (very much) easier…
  - Superior ergonomics compared to open or laparoscopic surgery
  - 3-D vision (a better cameraman)
  - Articulating instruments
  - 1 surgeon with 4 hands
  - Reversed scaling
  - The safest way to teach and learn laparoscopy
- Simplifies difficult, physically heavy laparoscopic operations
- Enables laparoscopy without most of te disadvantages of laparoscopy

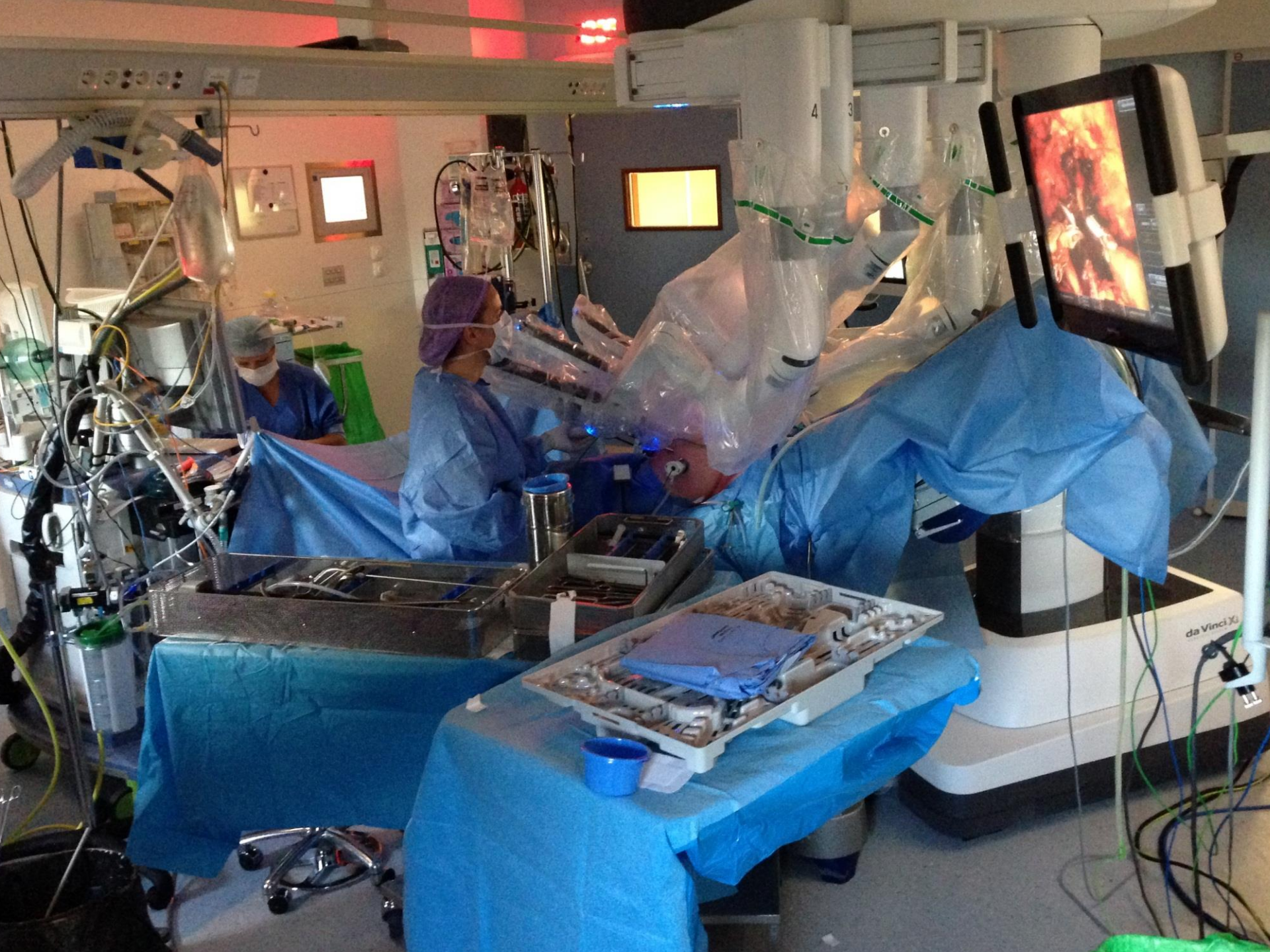
- Quite an investment…


Vinci Xi
GICAL SYSTEM


1
2
3
4


da Vinci


1
2
3
4
da Vinci Xi


da Vinci Xi

Teaser da Vinci Xi system

https://youtu.be/9lAYRZ9qz44

- https://www.zgt.nl/patienten-en-bezoekers/onze-specialismen/urologie/liveoperatie-prostatectomie-compilatie/

Early continence after urethrasparing robotassisted laparoscopic prostatectomy

K. Hulshof M. Vermeer E.B. Cornel J.H. Roelink S.P. Stomps

8 april 2022

Incontinence after RALP

Heavy impact on quality of life

Dutch RALP-database 2017:

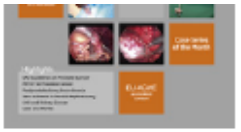
20% incontinence 1 jaar postoperative

Recent investigation healthinsurance compagnies: 30% of patient still buy incontinence pads

Urethrasparende techniek 2011

Topzorg voor uw levenskwaliteit

European Association of Urology



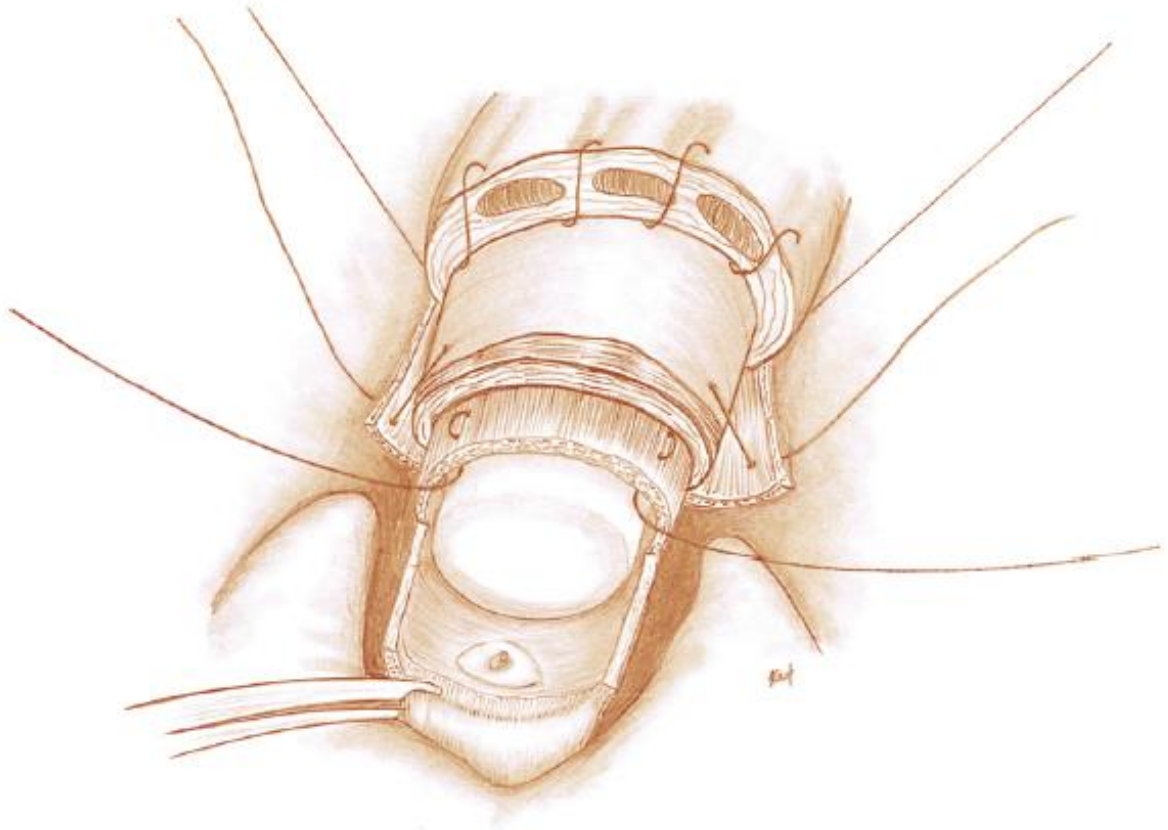
Surgery in Motion

Full Functional-Length Urethral Sphincter Preservation During Radical Prostatectomy

Thorsten Schlomm *, *Hans Heinzer*, *Thomas Steuber*, *Georg Salomon*, *Oliver Engel*, *Uwe Michl*, *Alexander Haese*, *Markus Graefen*, *Hartwig Huland*

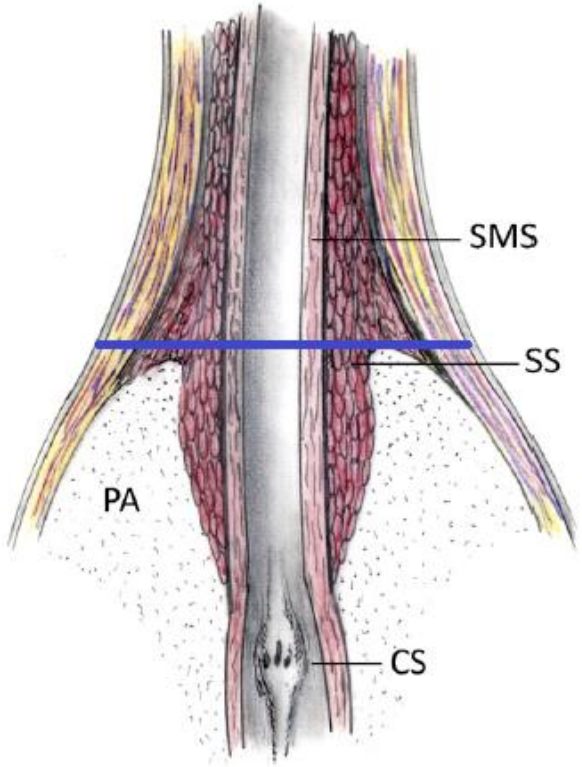
Martini-Clinic, Prostate Cancer Centre, University Medical Centre Hamburg-Eppendorf, Hamburg, Germany

Urethra-saving technique



Bron: artikel Schlomm et al.

Urethra-saving technique



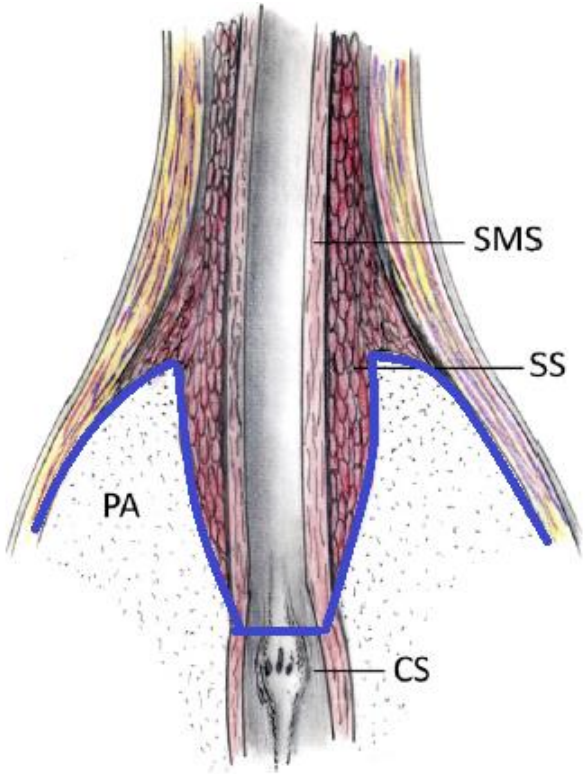
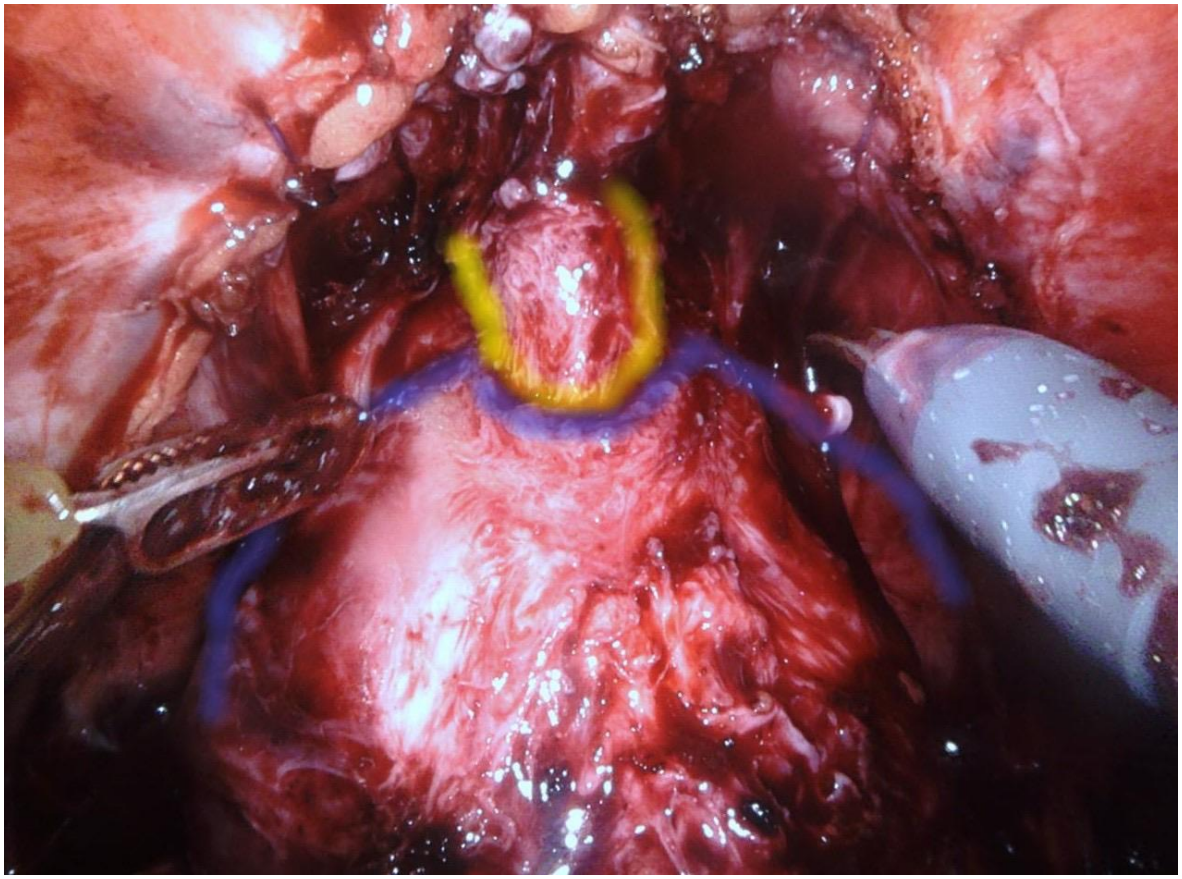
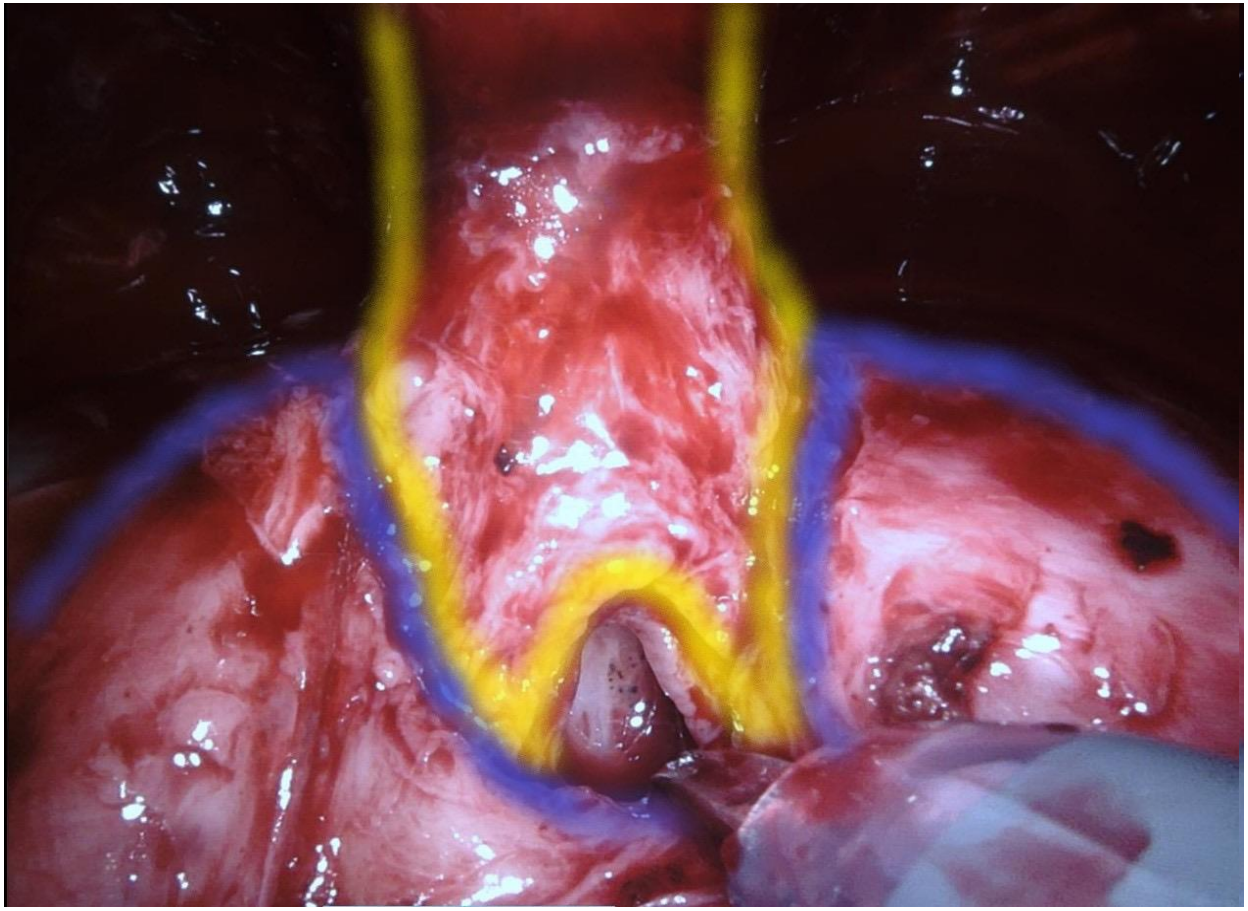


Fig. 1 – Transversal section of the prostatic apex. A considerable part of the urethral sphincter is located intraprostatically between the prostatic apex and the colliculus seminalis.
SMS = smooth muscle sphincter; SS = striated sphincter (rhabdosphincter); CS = colliculus seminalis; PA = prostatic apex.

Bron: artikel Schlomm et al.





Materiaal en methode

Continentie 6 weken, 3 en 6 maanden postoperatief

- PAD-test

Continent:

- Maximaal één pad/24 uur
- <10 mL/24 uur verlies

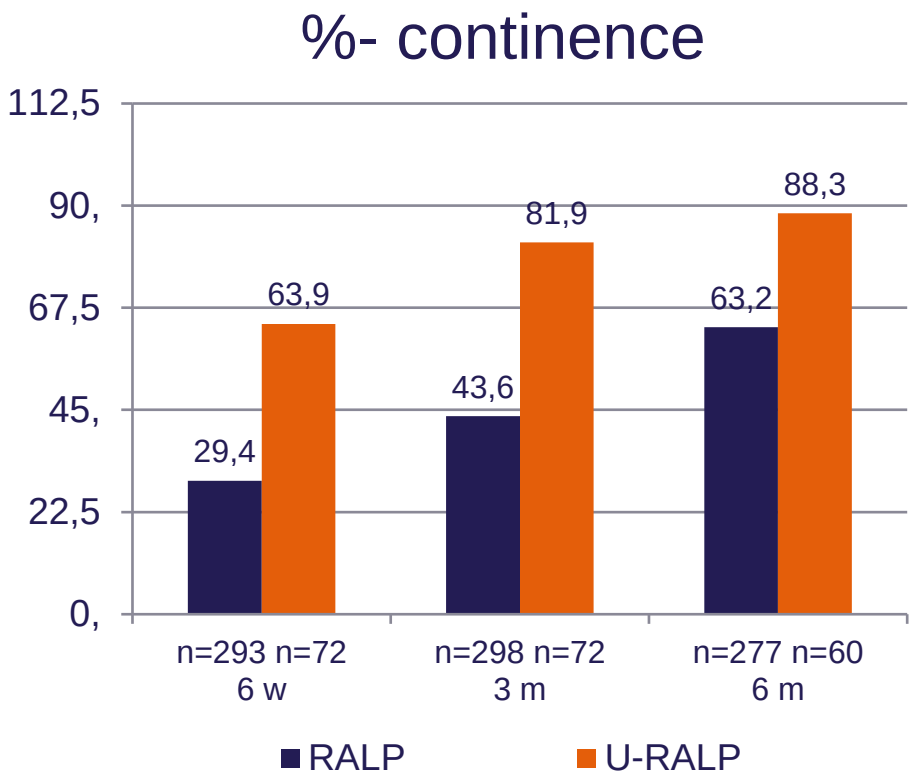
Results

Continence

	RALP	U-RALP	P-waarde
6 weeks	29,4%	63,9%	< 0,001
3 months	43,6%	81,9%	< 0,001
6 months	63,2%	88,3%	< 0,001

Surgical margins

	RALP	U-RALP	P-waarde
R+	33,0 %	27,8%	0,394



Tijdschr Urol (2021)

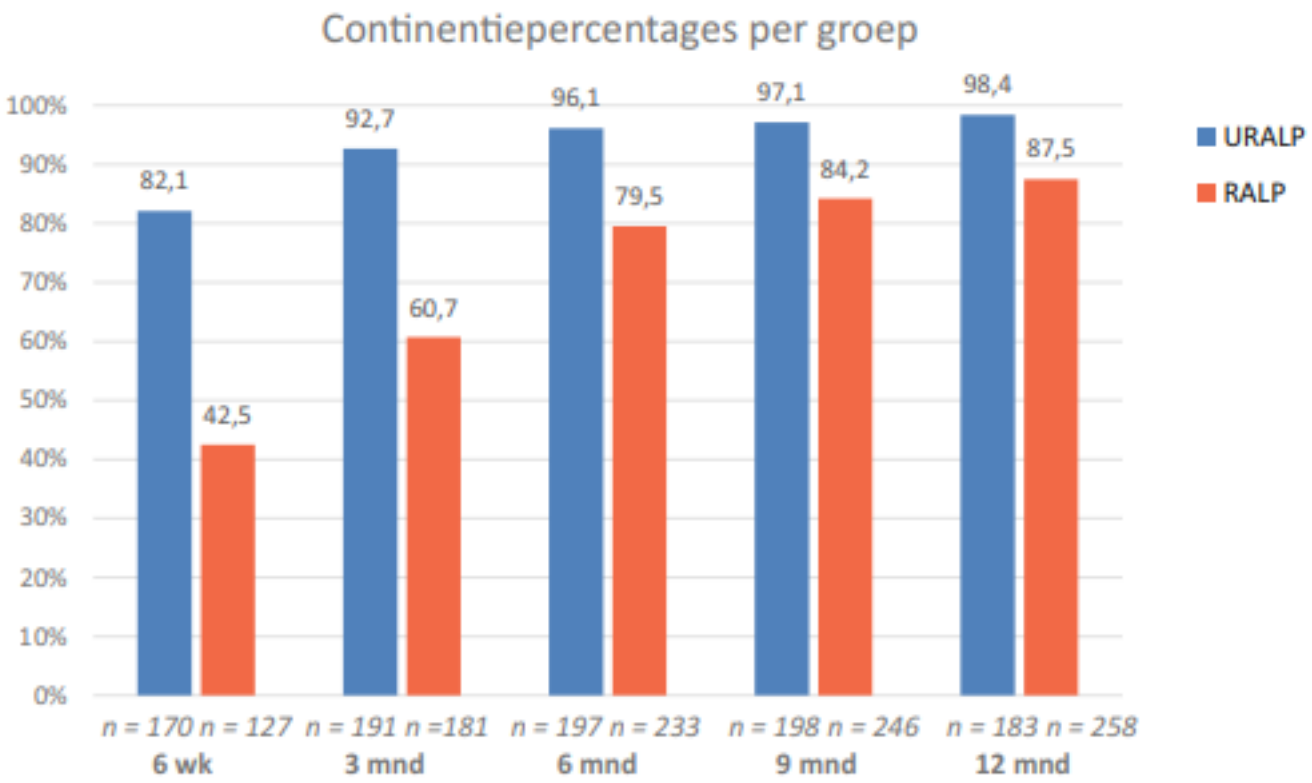
Verbetering van continentie door urethrasparende robotgeassisteerde laparoscopische prostatectomie

Kim Hulshof · Niek F. Casteleijn · Marloes Vermeer · J. Herman Roelink · Erik B. Cornel · Saskia P. Stomps

Topzorg voor uw

Artikel

Figuur 2 Postoperatieve continentiepercentages van URALP en RALP



In Conclusion

Topzorg voor uw levenskwaliteit

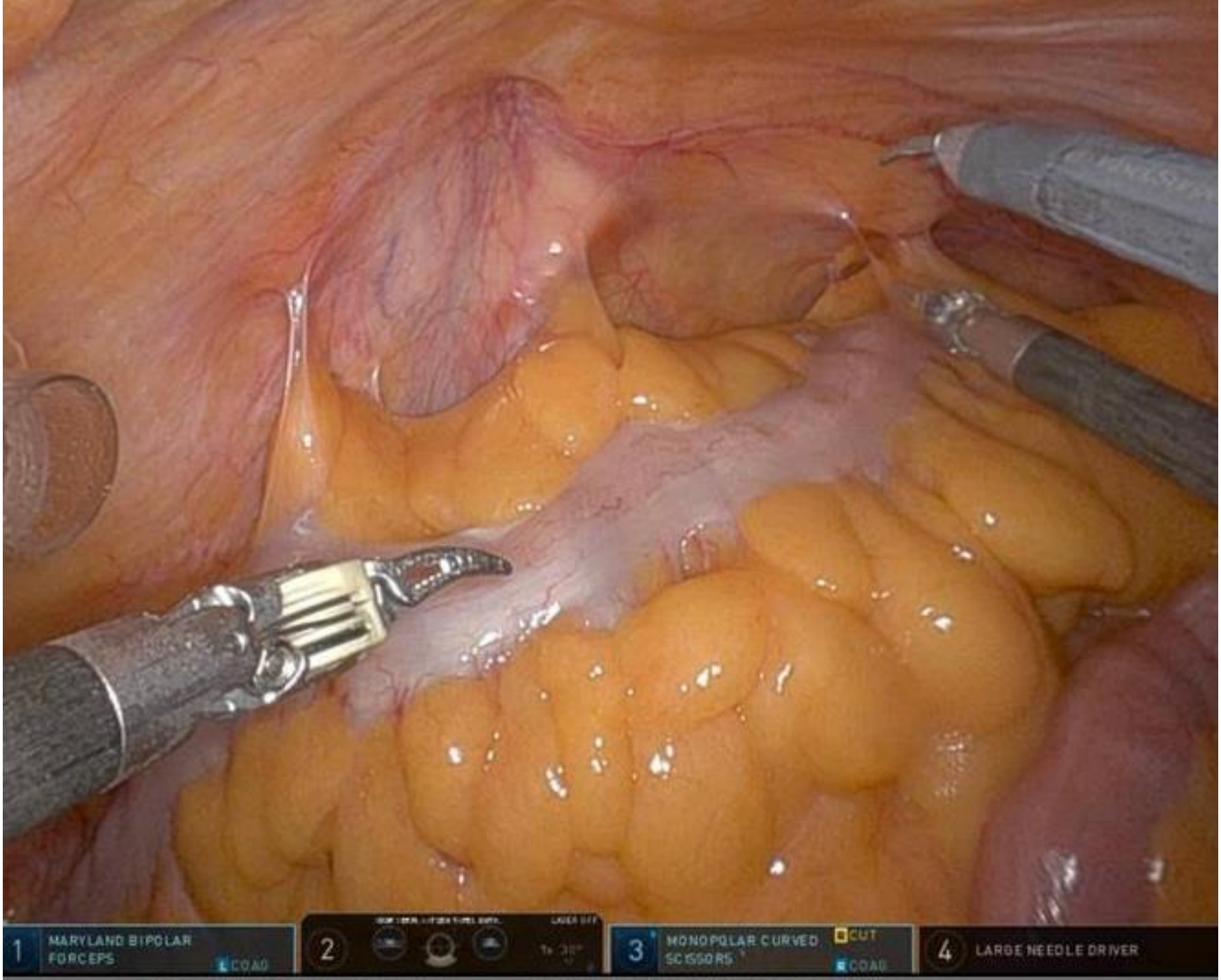
What did robot surgery bring us?

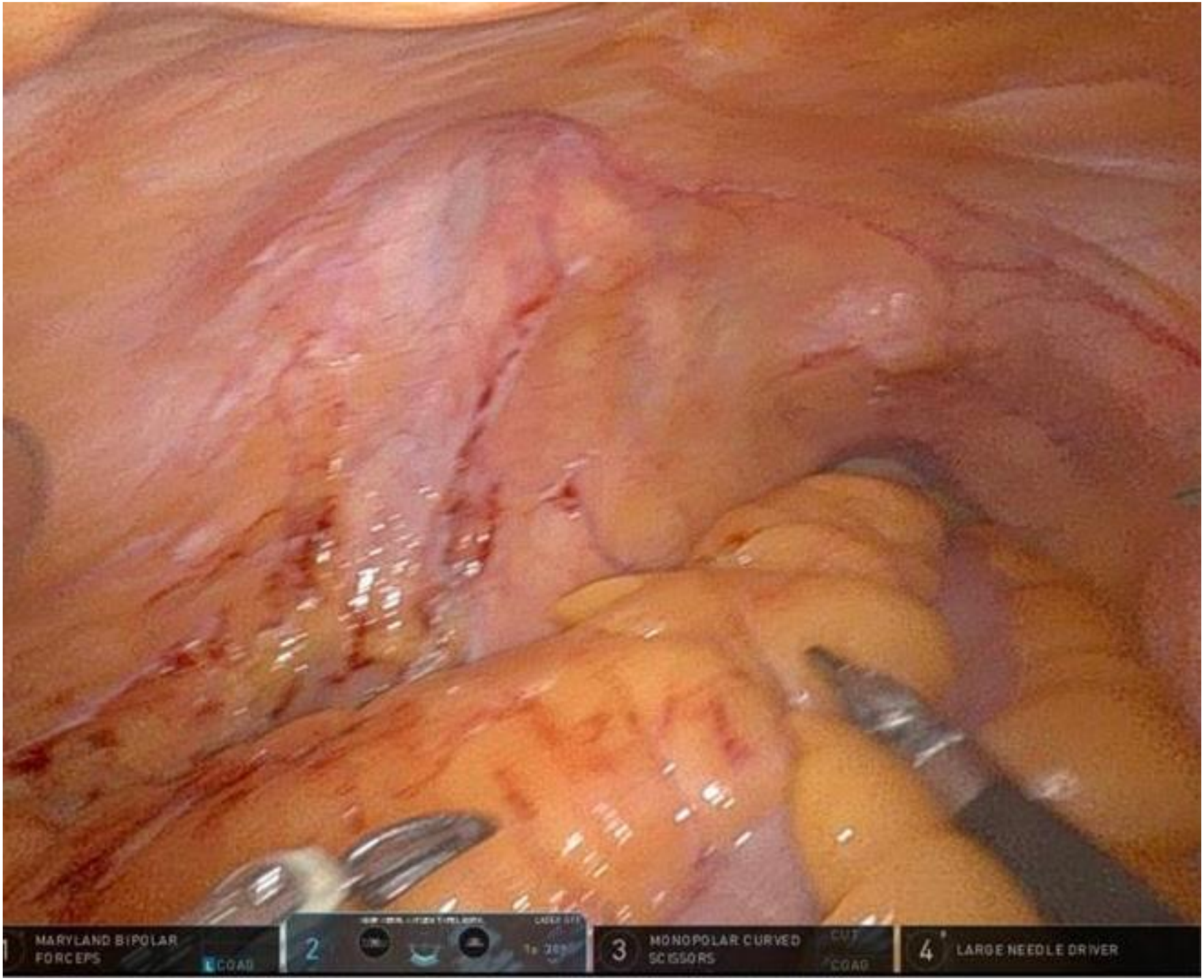
- We trained 2 more urologists in laparoscopic prostatectomies
- We became expert centre in our region
- Performed 60 laparoscopic prostatectomies in 2014
- Performed 172 RA laparoscopic prostatectomies in 2023
- Introduced urethra sparing surgery with rapid decrease in incontinence
- We can (re)start RA laparoscopisc cystectomies
- Fewer musculoskeletal problems for surgeons and OR assistants

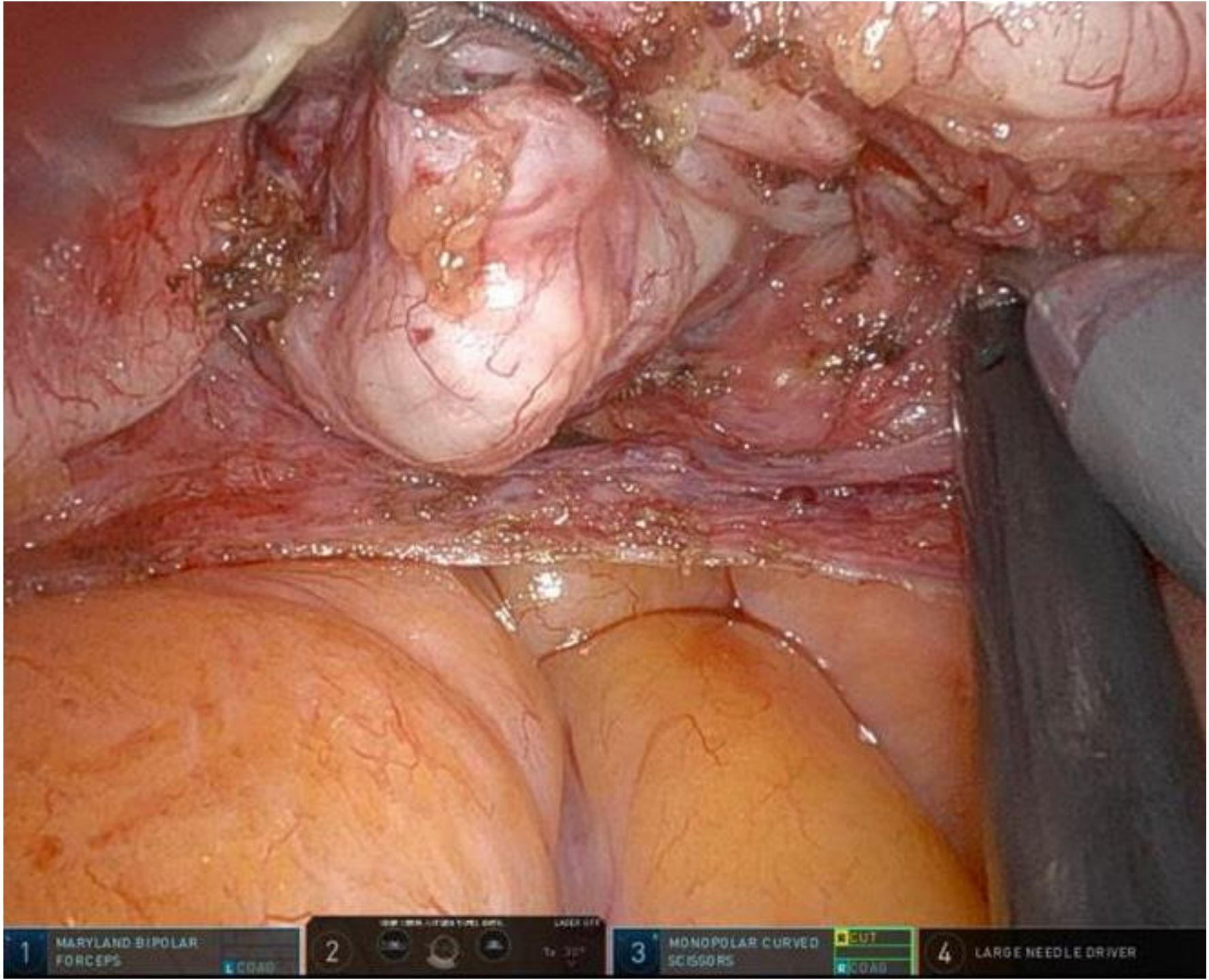
- Happy patients and therefore…
- Happy docters

Questions?

Topzorg voor uw levenskwaliteit

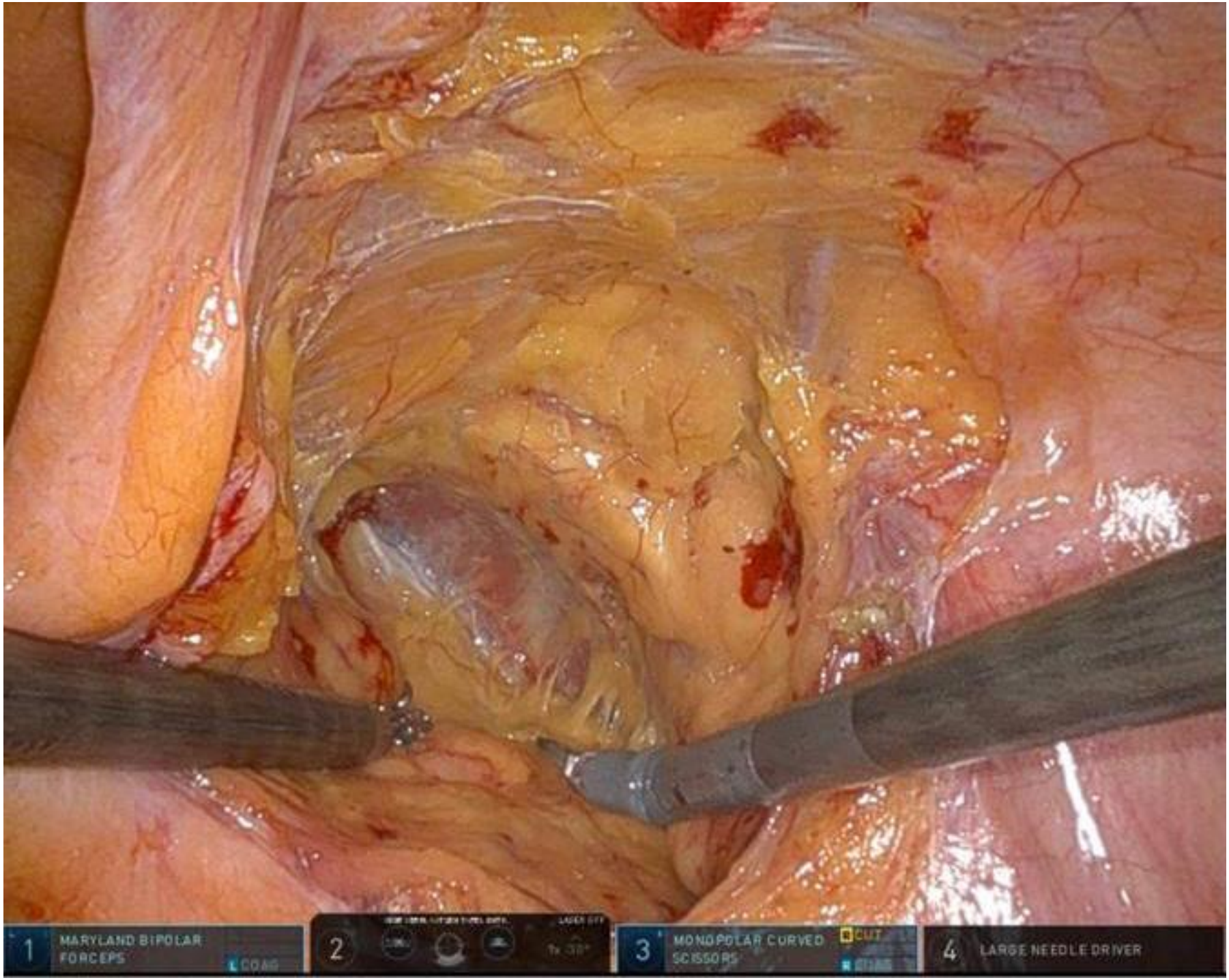


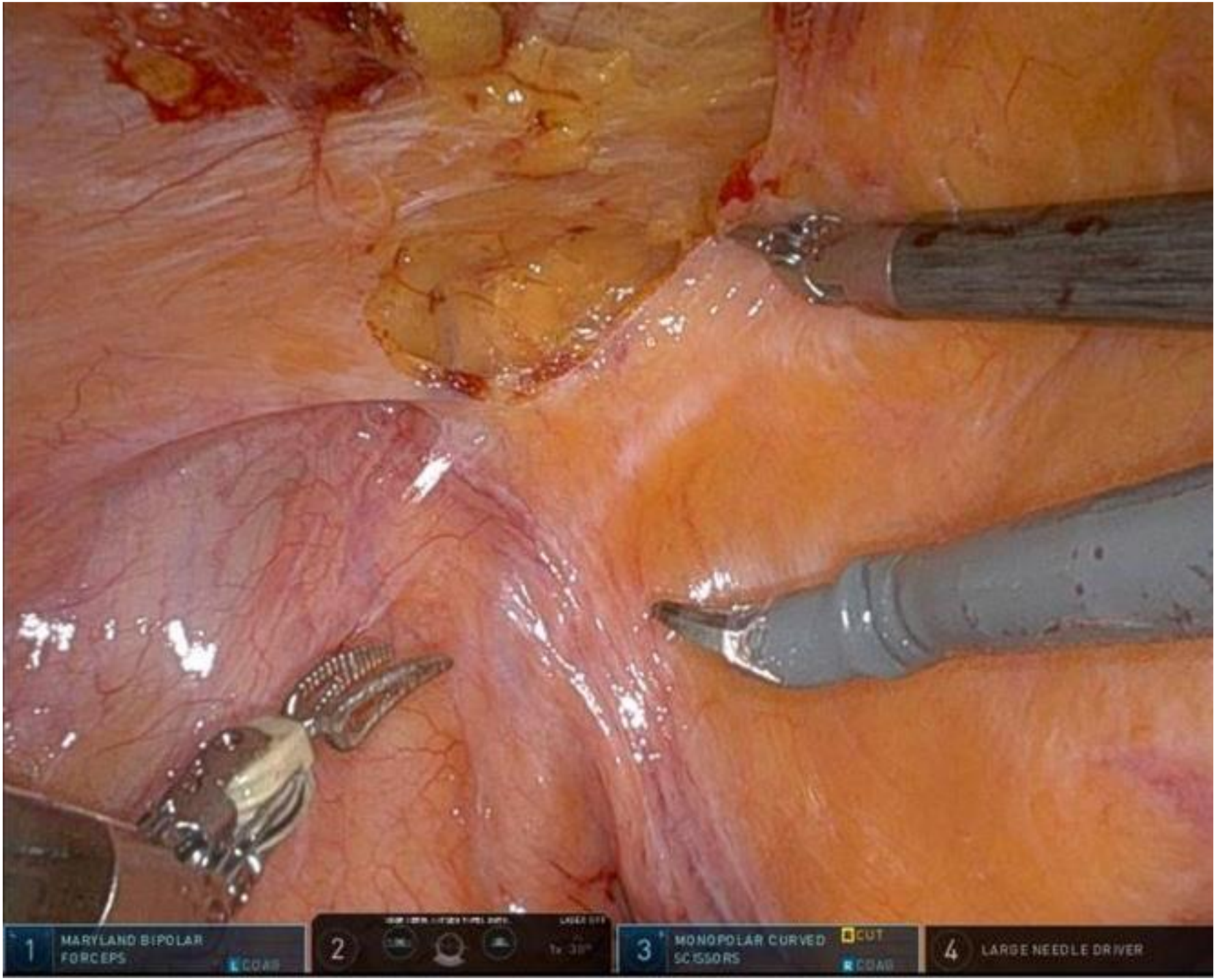

MARYLAND BIPOLAR FORCEPS
COAG
2
3
MONOPOLAR CURVED SCISSORS
CUT
COAG
4
LARGE NEEDLE DRIVER

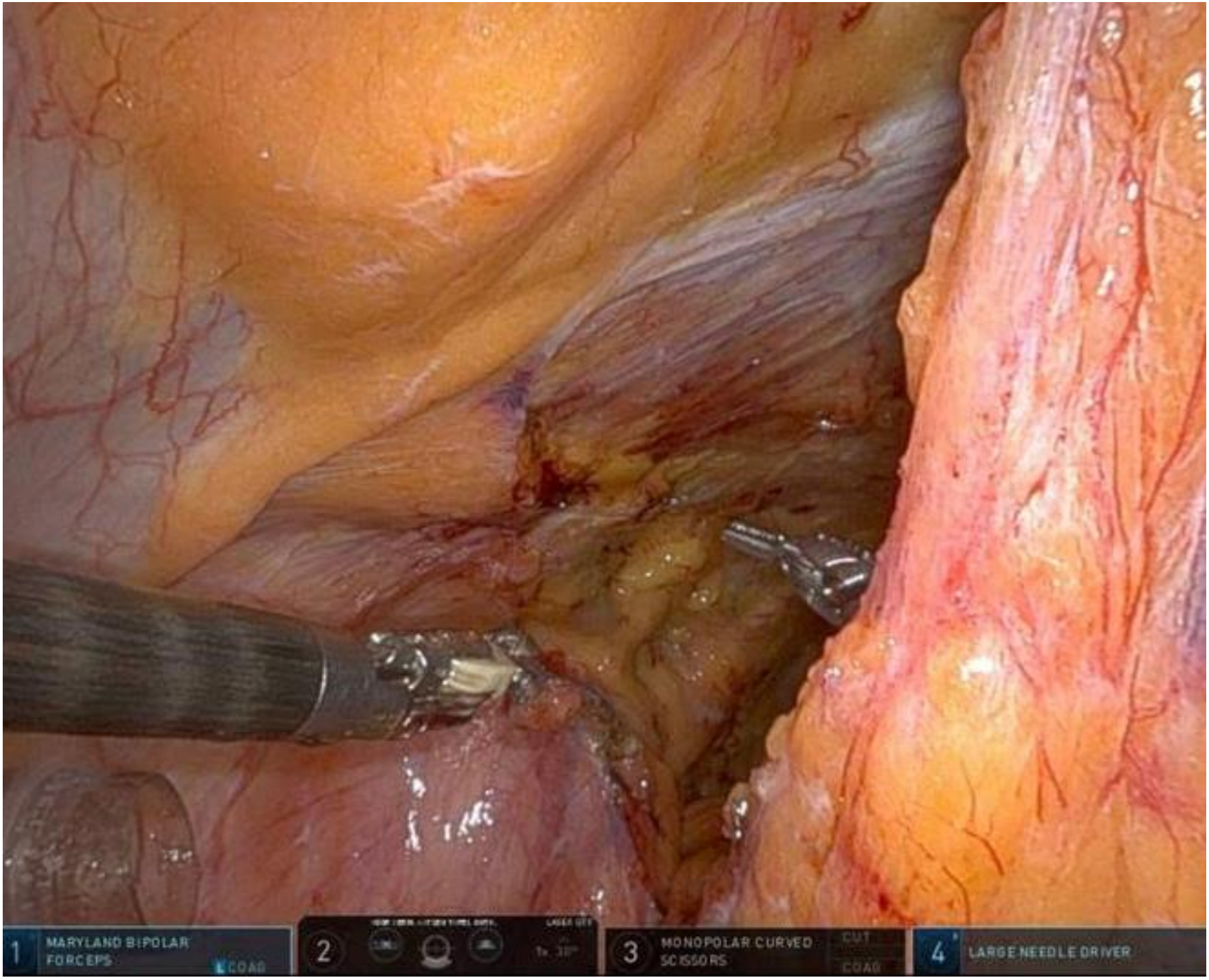

1
MARYLAND BIPOLAR FORCEPS
L COAG
2
3
MONOPOLAR CURVED SCISSORS
R CUT
R COAG
4
LARGE NEEDLE DRIVER

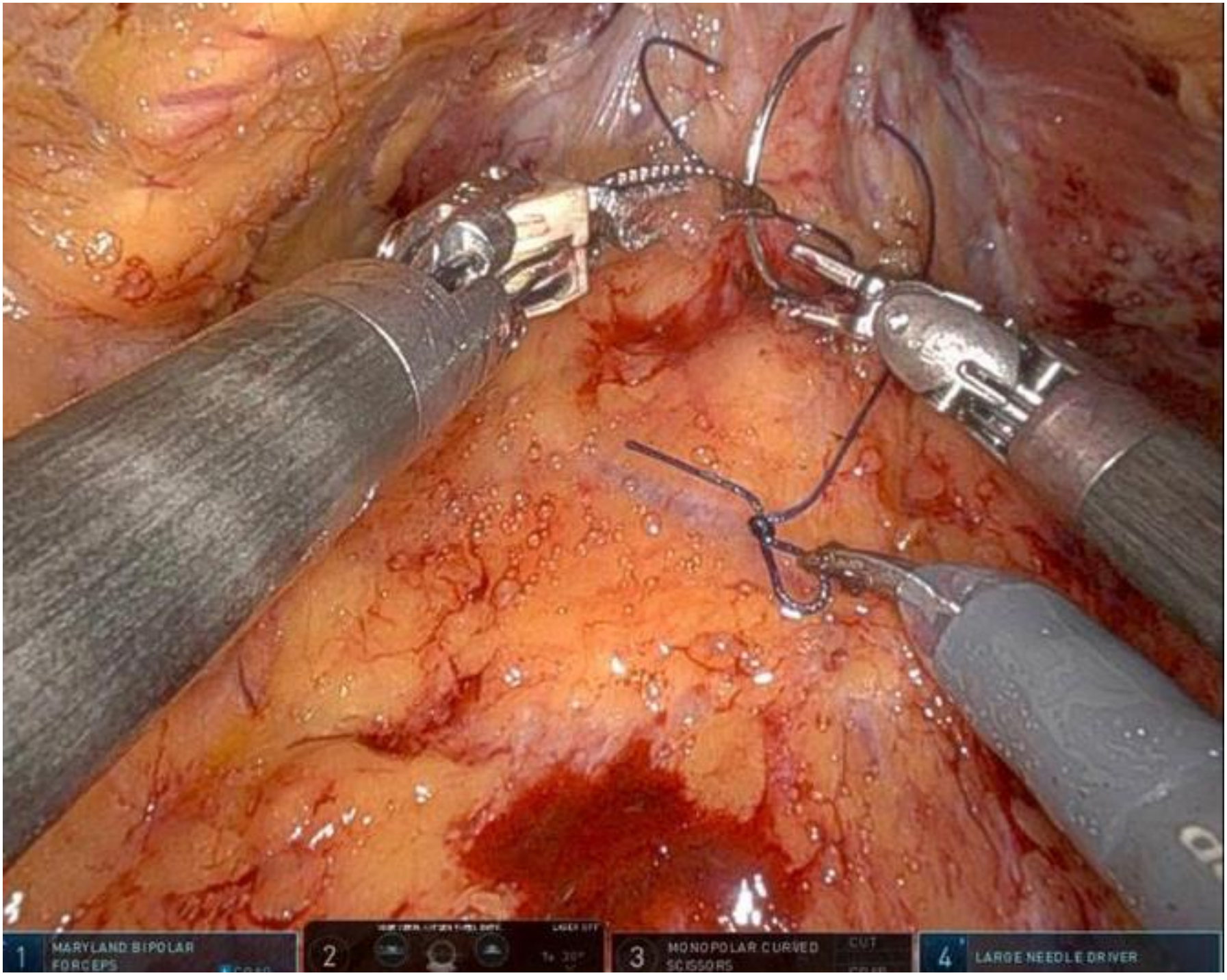

L 1
BEWEEG GREEP VOOR AFSTEMMING OP INSTRUMENT
1 MARYLAND BIPOLAR FORCEPS
L COAG
2
BEWEEG GREEP VOOR AFSTEMMING OP INSTRUMENT
3
3 MONOPOLAR CURVED SCISSORS
R CUT
R COAG
4 LARGE NEEDLE DRIVER
VinciSurgery

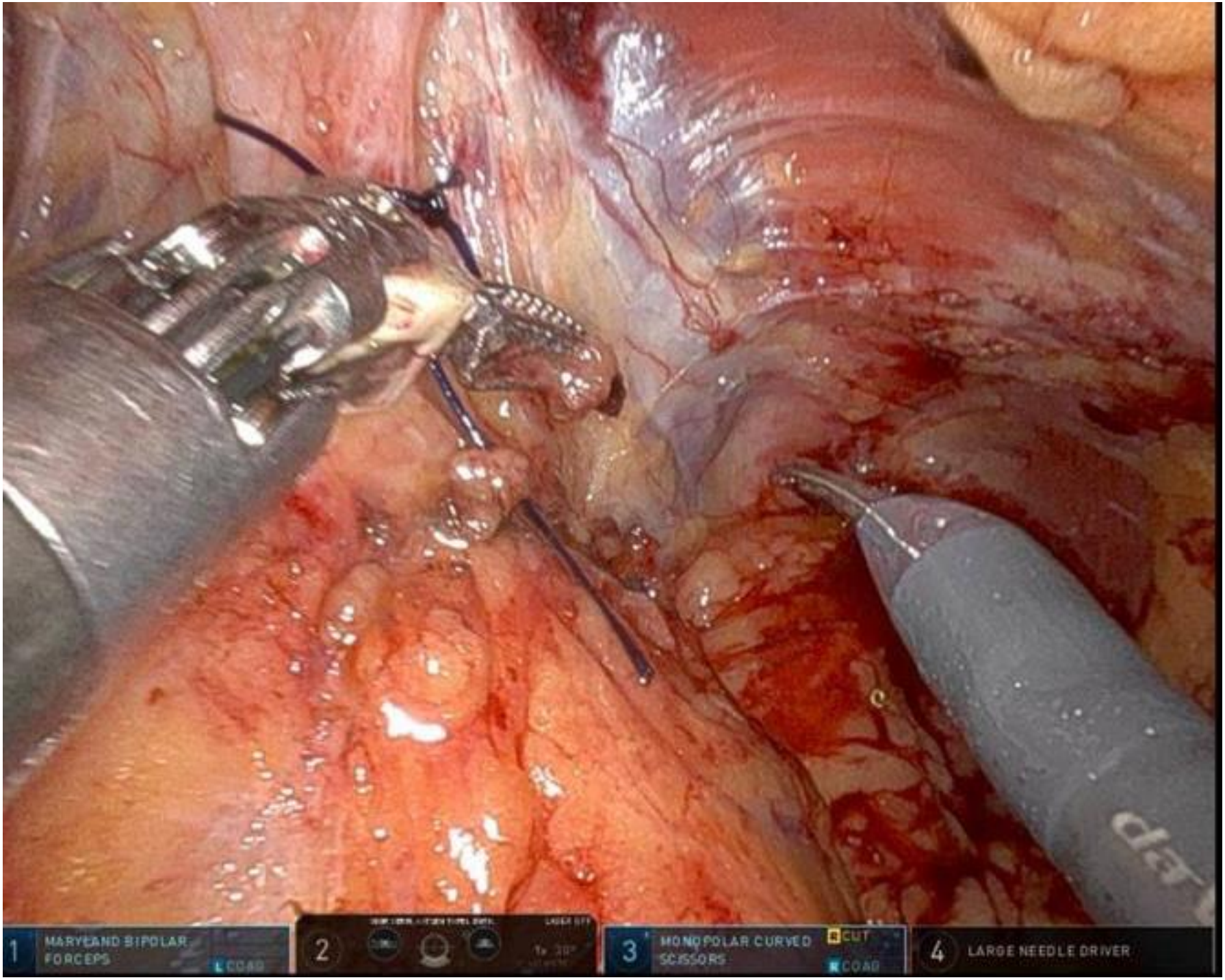

1
MARYLAND BIPOLAR FORCEPS
L COAG
2
3
MONOPOLAR CURVED SCISSORS
R CUT
R COAG
4
LARGE NEEDLE DRIVER

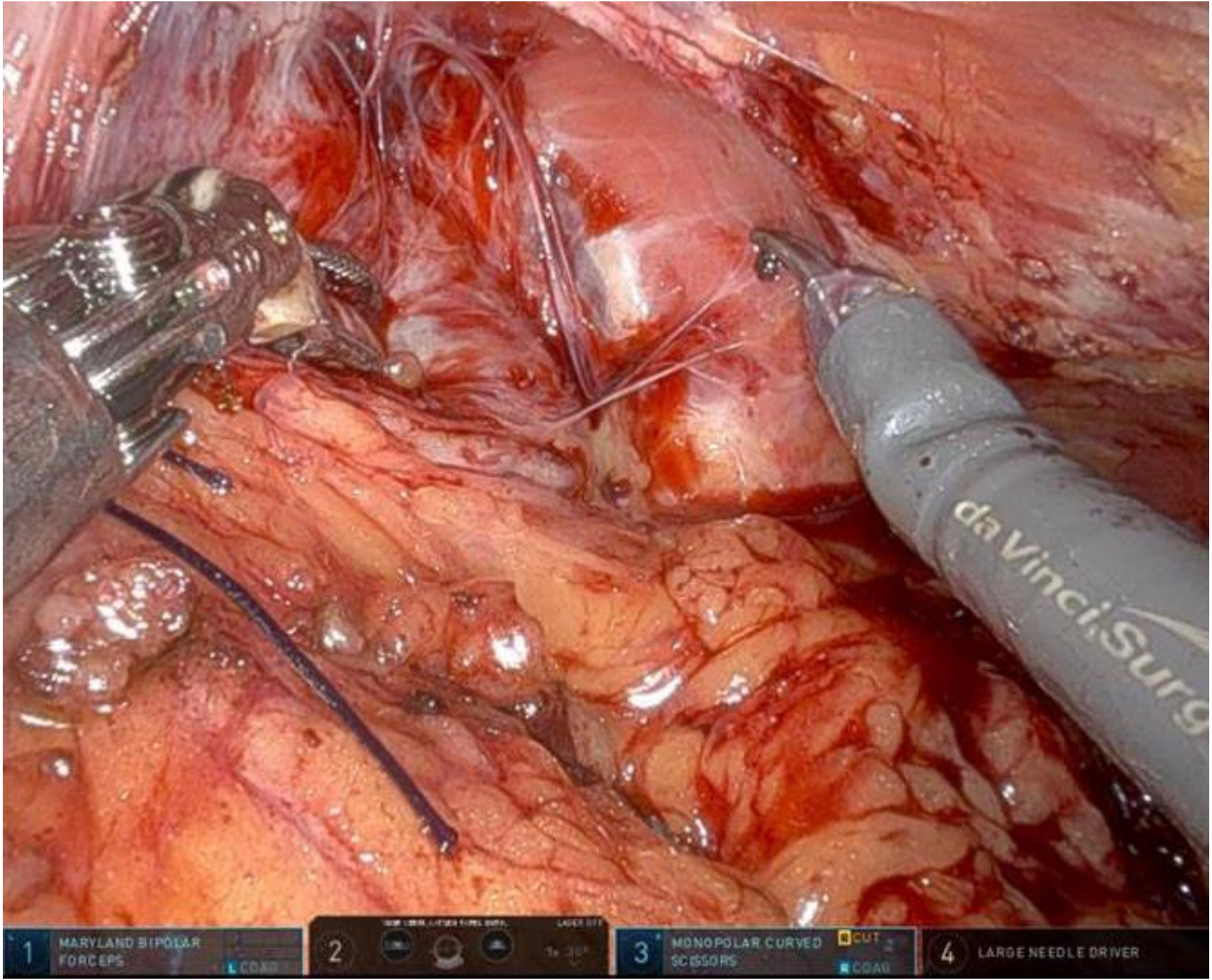

1
MARYLAND BIPOLAR FORCEPS
COAG
2
3
MONOPOLAR CURVED SCISSORS
CUT
4
LARGE NEEDLE DRIVER

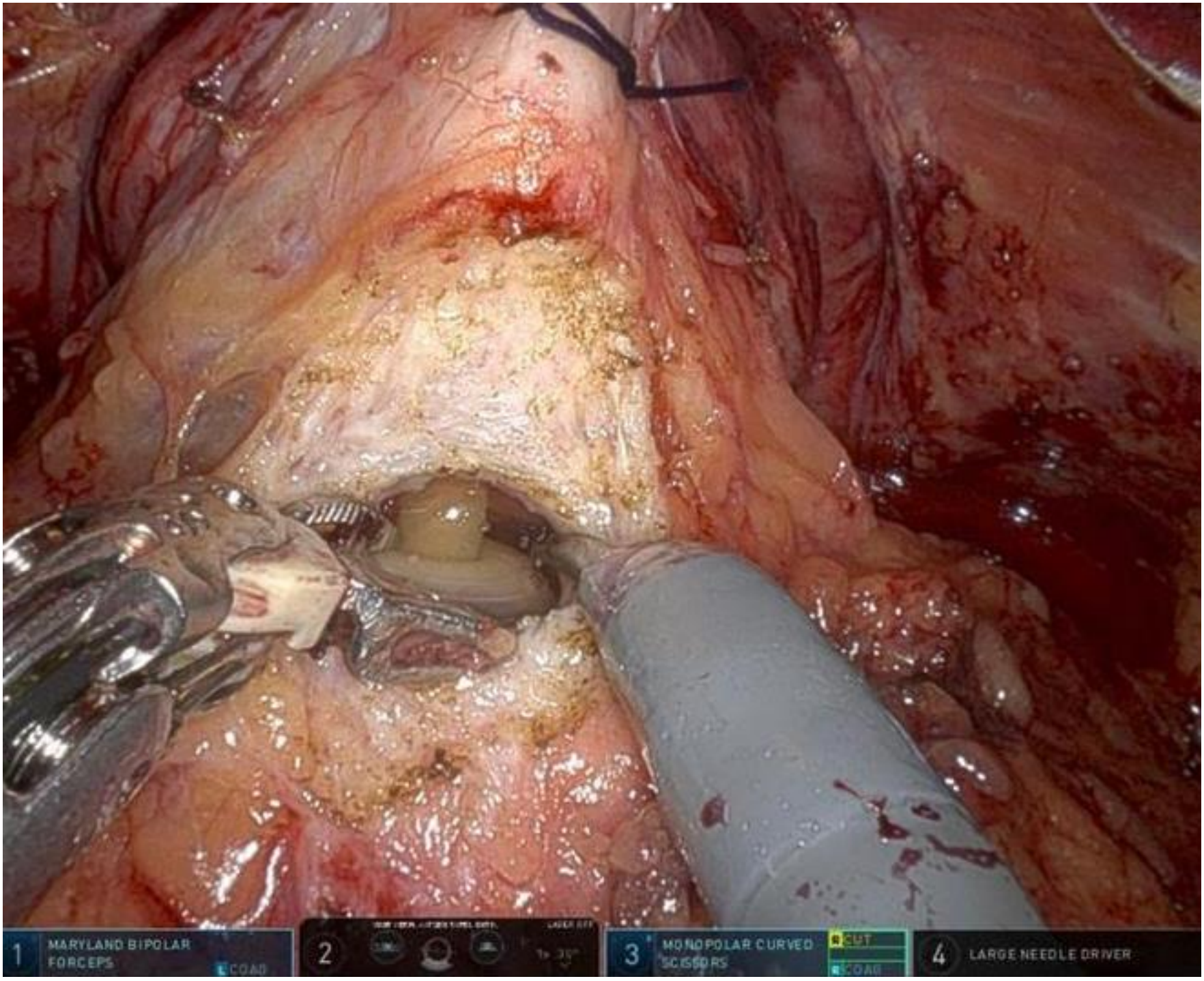

1
MARYLAND BIPOLAR FORCEPS
L COAG
2
3
MONOPOLAR CURVED SCISSORS
CUT
R COAG
4
LARGE NEEDLE DRIVER

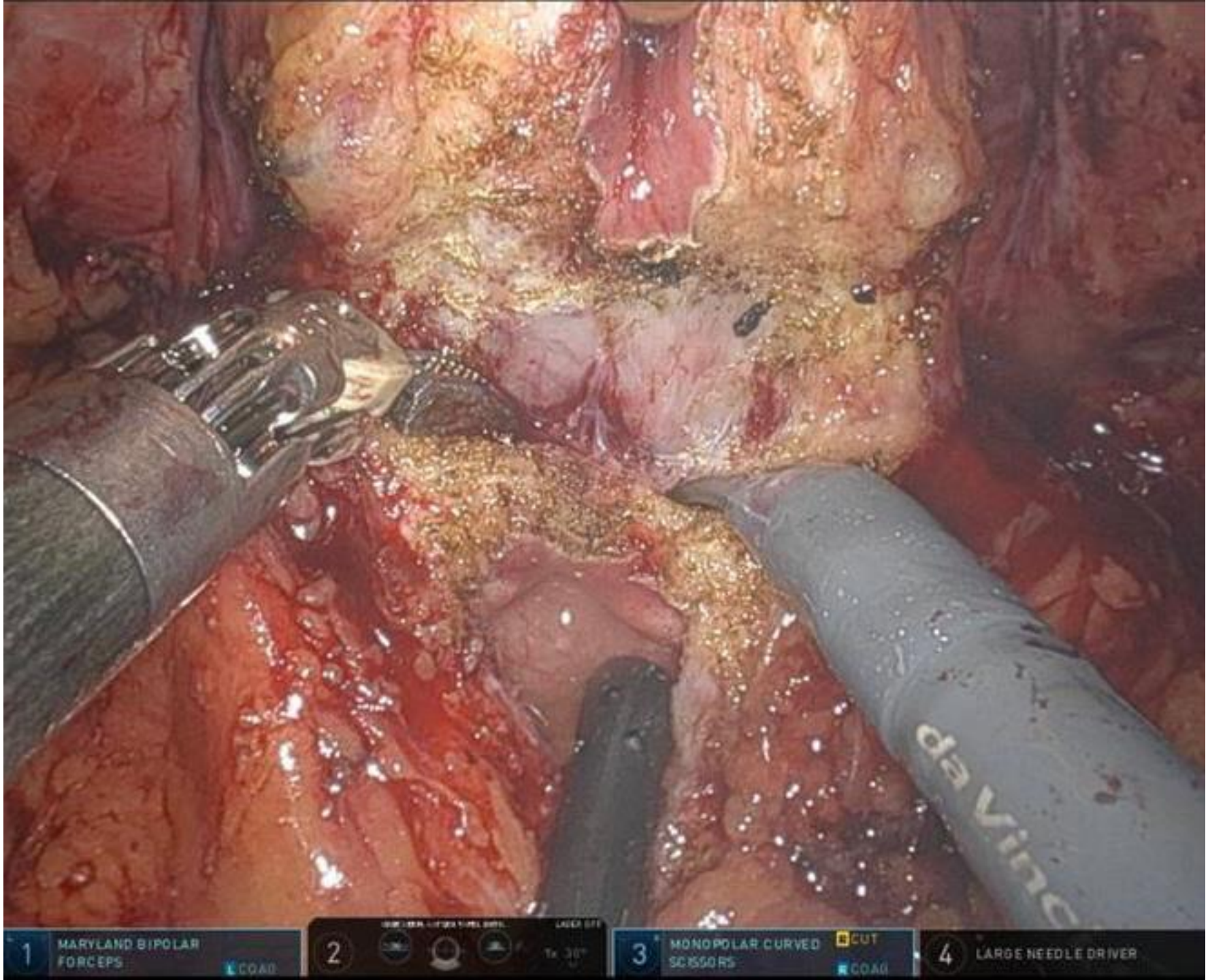

1
MARYLAND BIPOLAR FORCEPS
COAG
2
3
MONOPOLAR CURVED SCISSORS
CUT
COAG
4
LARGE NEEDLE DRIVER

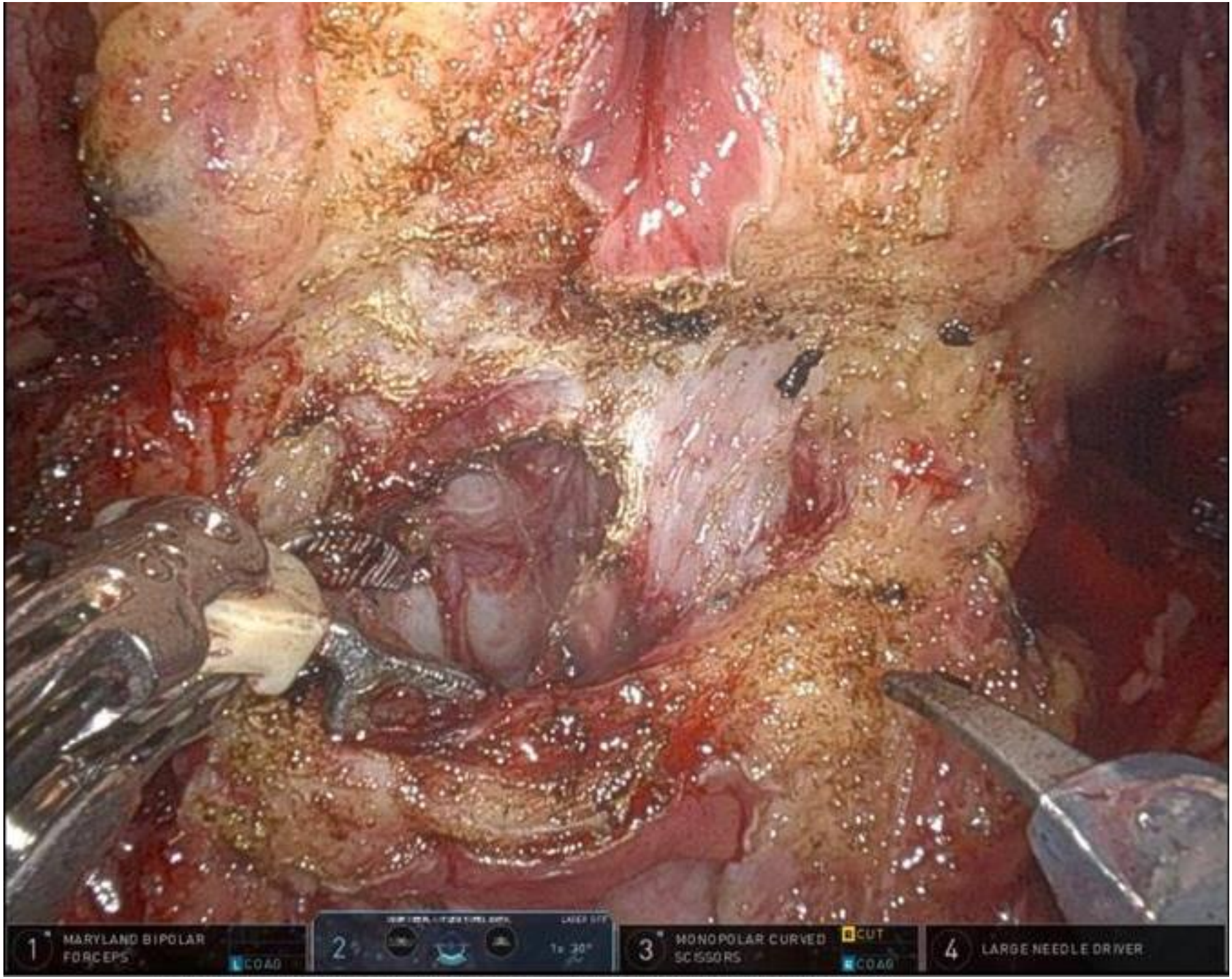

1
MARYLAND BIPOLAR
FORCEPS
2
3
MONOPOLAR CURVED
SCISSORS
CUT
4
LARGE NEEDLE DRIVER

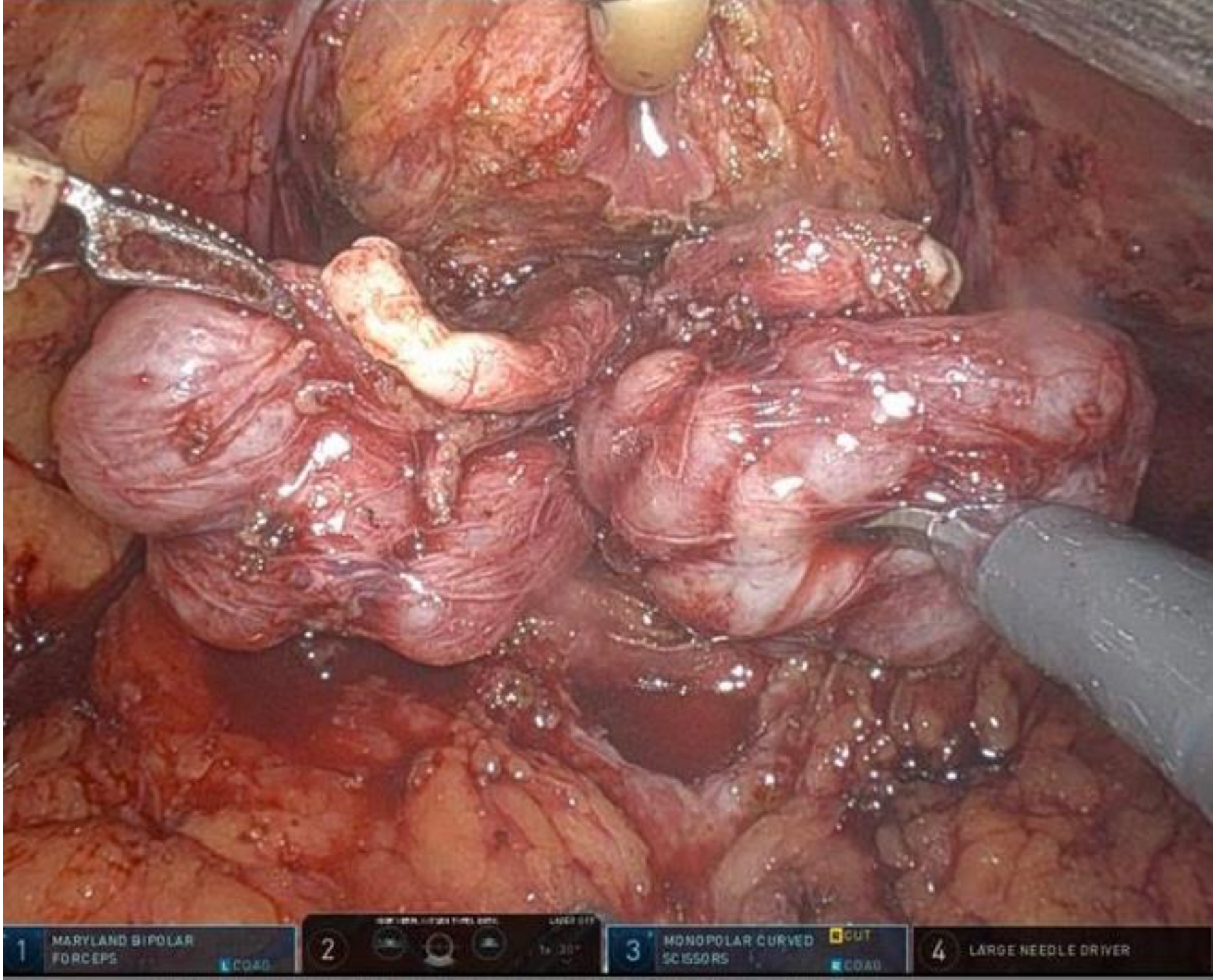

1
MARYLAND BIPOLAR FORCEPS
COAG
2
3
MONOPOLAR CURVED SCISSORS
CUT
COAG
4
LARGE NEEDLE DRIVER

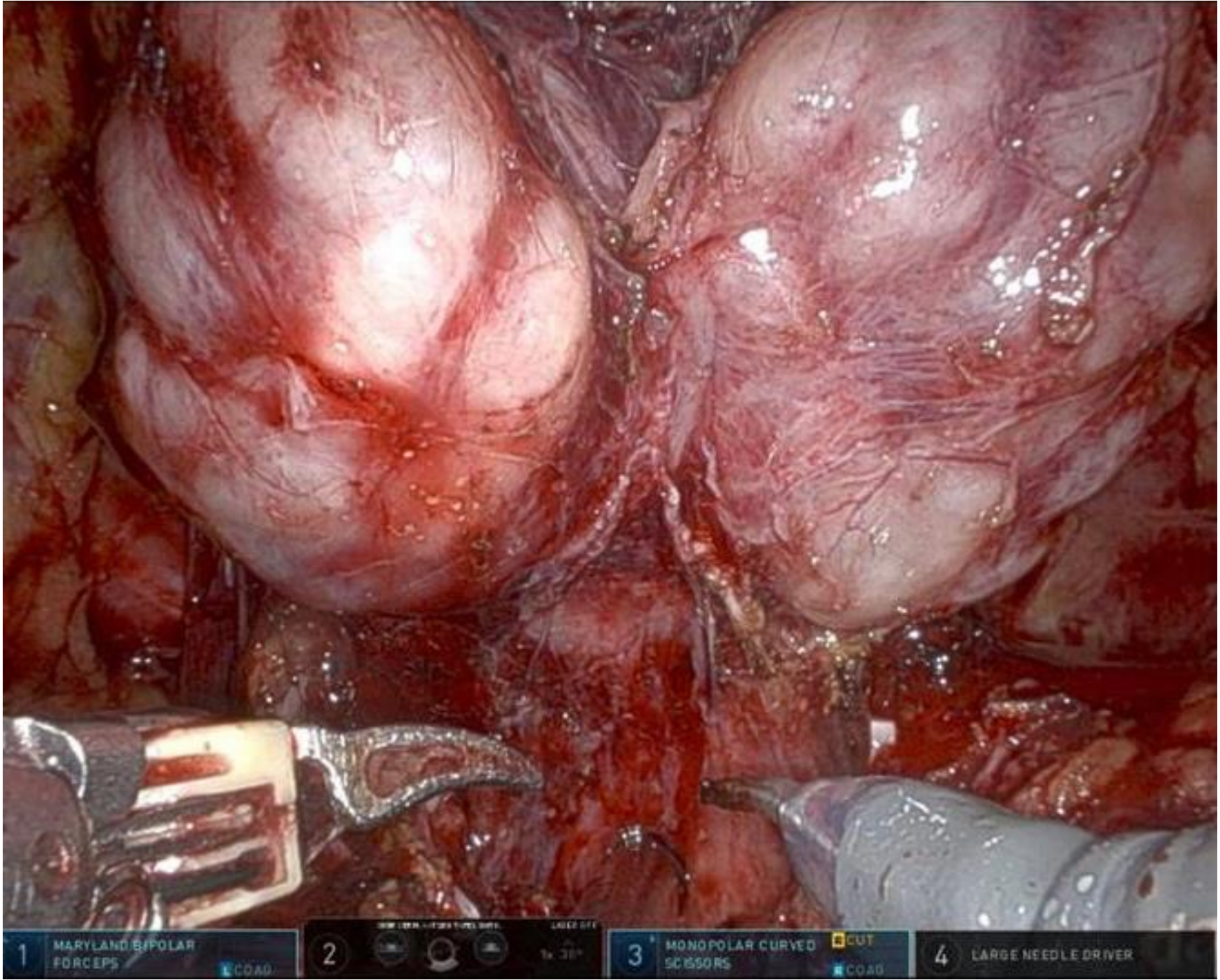

1
MARYLAND BIPOLAR FORCEPS
L COAG
2
3
MONOPOLAR CURVED SCISSORS
CUT
R COAG
4
LARGE NEEDLE DRIVER

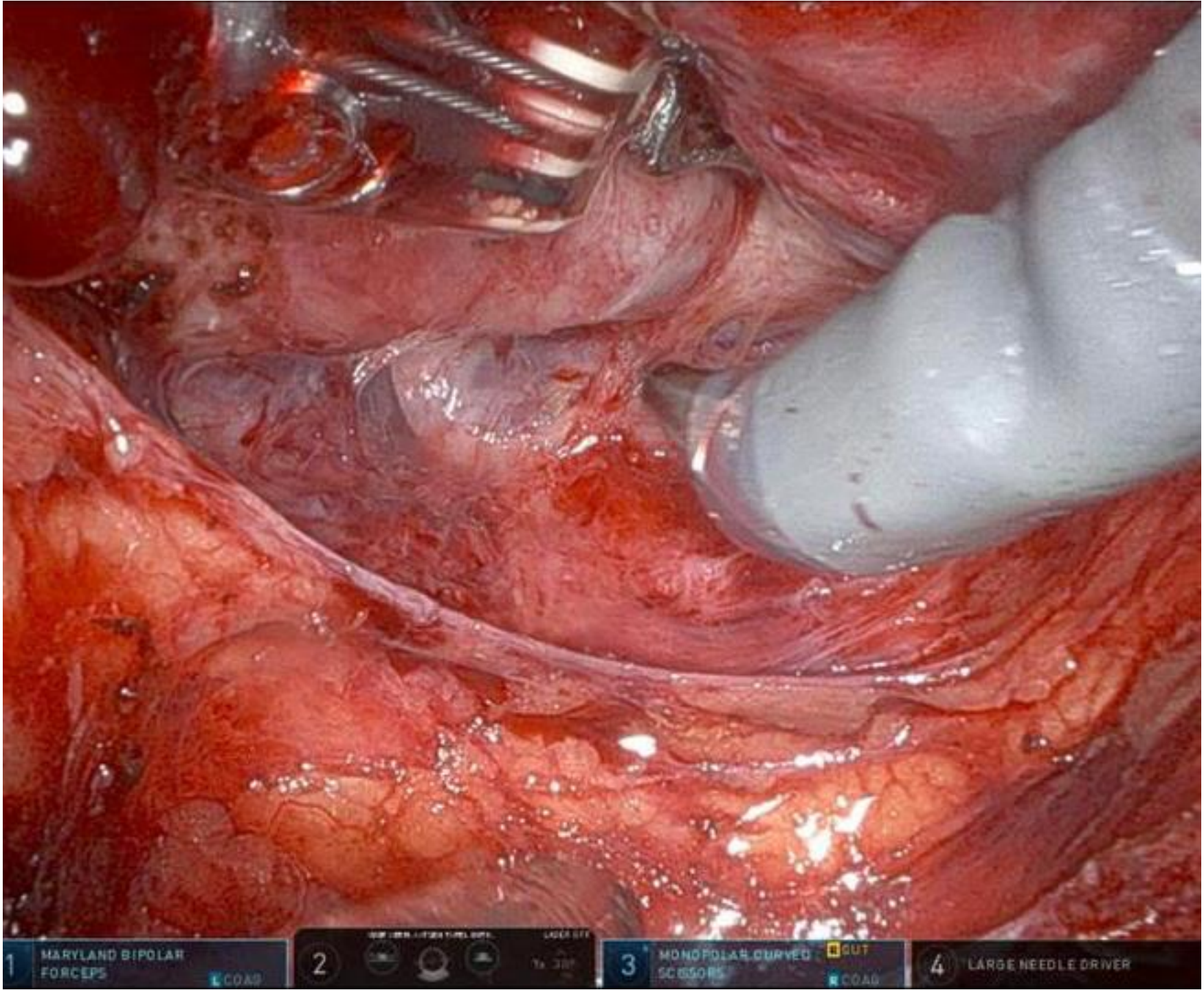

1
MARYLAND BIPOLAR
FORCEPS
COAG
2
3
MONOPOLAR CURVED
SCISSORS
CUT
COAG
4
LARGE NEEDLE DRIVER

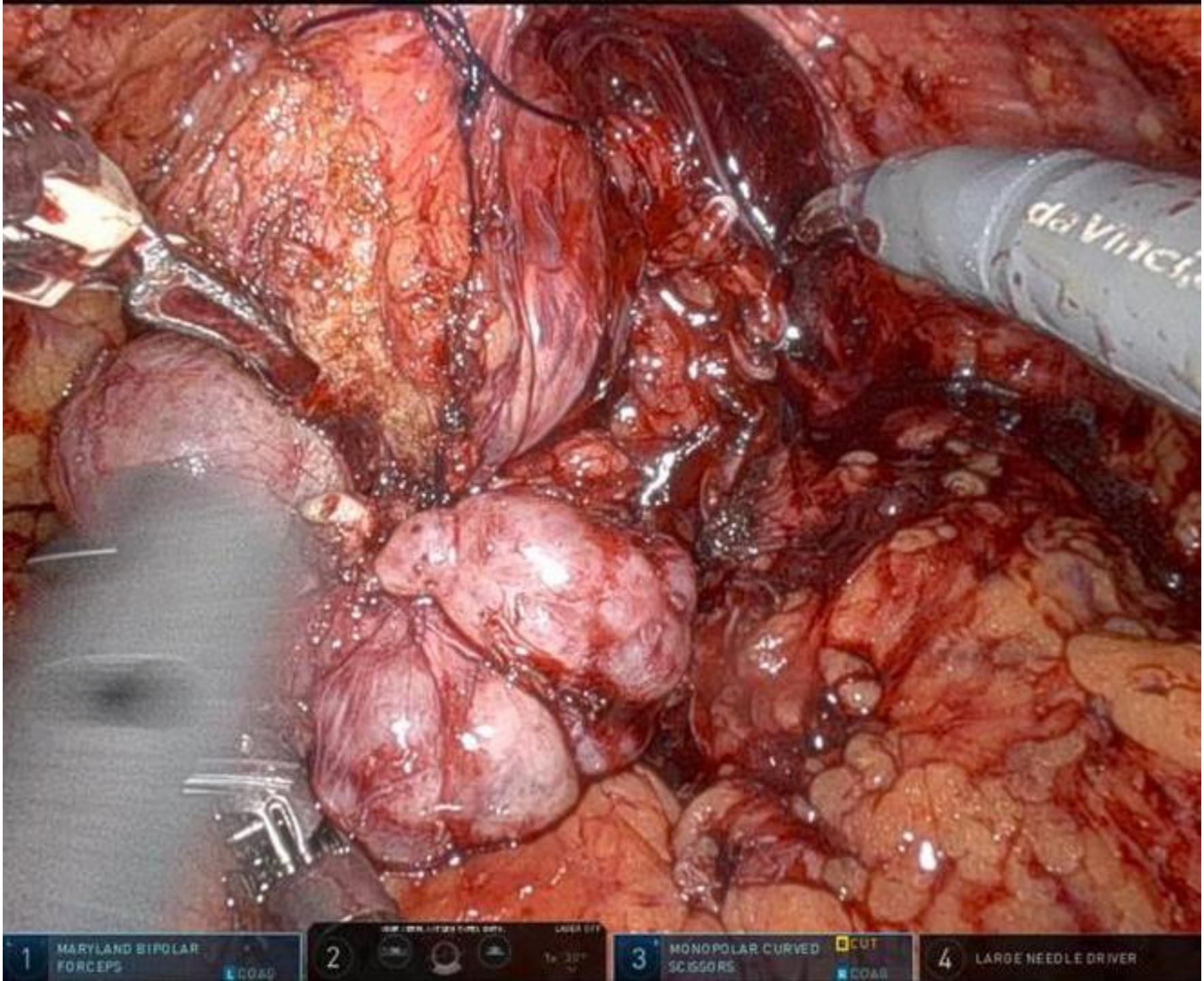

1
MARYLAND BIPOLAR FORCEPS
L COAG
2
3
MONOPOLAR CURVED SCISSORS
CUT
R COAG
4
LARGE NEEDLE DRIVER

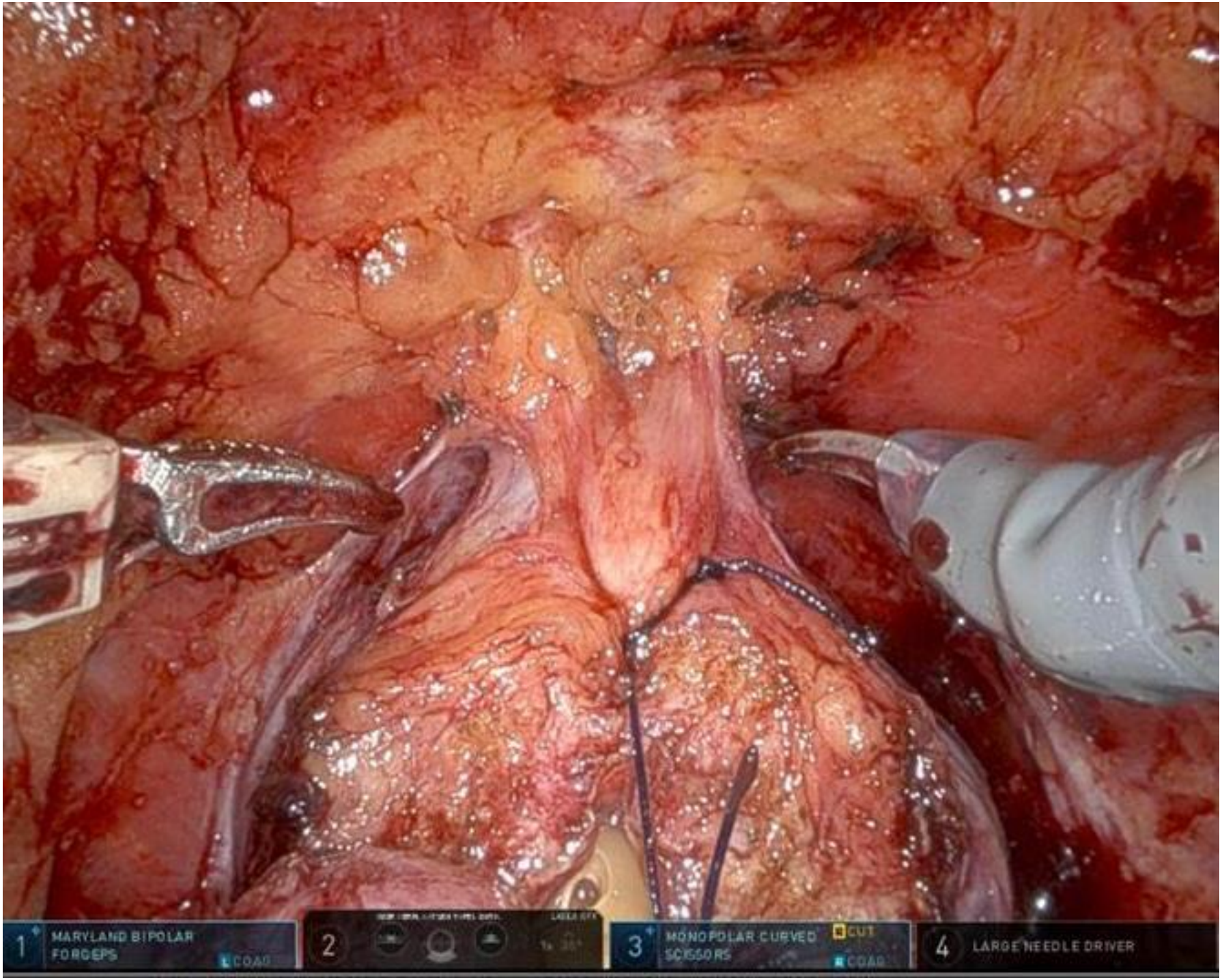

1
MARYLAND BIPOLAR FORCEPS
L COAG
2
1x 30°
3
MONOPOLAR CURVED SCISSORS
CUT
R COAG
4
LARGE NEEDLE DRIVER

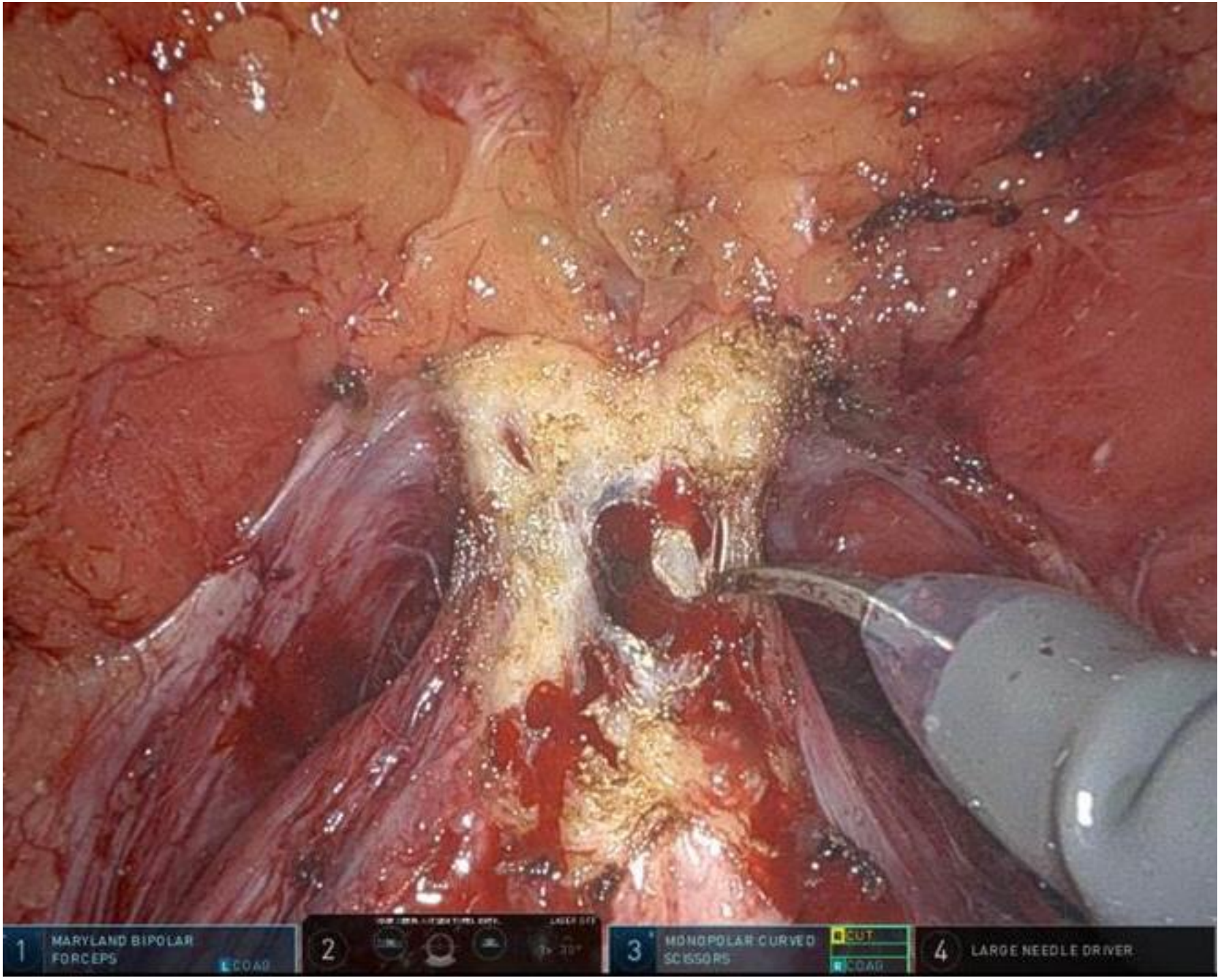

1
MARYLAND BIPOLAR FORCEPS
COAG
2
3
MONOPOLAR CURVED SCISSORS
CUT
COAG
4
LARGE NEEDLE DRIVER

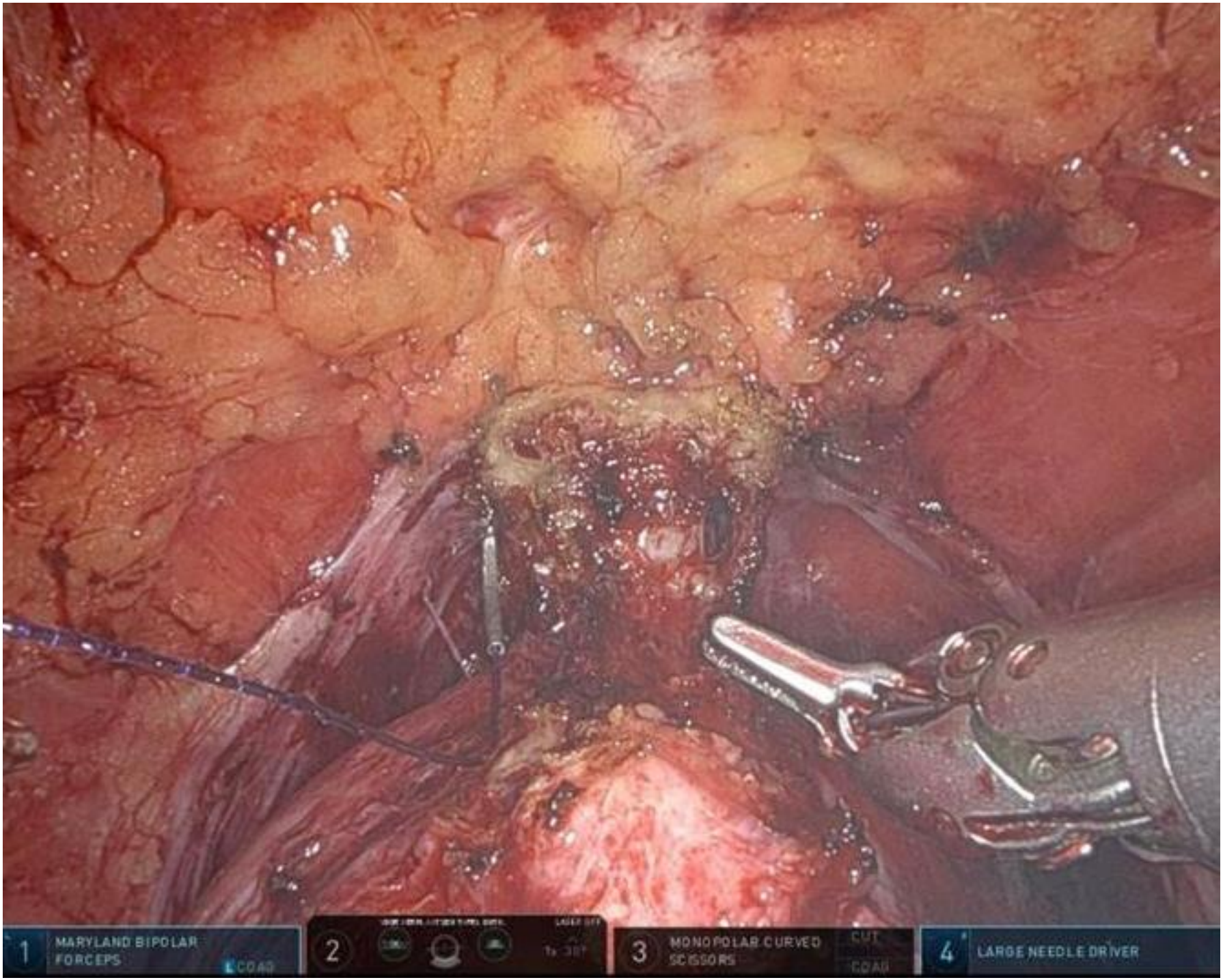

1
MARYLAND BIPOLAR FORCEPS
COAG
2
3
MONOPOLAR CURVED SCISSORS
CUT
COAG
4
LARGE NEEDLE DRIVER

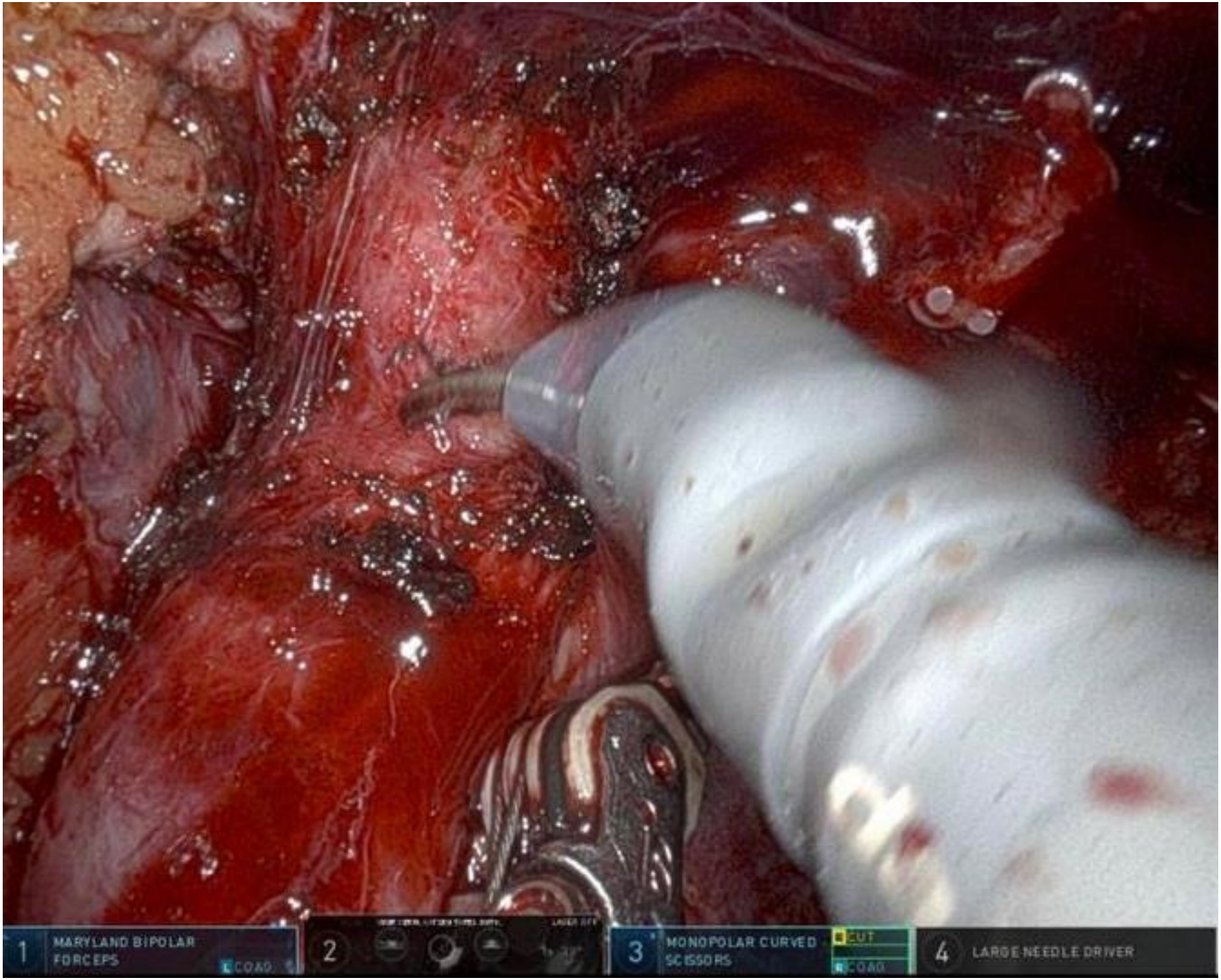

1
MARYLAND BIPOLAR FORCEPS
L COAG
2
3
MONOPOLAR CURVED SCISSORS
R CUT
R COAG
4
LARGE NEEDLE DRIVER

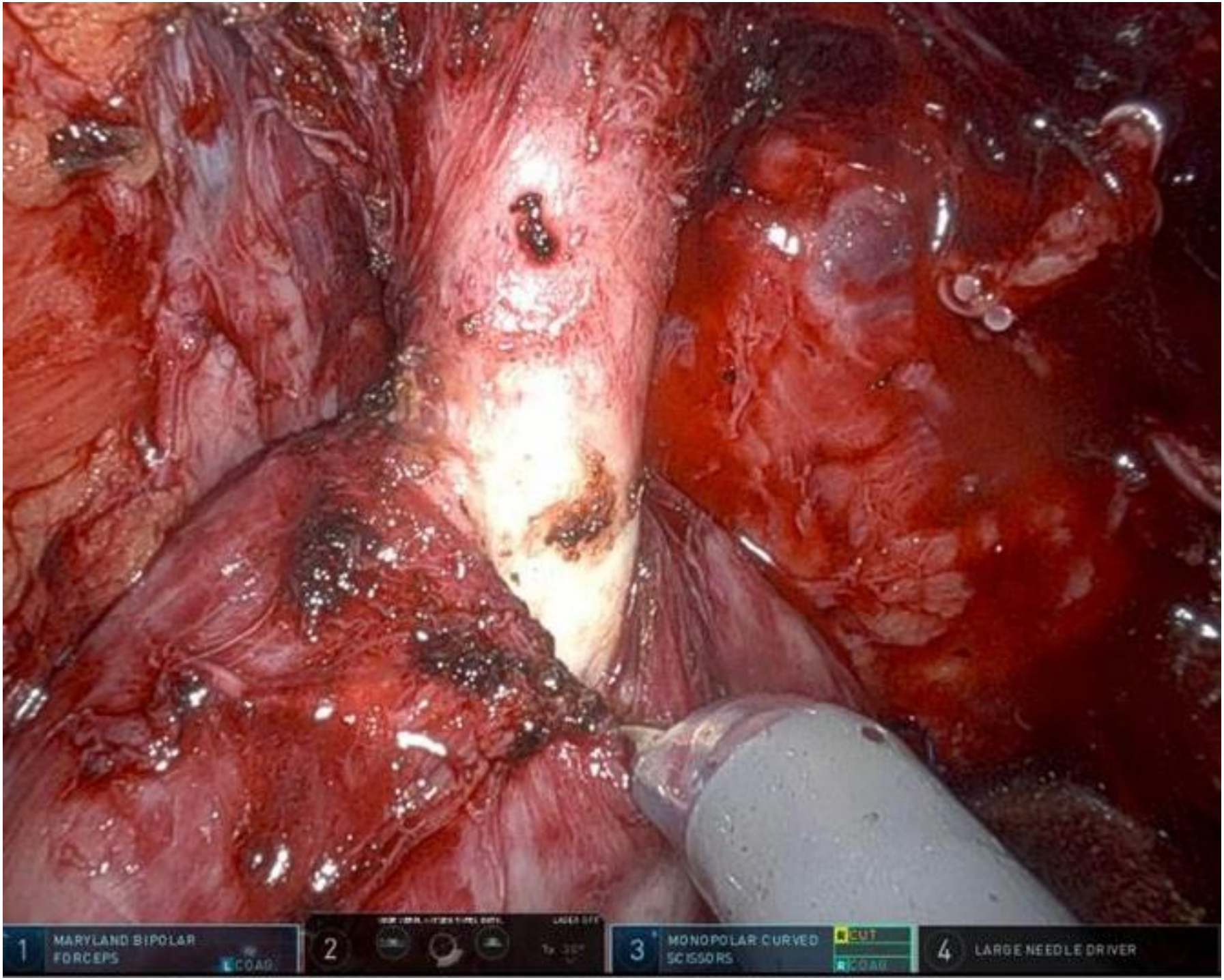

da Vinci
1
MARYLAND BIPOLAR FORCEPS
2
3
MONOPOLAR CURVED SCISSORS
CUT
4
LARGE NEEDLE DRIVER

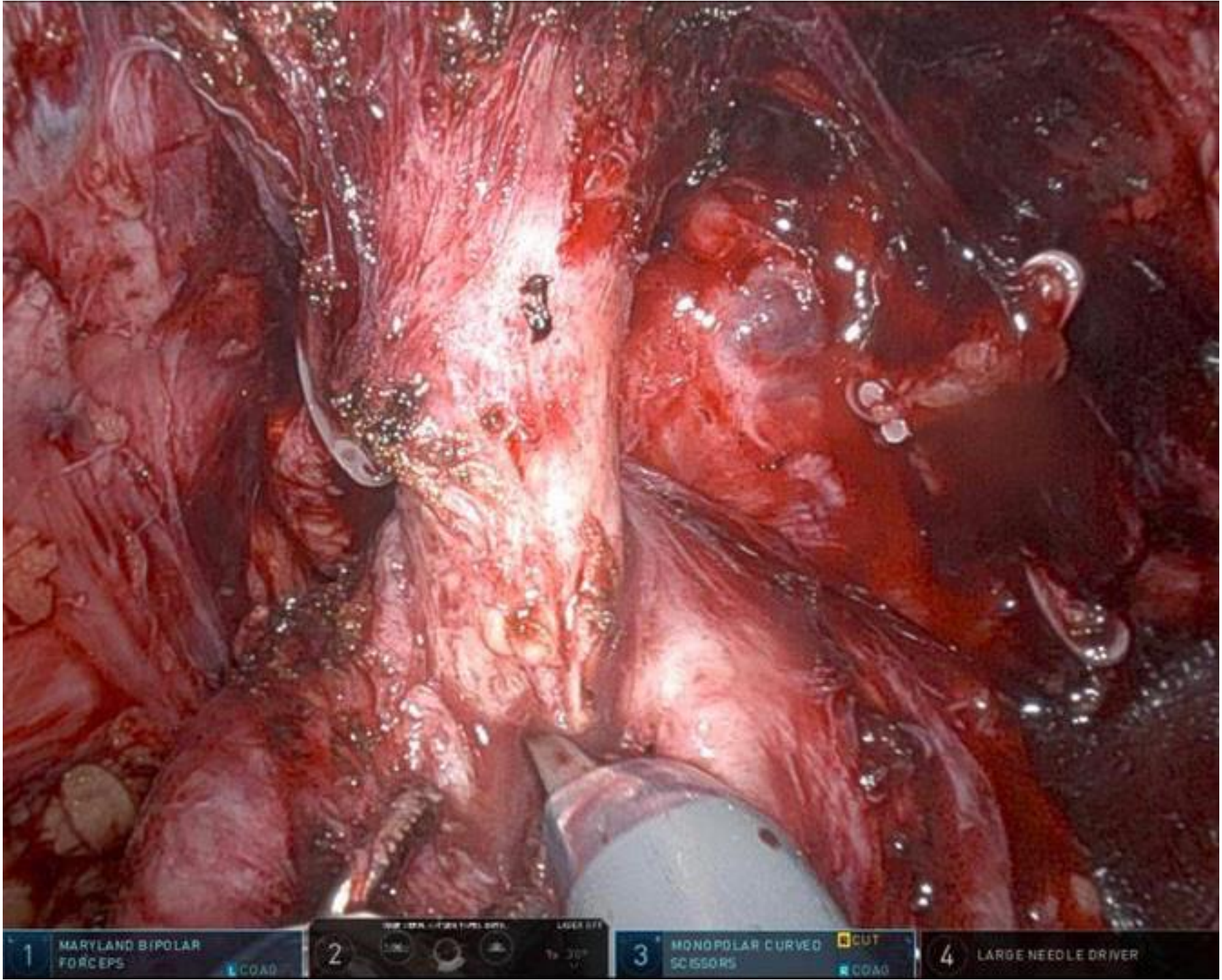

1
MARYLAND BIPOLAR FORCEPS
COAG
2
3
MONOPOLAR CURVED SCISSORS
CUT
COAG
4
LARGE NEEDLE DRIVER

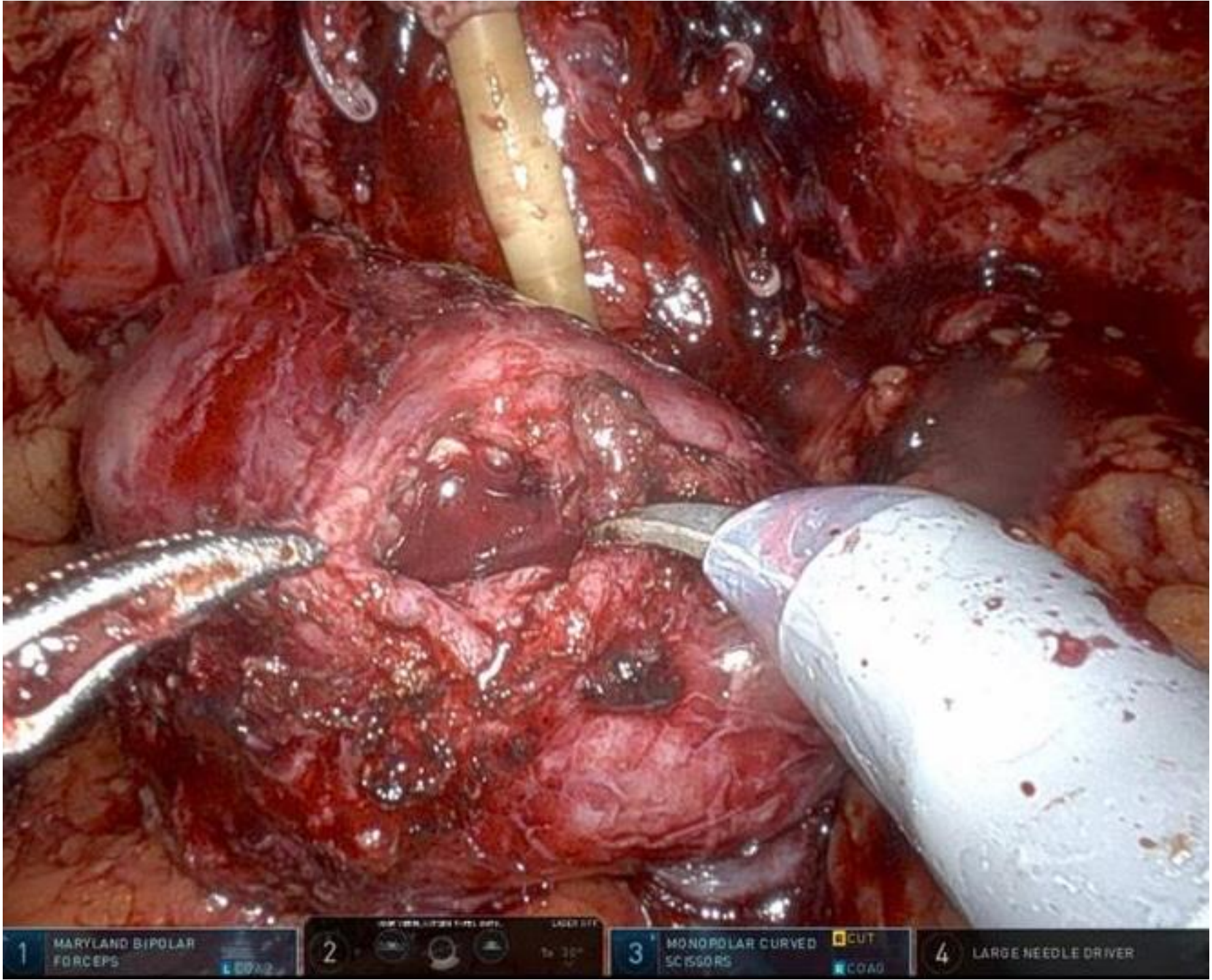

1
MARYLAND BIPOLAR
FORCEPS
L COAG
2
3
MONOPOLAR CURVED
SC1550RS
R CUT
R COAG
4
LARGE NEEDLE DRIVER

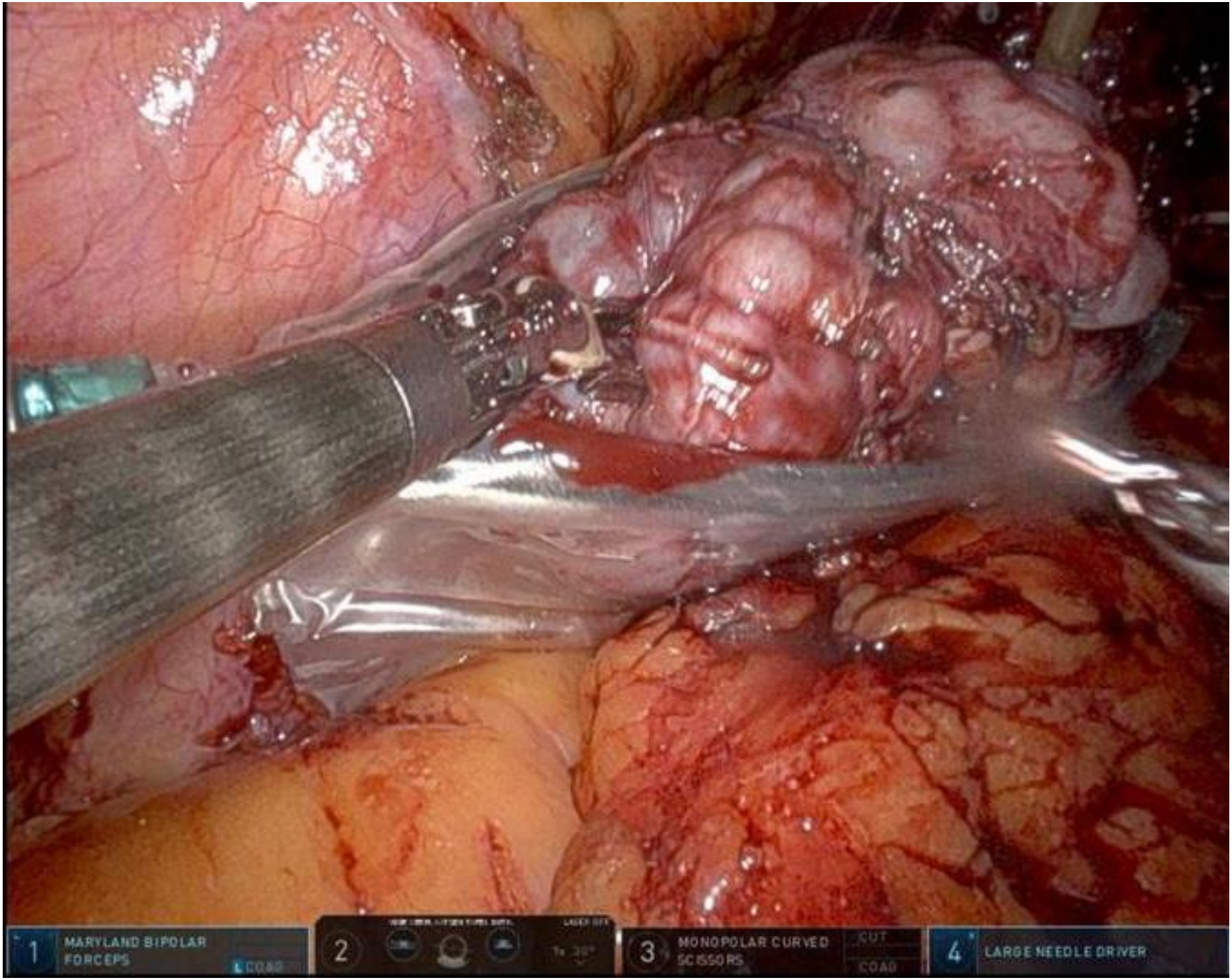

1
MARYLAND BIPOLAR FORCEPS
COAG
2
3
MONOPOLAR CURVED SCISSORS
CUT
COAG
4
LARGE NEEDLE DRIVER

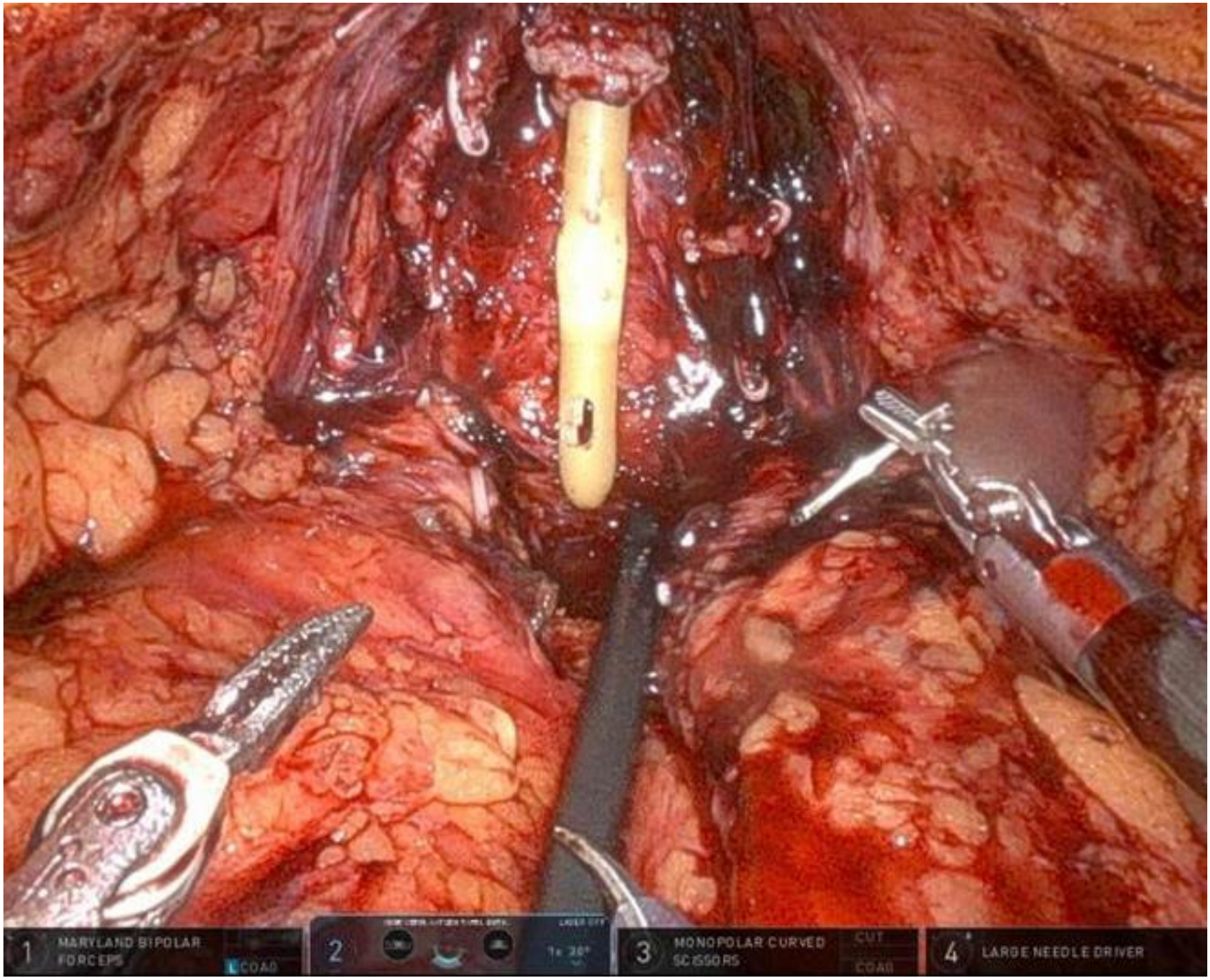

1
MARYLAND BIPOLAR
FORCEPS
L COAG
2
3
MONOPOLAR CURVED
SCISSORS
R CUT
R COAG
4
LARGE NEEDLE DRIVER

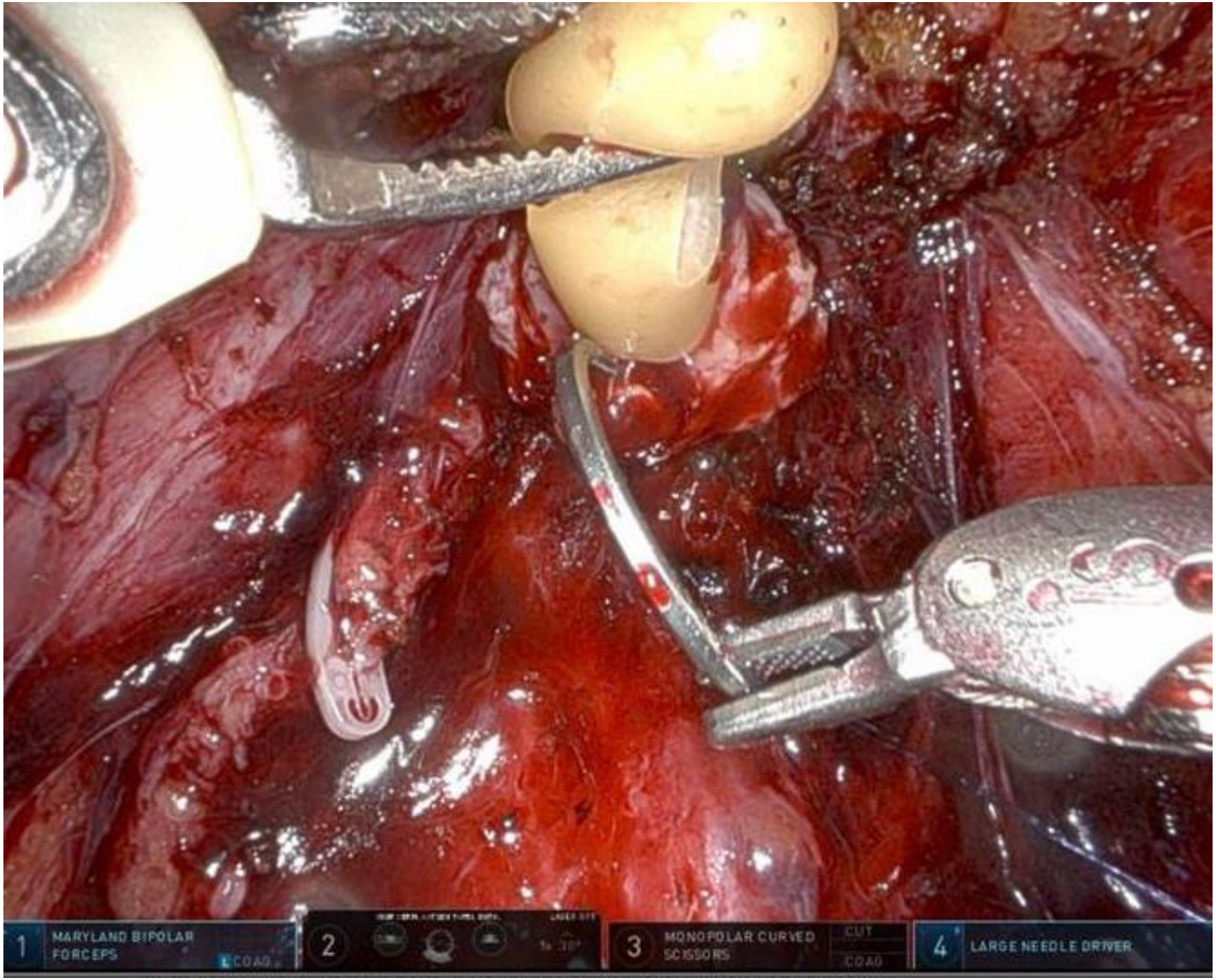

1
MARYLAND BIPOLAR
FORCEPS
L COAG
2
3
MONOPOLAR CURVED
SCISSORS
R CUT
R COAG
4
LARGE NEEDLE DRIVER

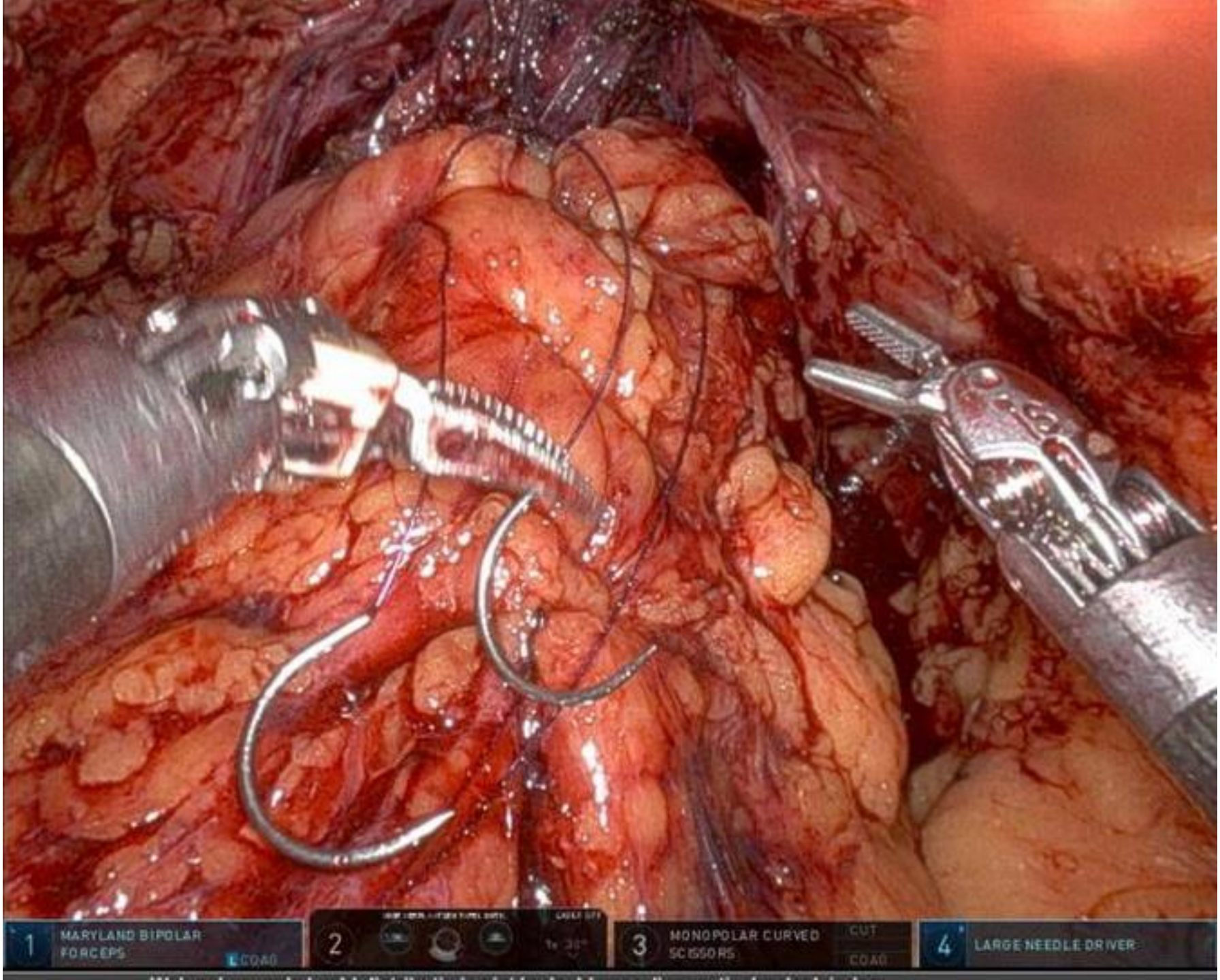

1
MARYLAND BIPOLAR
FORCEPS
L COAG
2
3
MONOPOLAR CURVED
SCISSORS
R CUT
R COAG
4
LARGE NEEDLE DRIVER

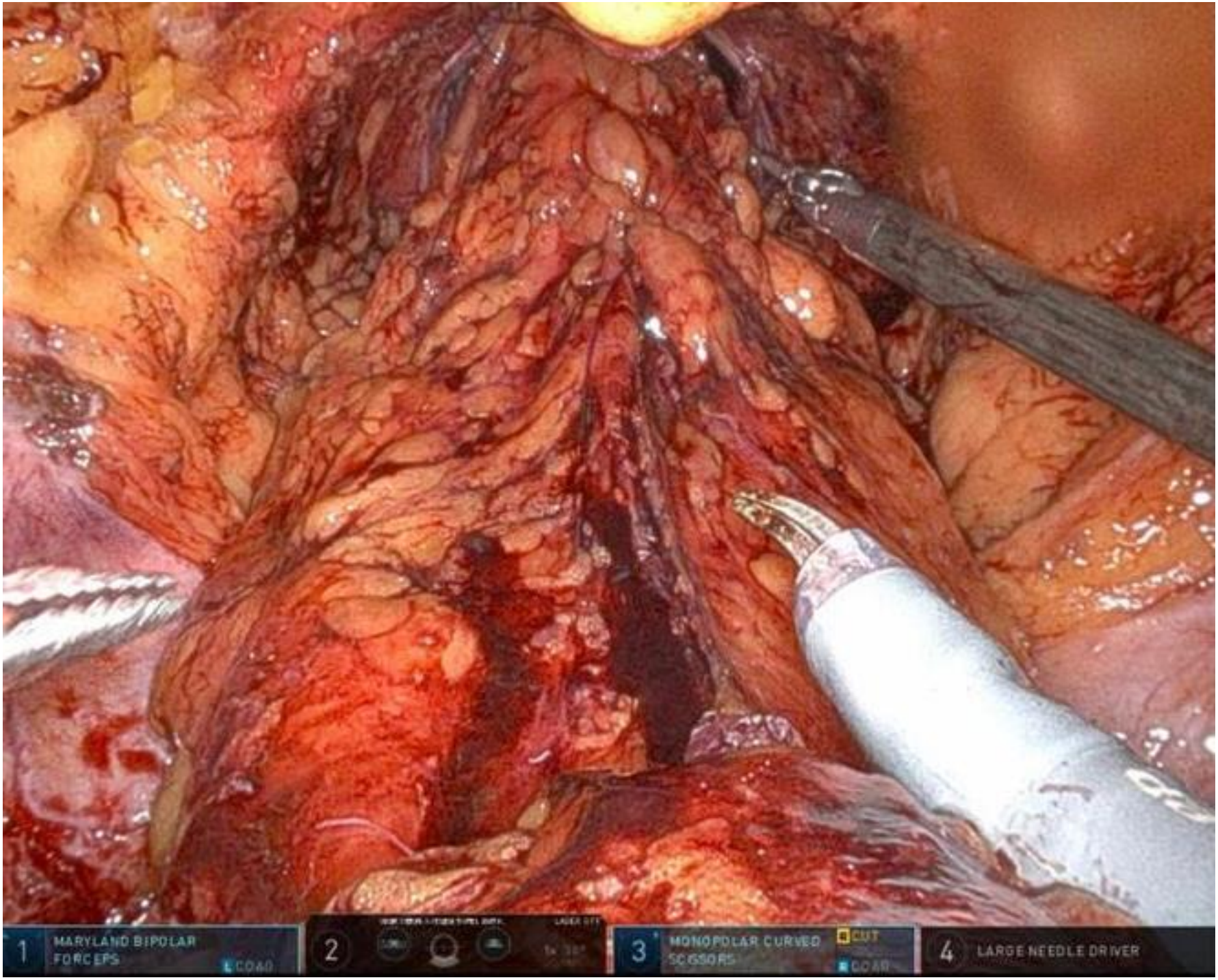

1
MARYLAND BIPOLAR FORCEPS
2
3
MONOPOLAR CURVED SCISSORS
CUT
COAG
4
LARGE NEEDLE DRIVER

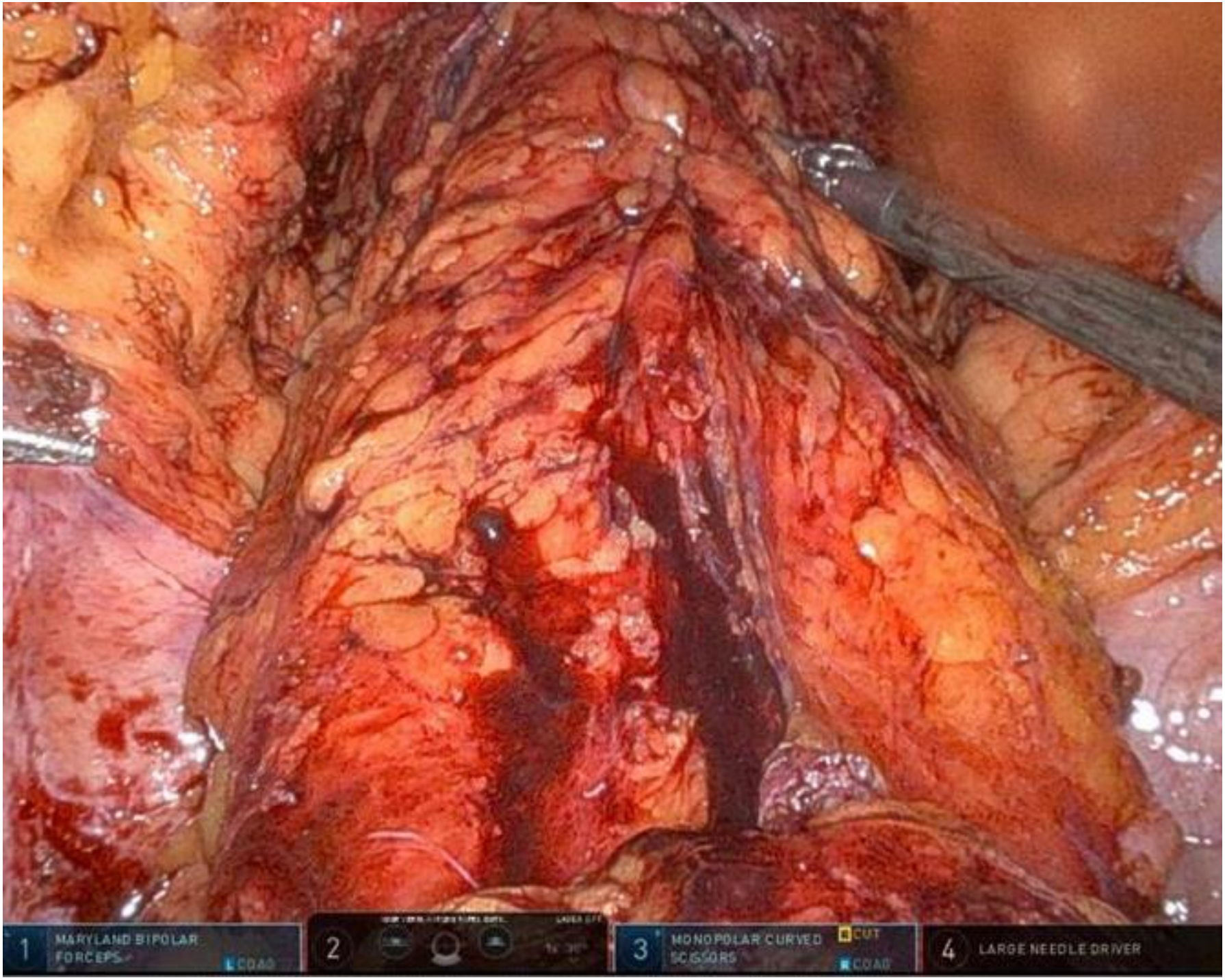

1
MARYLAND BIPOLAR
FORCEPS
2
3
MONOPOLAR CURVED
SCISSORS
CUT
COAG
4
LARGE NEEDLE DRIVER

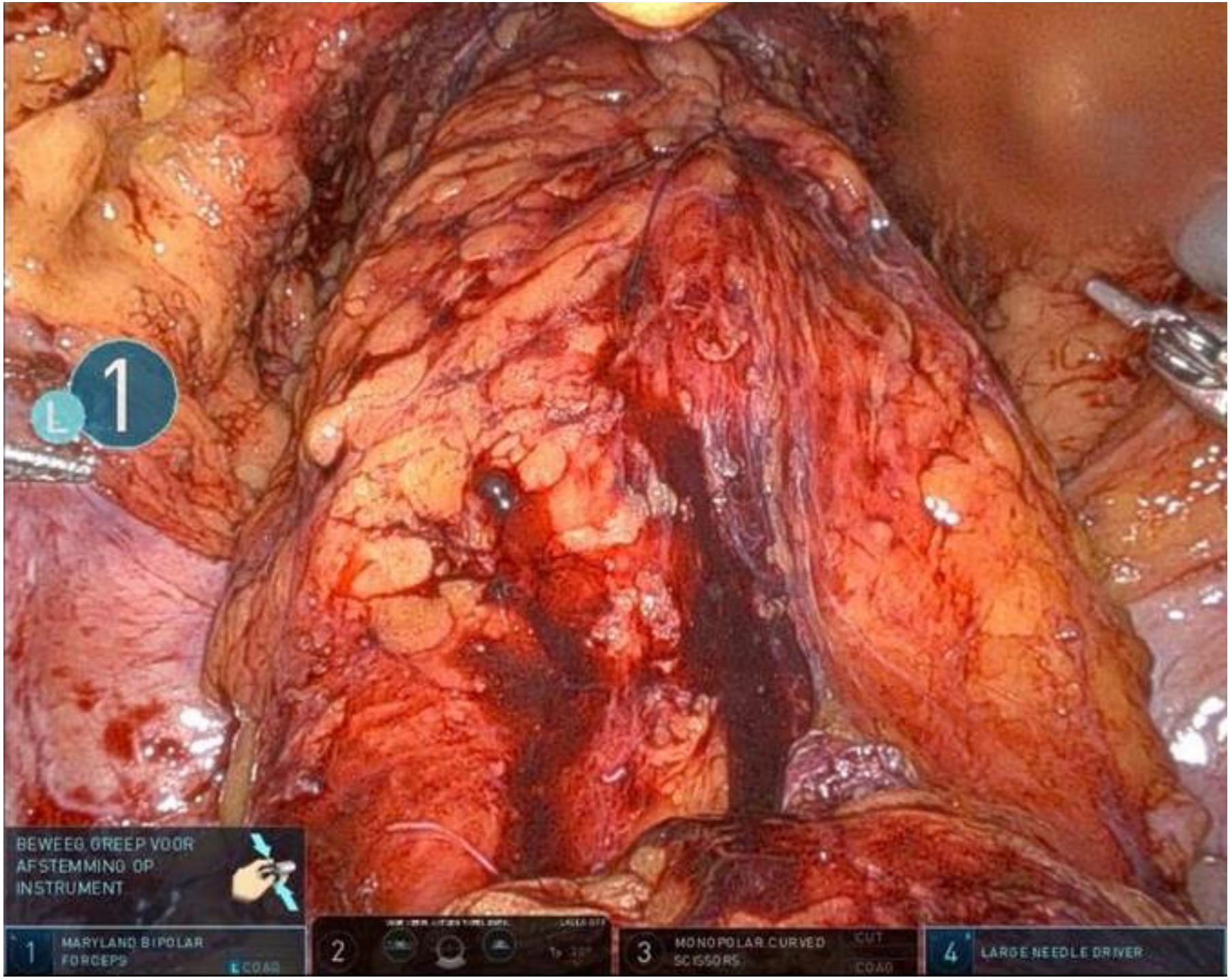

1
MARYLAND BIPOLAR FORCEPS
COAG
2
1x 30°
3
MONOPOLAR CURVED SCISSORS
CUT
COAG
4
LARGE NEEDLE DRIVER

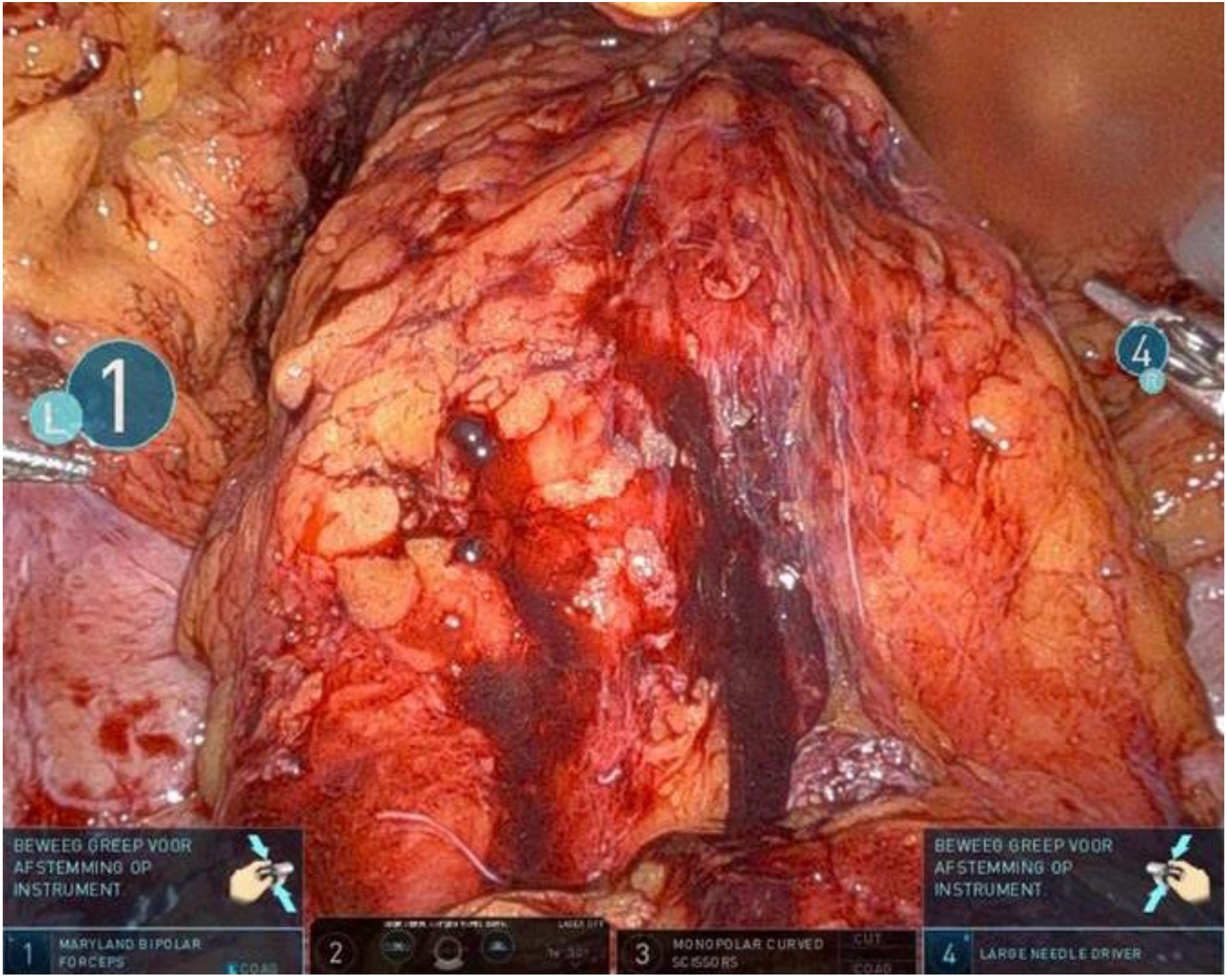

1
MARYLAND BIPOLAR
FORCEPS
COAG
2
3
MONOPOLAR CURVED
SCISSORS
CUT
COAG
4
LARGE NEEDLE DRIVER


1
MARYLAND BIPOLAR FORCEPS
COAG
2
3
MONOPOLAR CURVED SCISSORS
CUT
COAG
4
LARGE NEEDLE DRIVER


1
MARYLAND BIPOLAR FORCEPS
COAG
2
3
MONOPOLAR CURVED SCISSORS
CUT
COAG
4
LARGE NEEDLE DRIVER


1
MARYLAND BIPOLAR FORCEPS
COAG
2
3
MONOPOLAR CURVED SCISSORS
CUT
COAG
4
LARGE NEEDLE DRIVER


L 1
BEWEEG GREEP VOOR AFSTEMMING OP INSTRUMENT
1 MARYLAND BIPOLAR FORCEPS
2
3 MONOPOLAR CURVED SCISSORS
CUT
COAG
4 LARGE NEEDLE DRIVER


L
1
4
BEWEEG GREEP VOOR AFSTEMMING OP INSTRUMENT
BEWEEG GREEP VOOR AFSTEMMING OP INSTRUMENT
1 MARYLAND BIPOLAR FORCEPS
2
3 MONOPOLAR CURVED SCISSORS
CUT
4 LARGE NEEDLE DRIVER