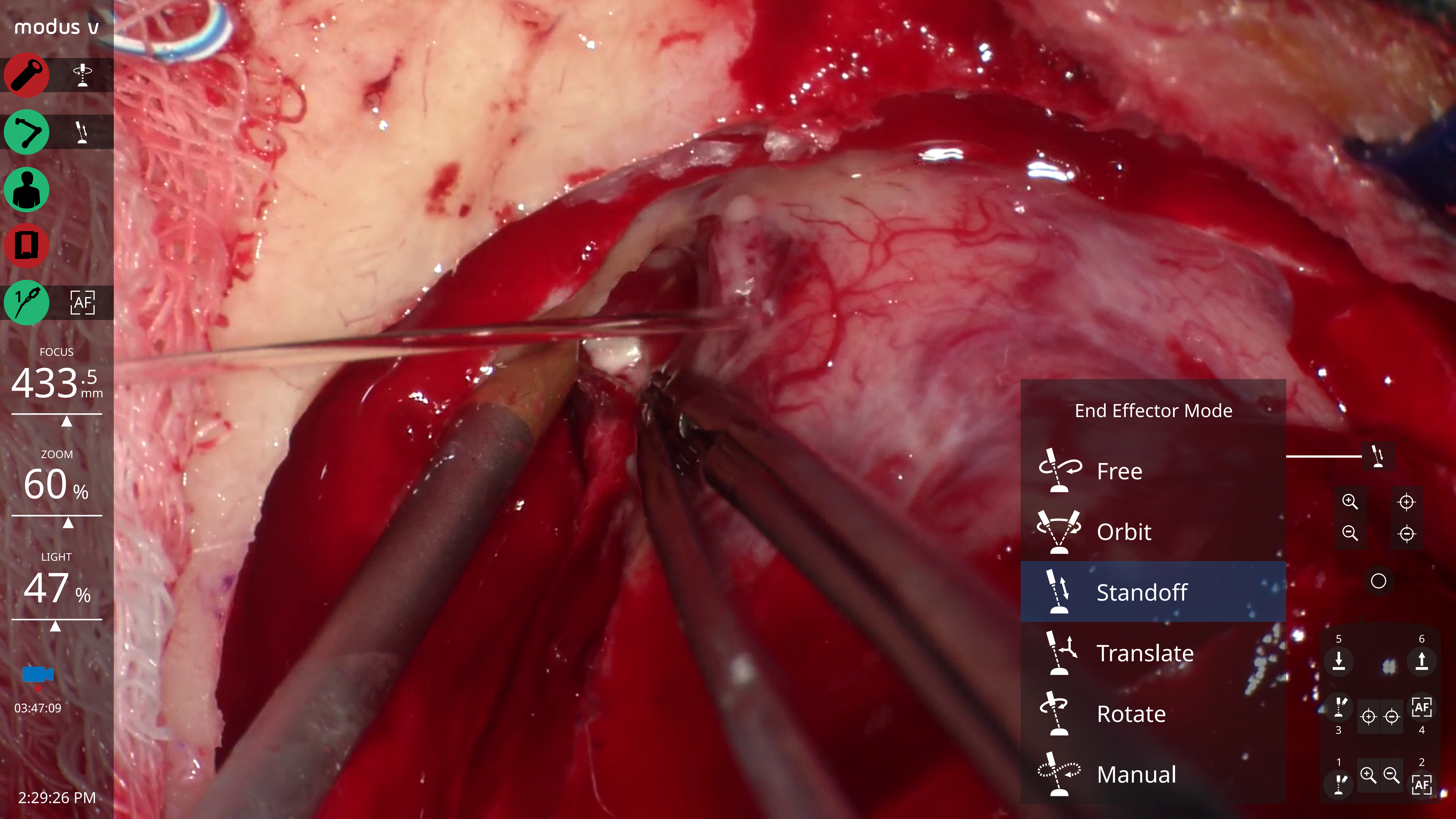


Modus V

Surgical Overlay Concept

Current Overlay



modus v



FOCUS
433.5 mm

ZOOM
60 %

LIGHT
47 %



03:47:09

2:29:26 PM

End Effector Mode

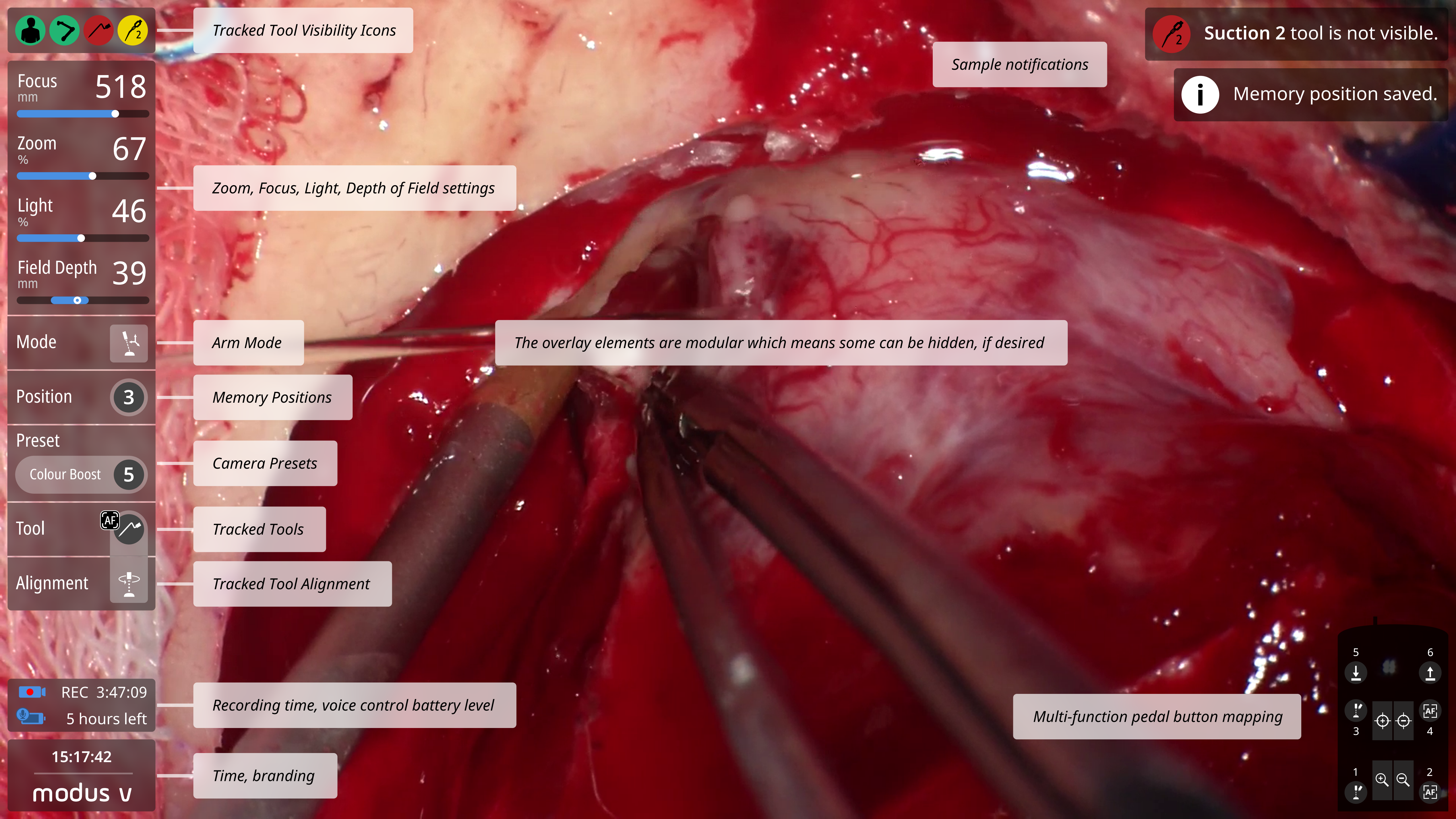
- Free
- Orbit
- Standoff**
- Translate
- Rotate
- Manual

5 ↓ 6 ↑

3 [AF] 4

1 [AF] 2

New Overlay Concept



Tracked Tool Visibility Icons

Suction 2 tool is not visible.

Memory position saved.

Sample notifications

Zoom, Focus, Light, Depth of Field settings

The overlay elements are modular which means some can be hidden, if desired

Arm Mode

Memory Positions

Camera Presets

Tracked Tools

Tracked Tool Alignment

Recording time, voice control battery level

Multi-function pedal button mapping

Time, branding

5 6
↓ ↑
3 4
1 2
! ⊕ ⊖ AF



Suction 2 tool is not visible.

Memory position saved.

Focus mm 518

Zoom % 67

Light % 46

Field Depth mm 39

Mode

Position 3

Preset Colour Boost 5

Tool

Alignment

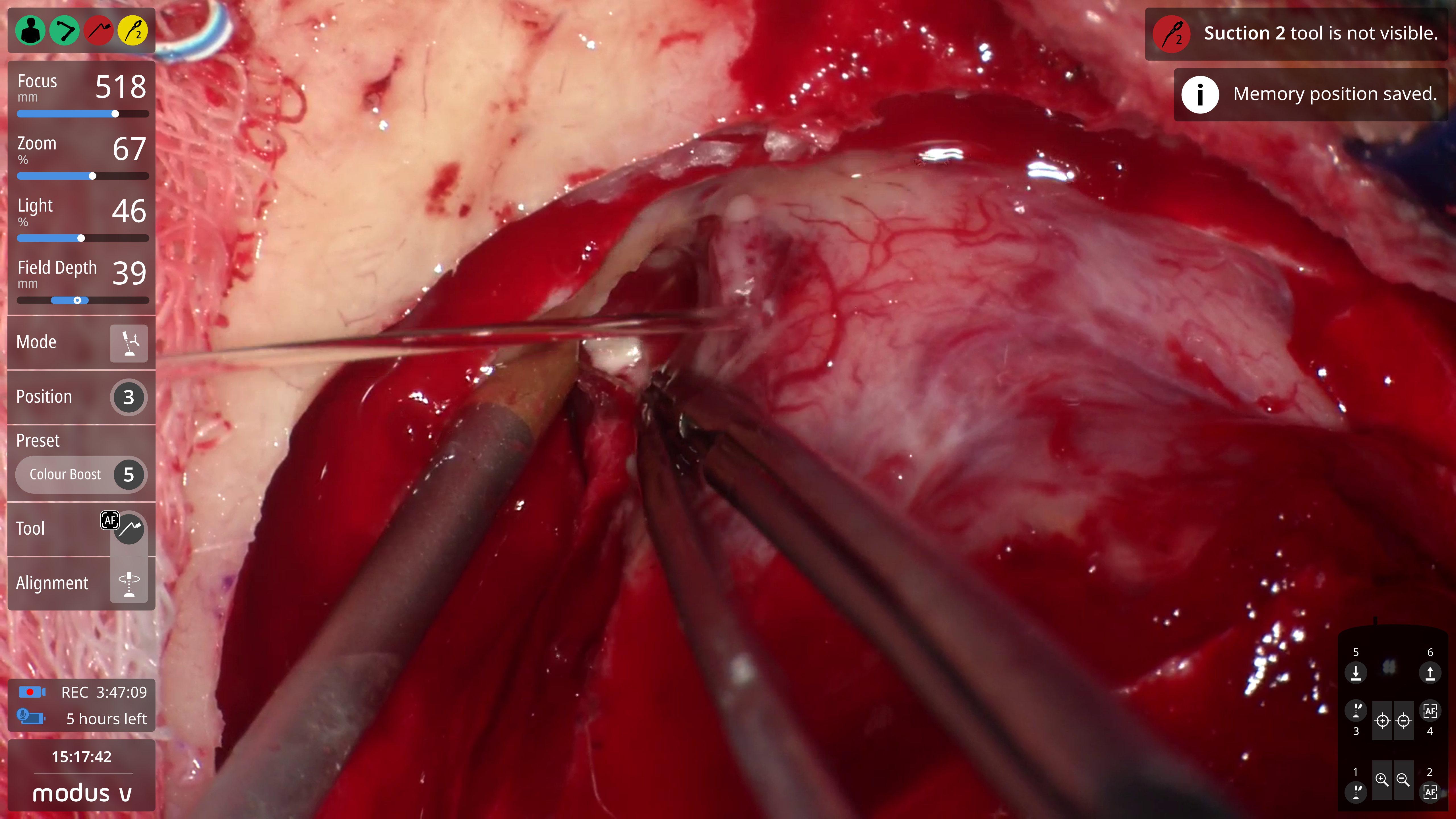
REC 3:47:09
5 hours left

15:17:42
modus v

5 6

3 4

1 2



Trigger Menus

Trigger menus are a proposed new feature for the CAS-lite environment.

It's desirable to give the surgeon direct control over many frequently-used Modus V functions that, currently, can only be accessed using the touchscreen user interface. The new voice control feature will accomplish this, but an alternative means of accessing these functions may prove beneficial, especially if a user is unable or unwilling to use voice control.



Focus mm 518
Zoom % 67
Light % 46
Field Depth mm 39

Mode

Position 3

Preset
Colour Boost 5

Tool

Alignment

Free

Orbit

Standoff

Translate

Rotate

Manual

BACK

Actuating the end effector center toggle switch (in either direction) activates trigger menus, currently: Arm Mode, Tracked Tool, Alignment, Camera Preset, and Memory Position.

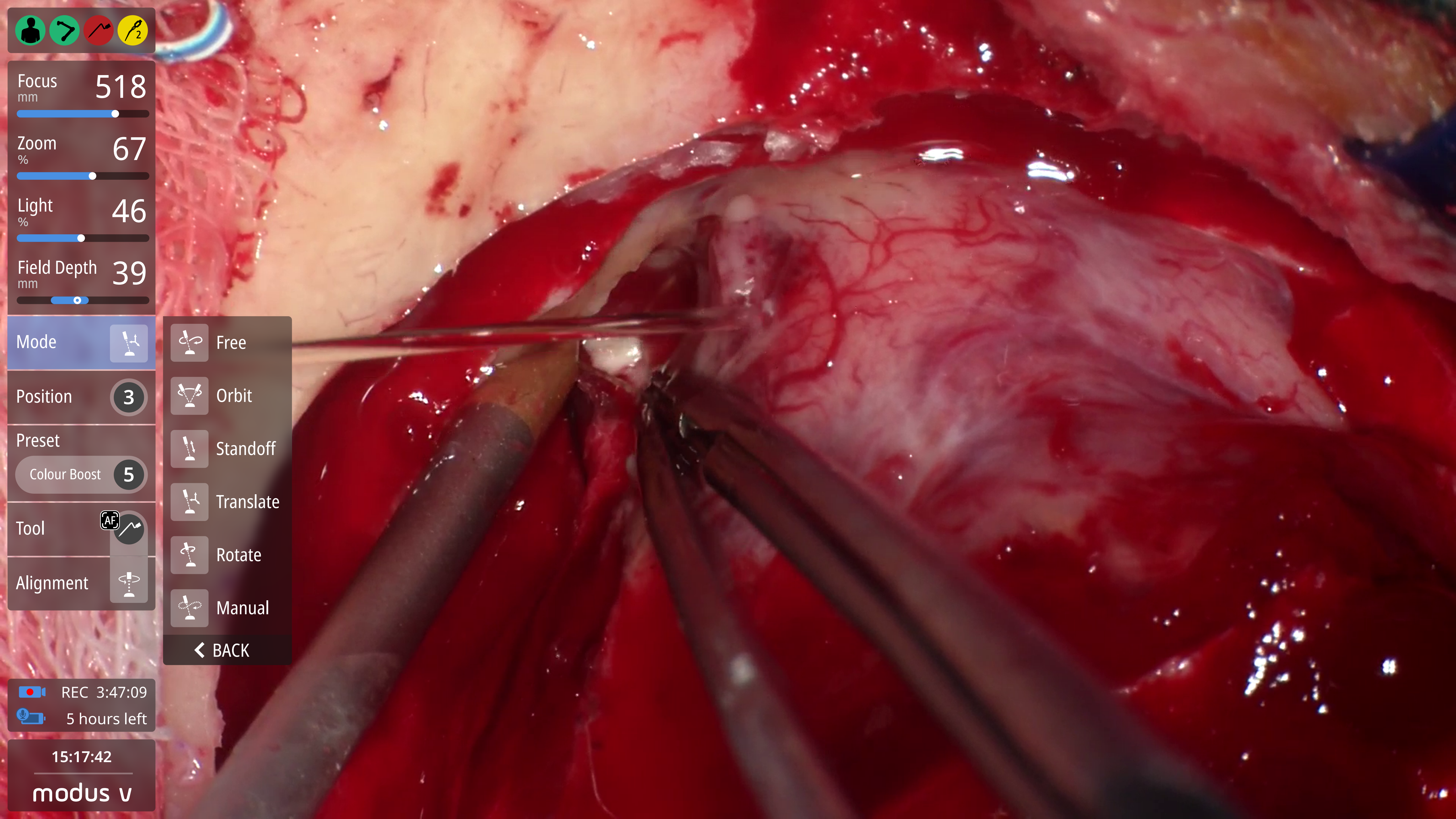
If no switches are actuated at this point, trigger submenus will disappear after a few seconds.

center toggle switch

trigger button

REC 3:47:09
5 hours left

15:17:42
modus v



Focus mm 518

Zoom % 67

Light % 46

Field Depth mm 39

Mode

Position 3

Preset

Colour Boost 5

Tool

Alignment

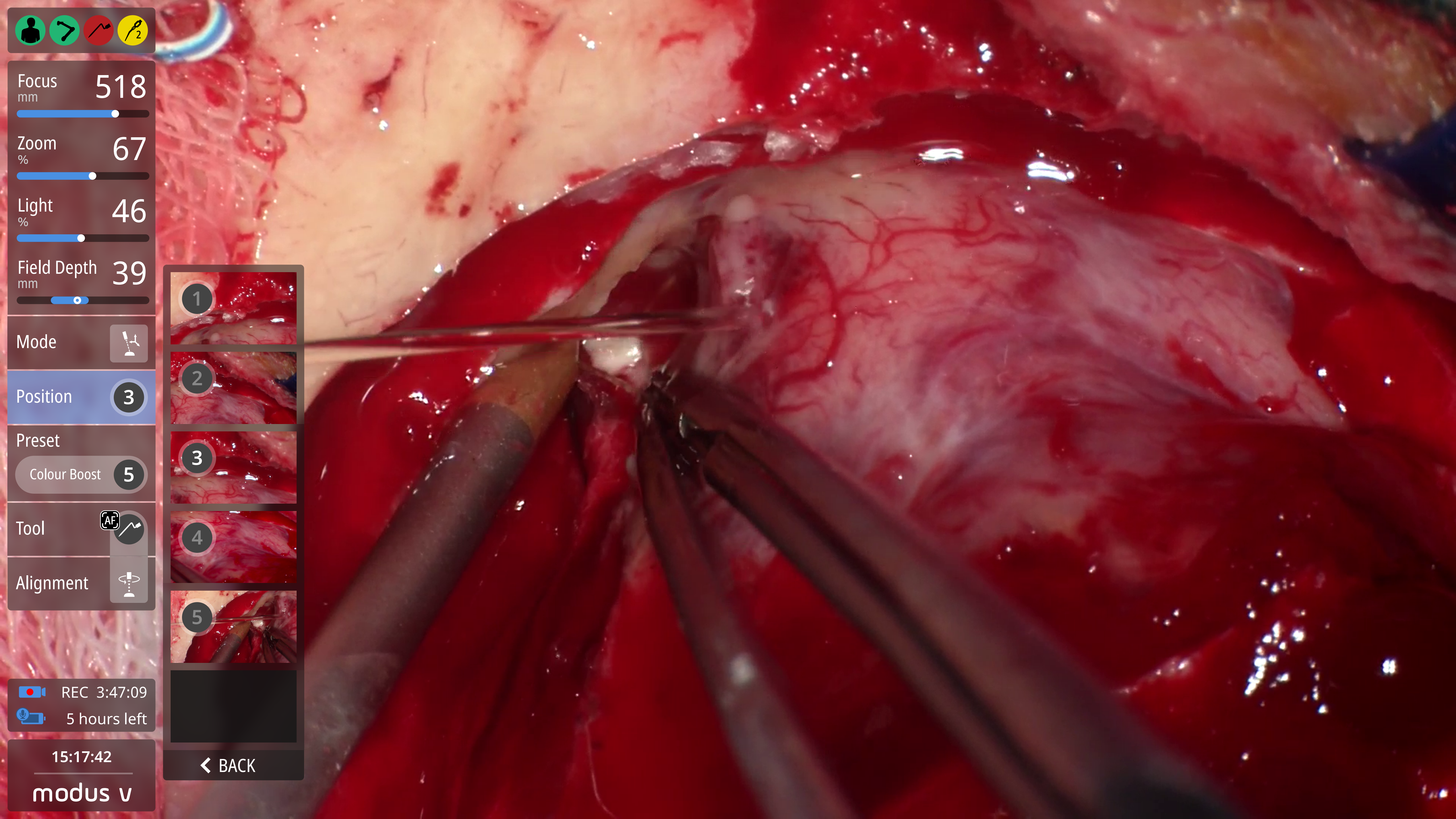
- Free
 - Orbit
 - Standoff
 - Translate
 - Rotate
 - Manual
- ← BACK

REC 3:47:09

5 hours left

15:17:42

modus v



Focus mm 518

Zoom % 67

Light % 46

Field Depth mm 39

Mode

Position 3

Preset Colour Boost 5

Tool

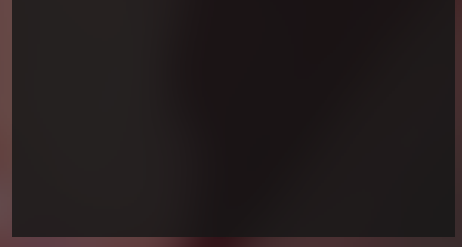
Alignment

REC 3:47:09

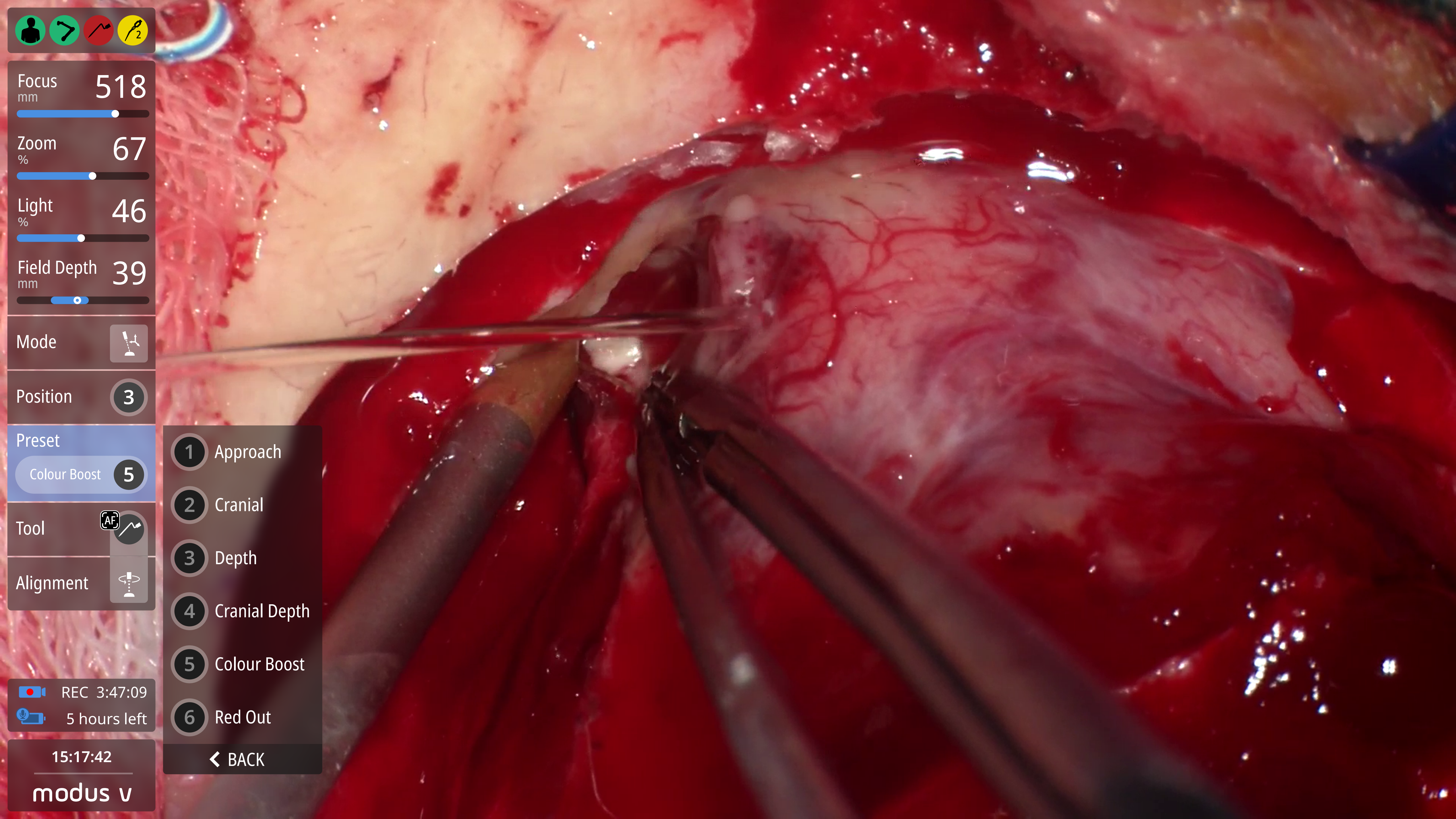
5 hours left

15:17:42

modus v



← BACK



Focus mm 518

Zoom % 67

Light % 46

Field Depth mm 39

Mode

Position 3

Preset Colour Boost 5

Tool

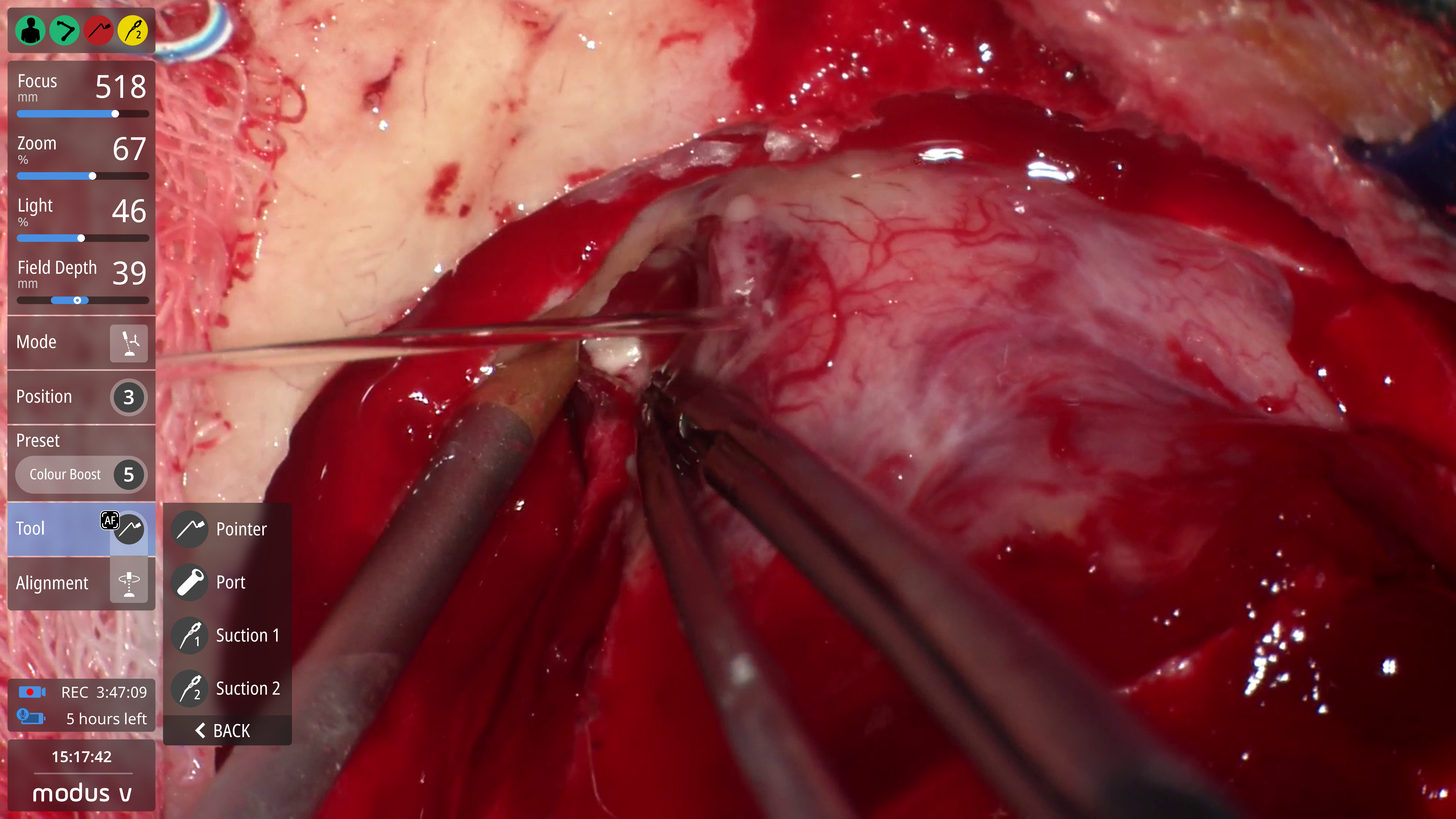
Alignment

- 1 Approach
- 2 Cranial
- 3 Depth
- 4 Cranial Depth
- 5 Colour Boost
- 6 Red Out

REC 3:47:09
5 hours left

15:17:42
modus v

← BACK




Focus mm 518

Zoom % 67


Light % 46


Field Depth mm 39


Mode 

Position 3

Preset Colour Boost 5

Tool 


Alignment 

 Pointer

 Port

 Suction 1

 Suction 2

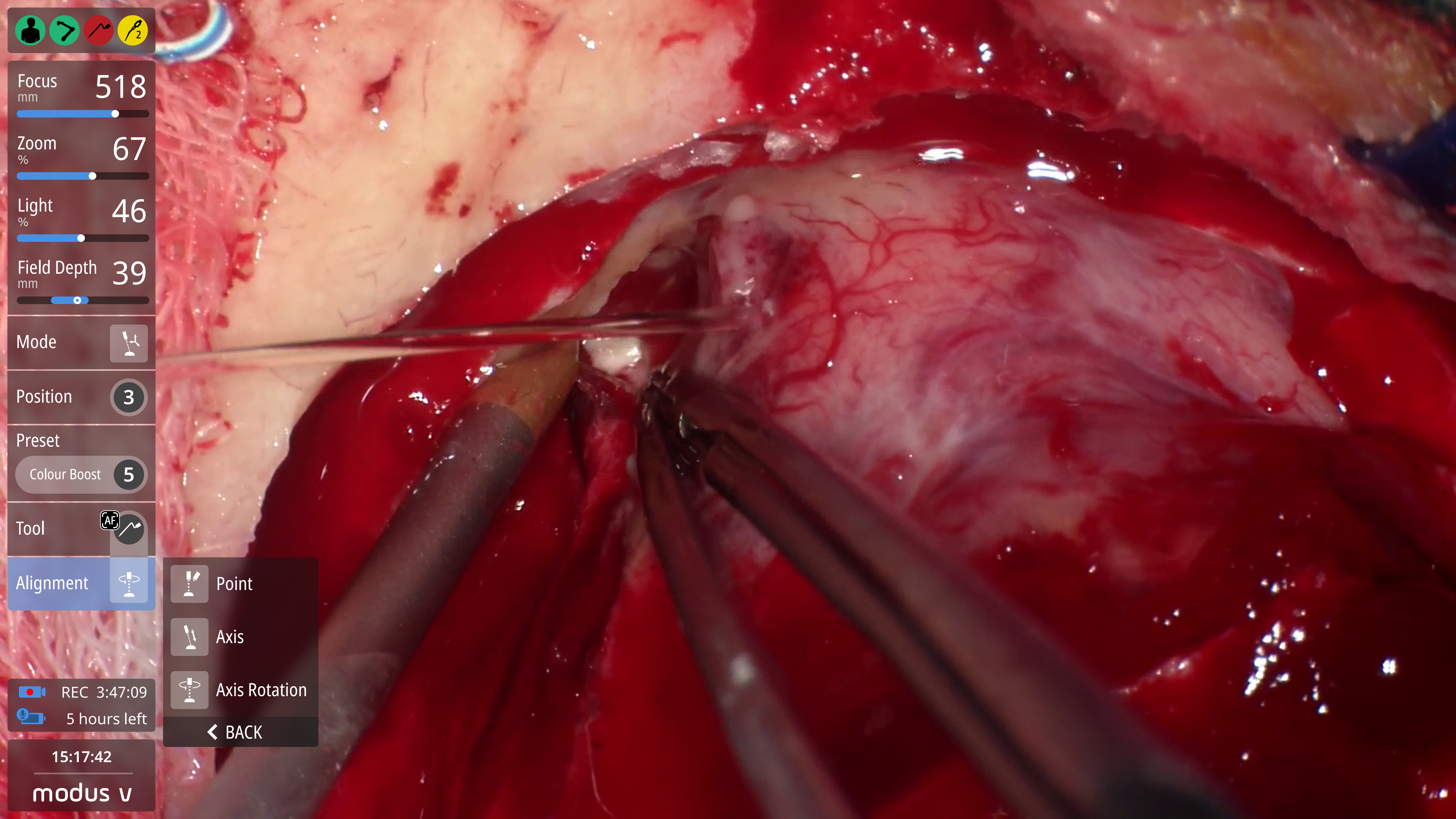
 BACK

REC 3:47:09

5 hours left

15:17:42

modus v



Focus
mm 518

Zoom
% 67

Light
% 46

Field Depth
mm 39

Mode 

Position **3**

Preset
Colour Boost **5**

Tool  

Alignment 

 Point

 Axis

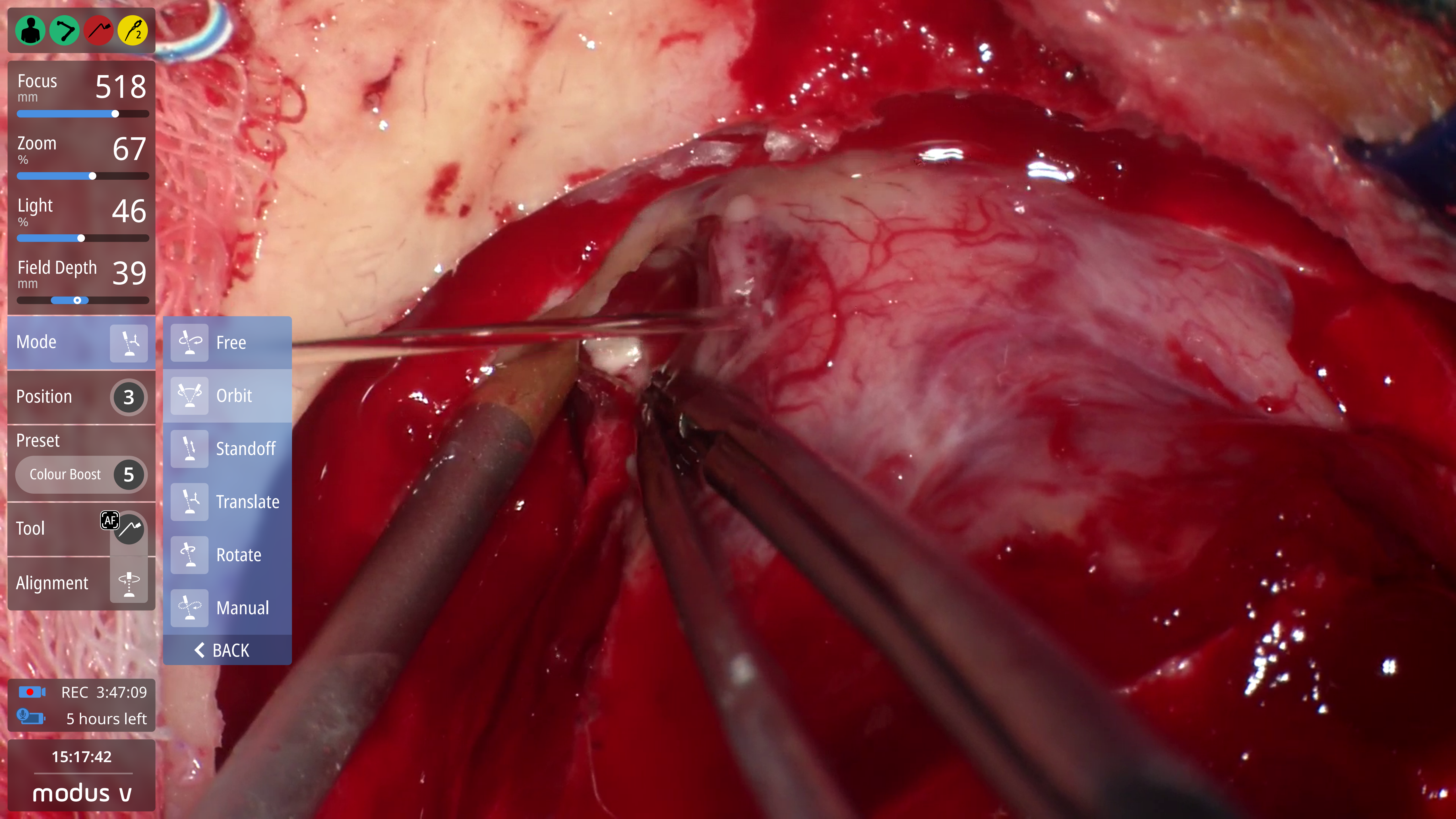
 Axis Rotation

 BACK

REC 3:47:09

 5 hours left

15:17:42
modus v



Focus mm 518

Zoom % 67

Light % 46

Field Depth mm 39

Mode

Position 3

Preset

Colour Boost 5

Tool

Alignment

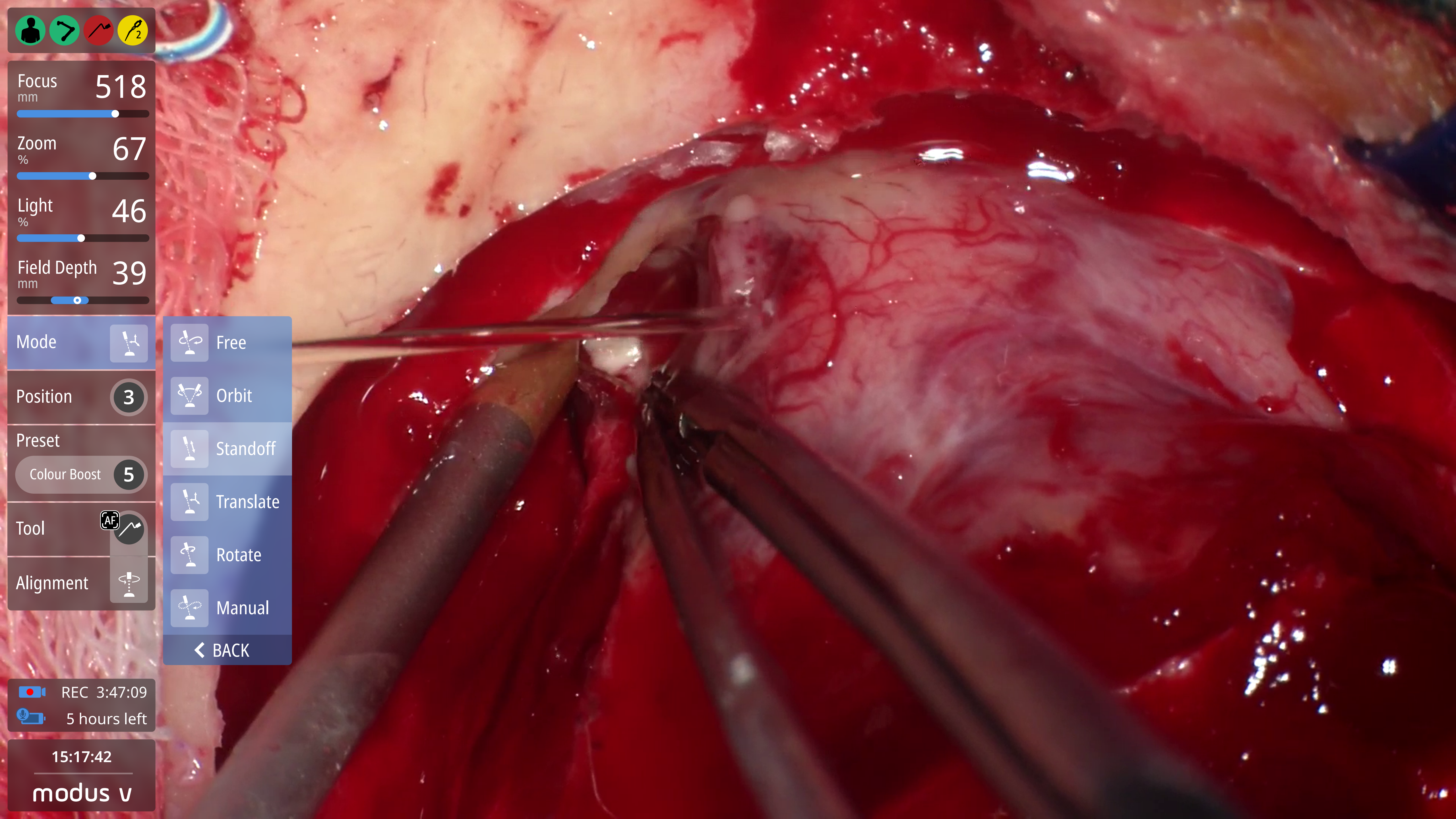
- Free
- Orbit
- Standoff
- Translate
- Rotate
- Manual
- ← BACK

REC 3:47:09

5 hours left

15:17:42

modus v



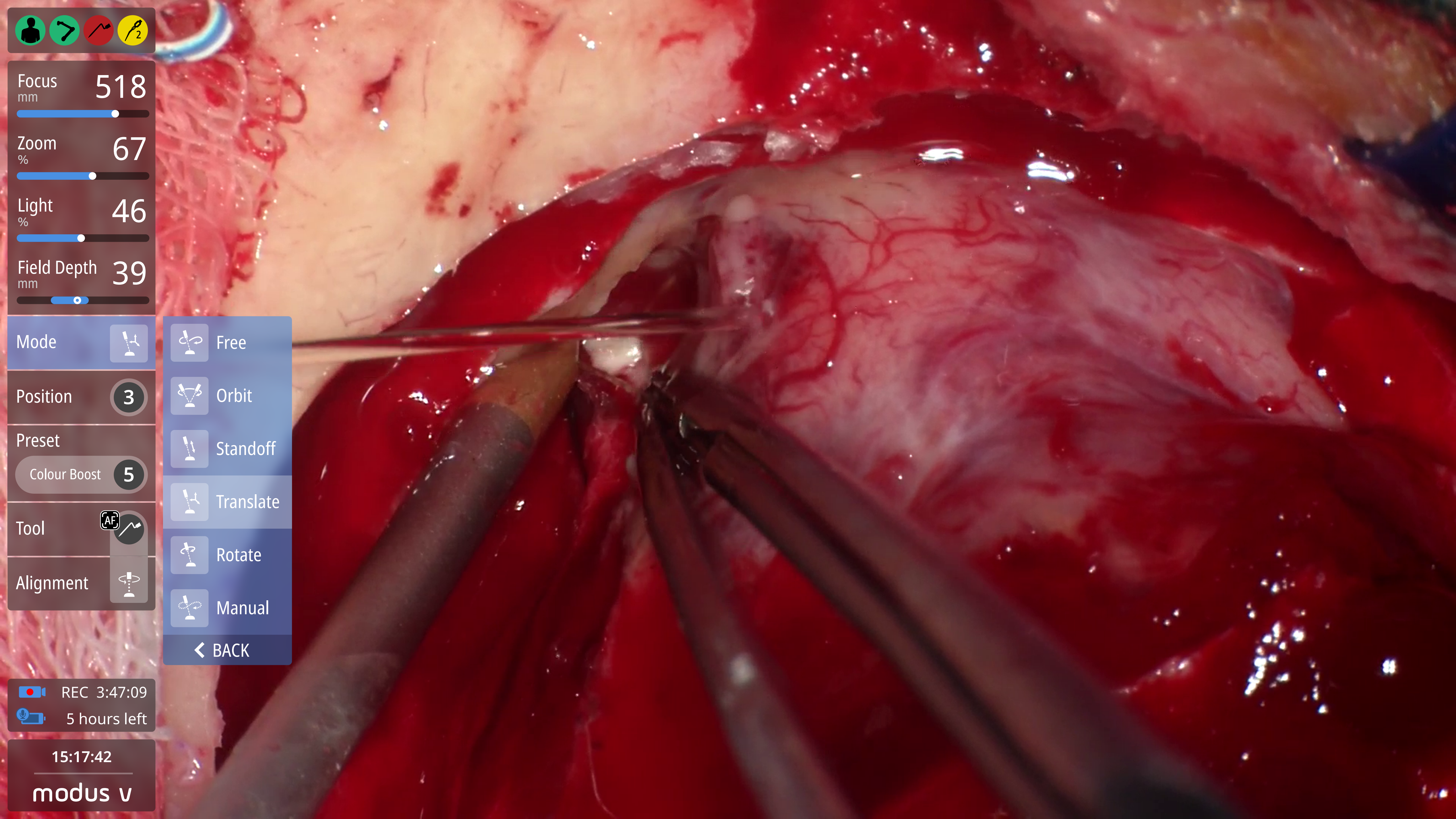
Focus mm 518
Zoom % 67
Light % 46
Field Depth mm 39

Mode Free
Position **3** Orbit
Preset Standoff
Colour Boost **5** Translate
Tool Rotate
Alignment Manual

Free
 Orbit
 Standoff
 Translate
 Rotate
 Manual
← BACK

REC 3:47:09
5 hours left

15:17:42
modus v



Focus mm 518

Zoom % 67

Light % 46

Field Depth mm 39

Mode

Free

Position 3

Orbit

Preset

Standoff

Colour Boost 5

Translate

Tool AE

Rotate

Alignment

Manual

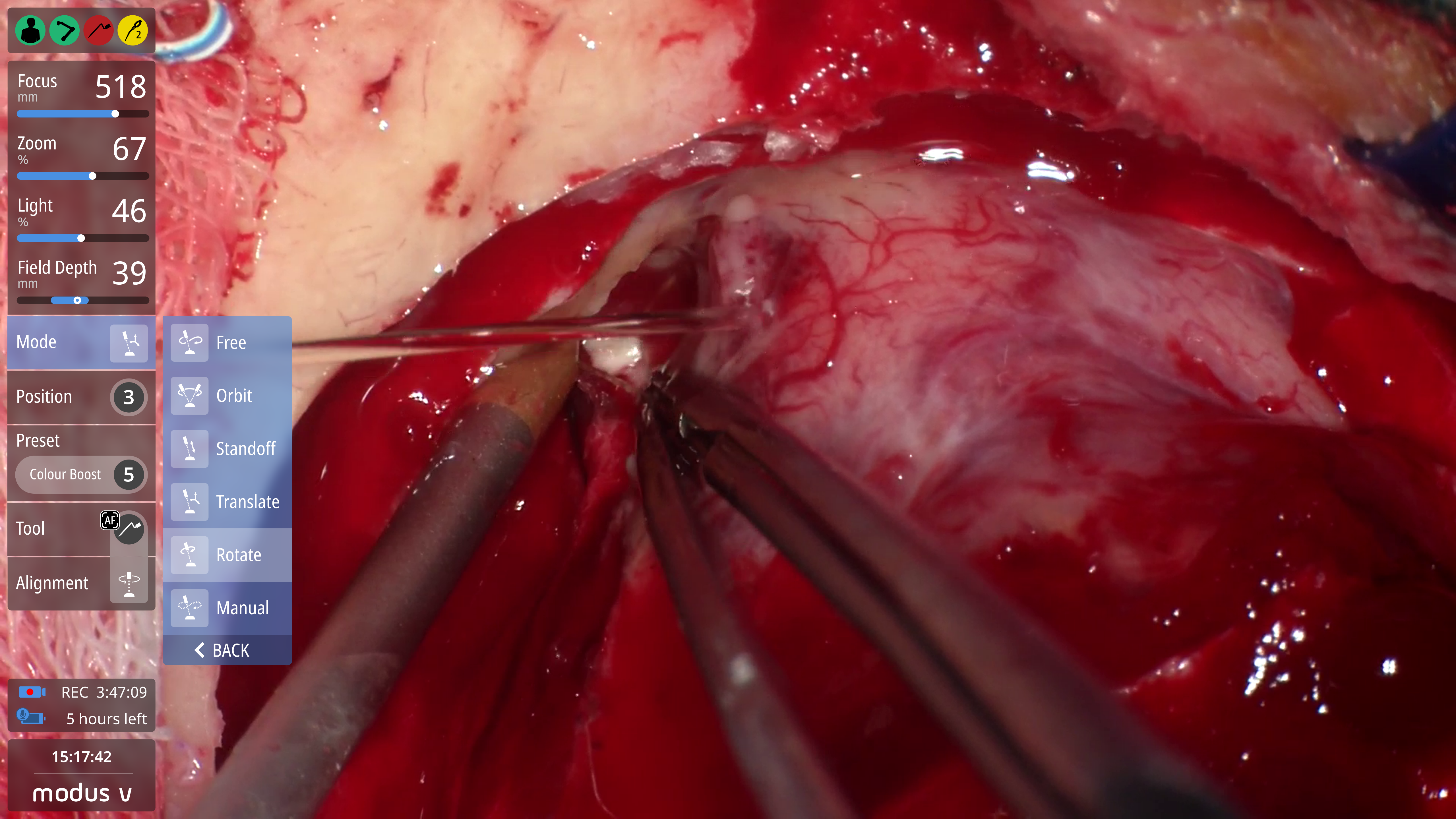
← BACK

REC 3:47:09


5 hours left

15:17:42

modus v





Focus mm 518
Zoom % 67
Light % 46
Field Depth mm 39


Mode 

Position **3**


Preset
Colour Boost **5**


Tool 


Alignment 


 Free

 Orbit


 Standoff


 Translate

 Rotate

 Manual

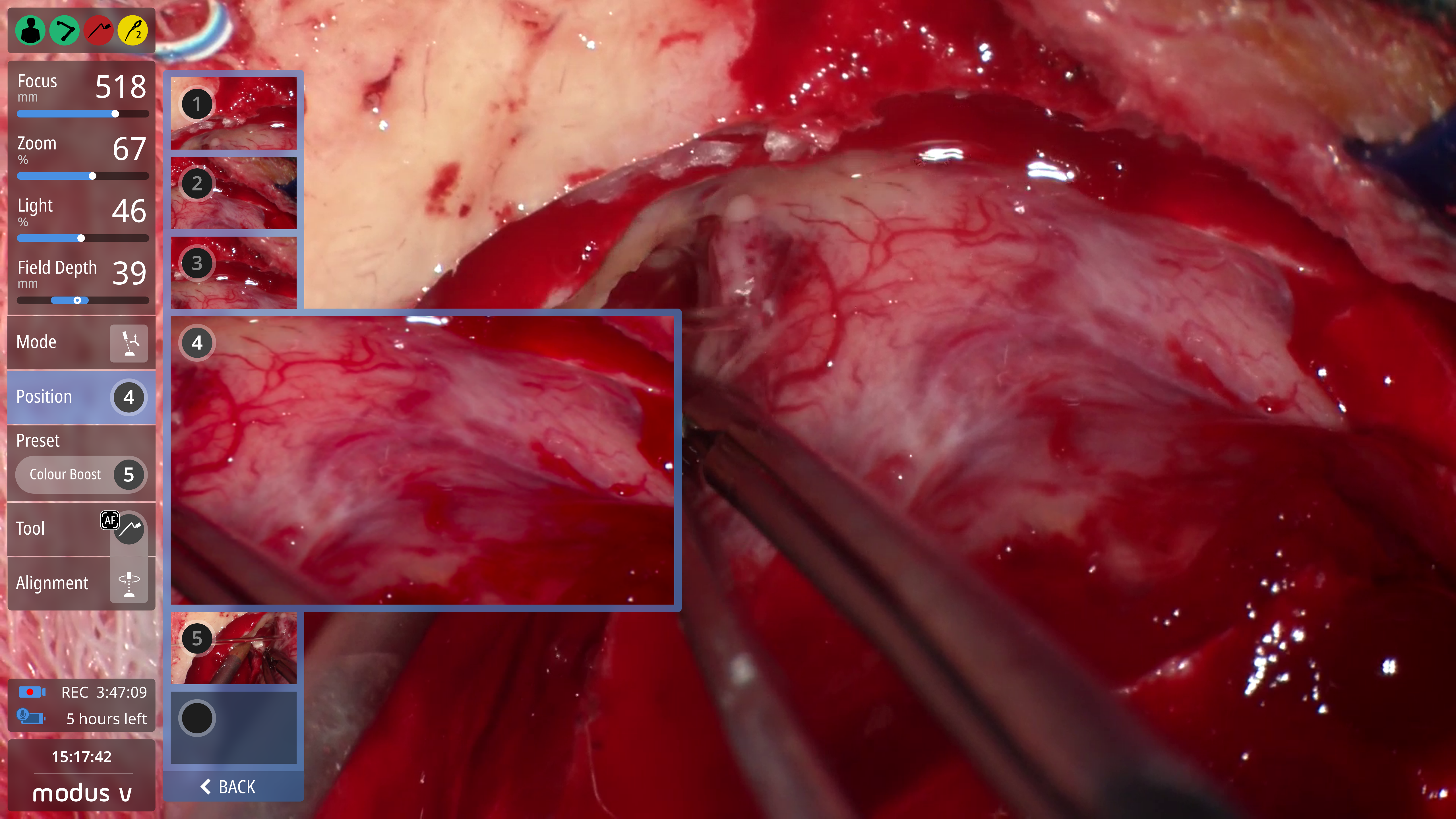
< BACK

 REC 3:47:09

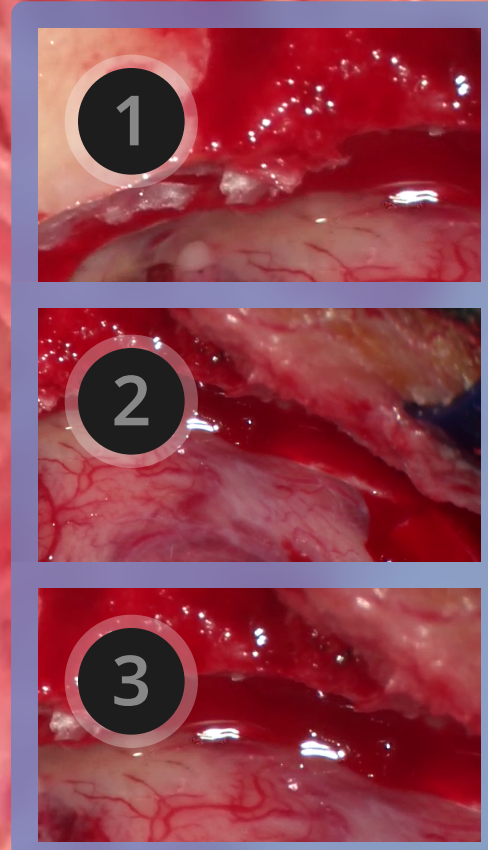
 5 hours left

15:17:42

modus v



Focus mm 518
Zoom % 67
Light % 46
Field Depth mm 39



Mode

Position 4

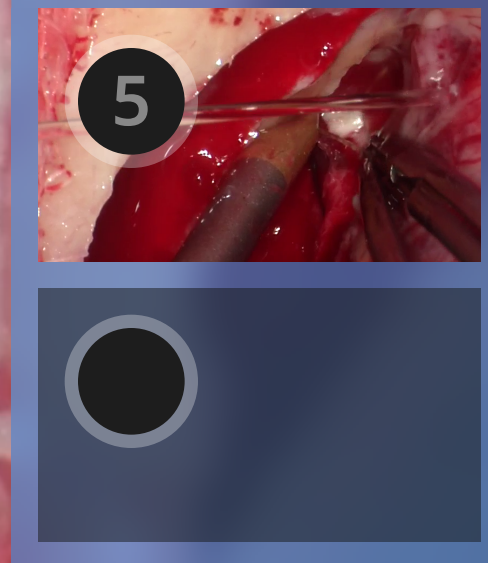
Preset
Colour Boost 5

Tool

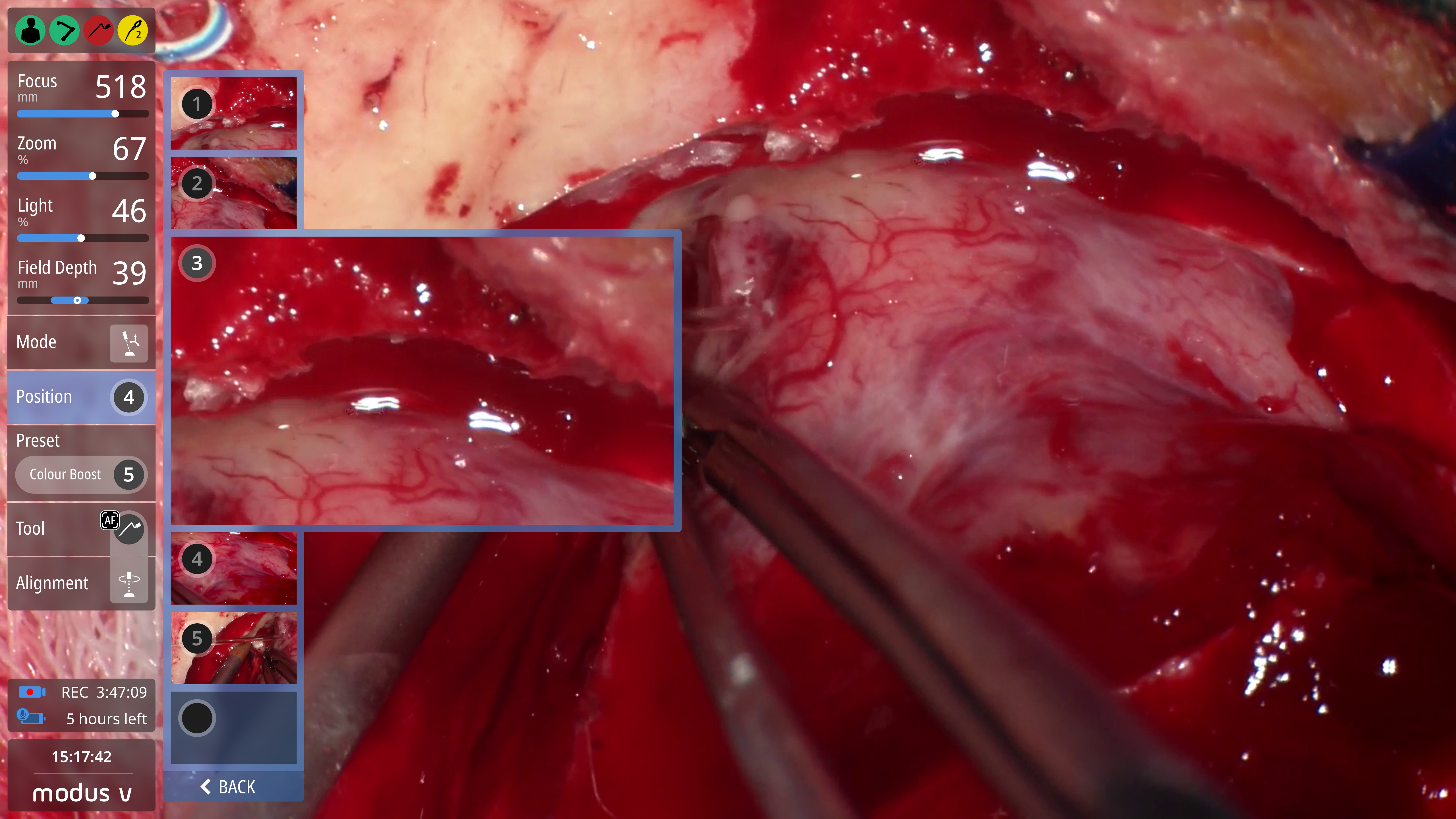
Alignment

REC 3:47:09
5 hours left

15:17:42
modus v



← BACK




Focus mm 518

Zoom % 67

Light % 46

Field Depth mm 39

Mode 

Position 4

Preset Colour Boost 5

Tool  

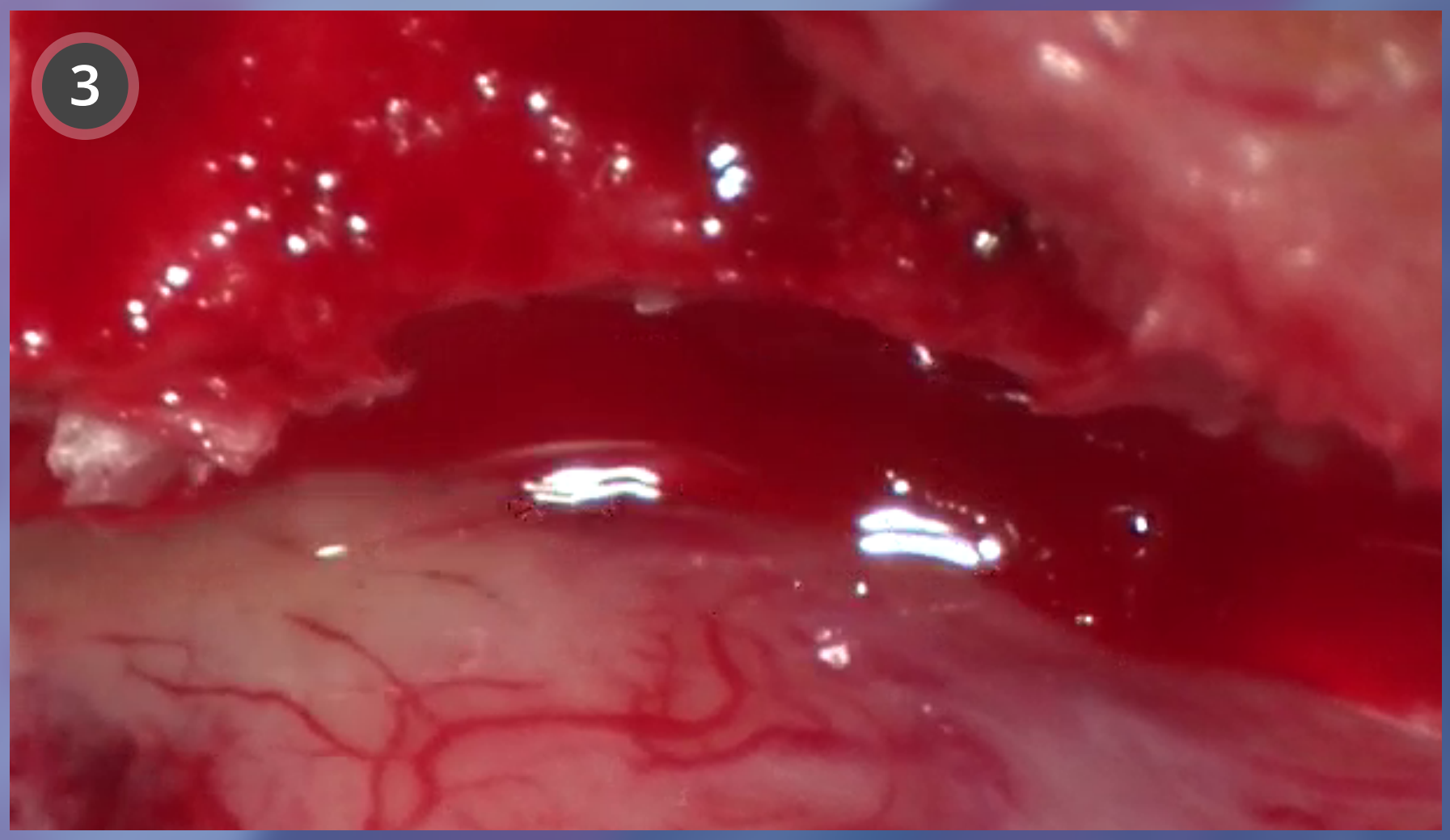
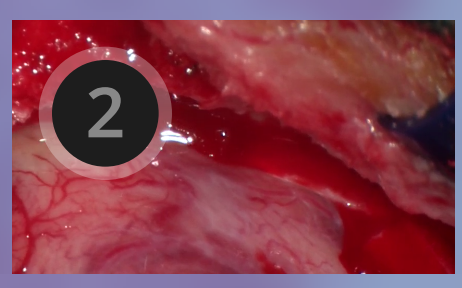
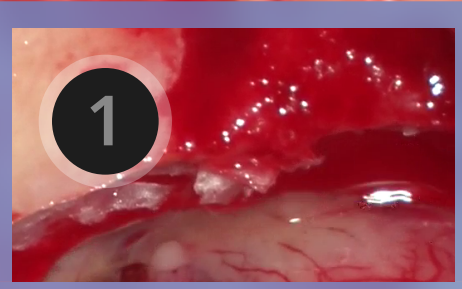
Alignment 

REC 3:47:09

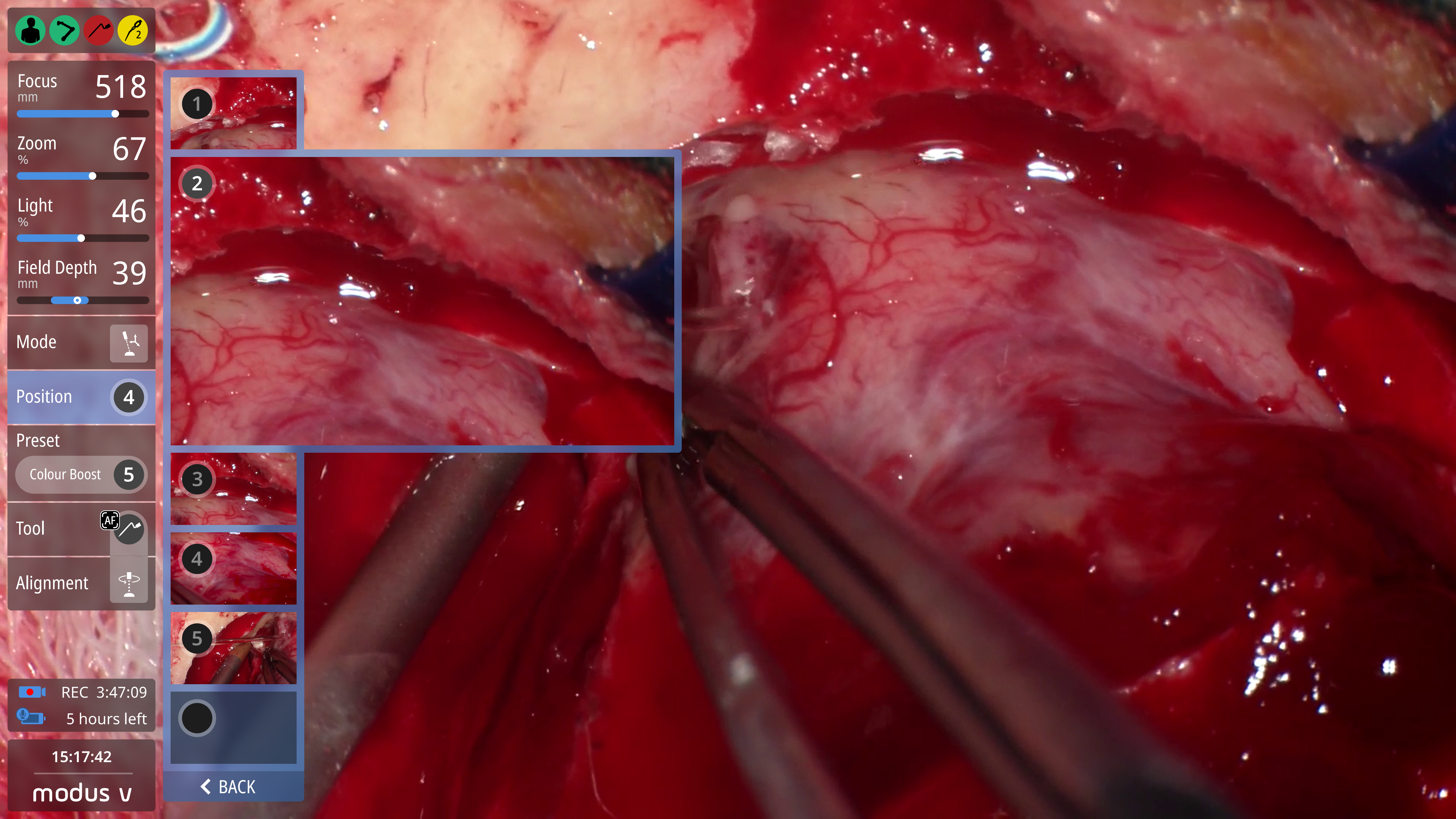
5 hours left

15:17:42

modus v



← BACK



Focus mm 518
Zoom % 67
Light % 46
Field Depth mm 39

Mode

Position 4

Preset
Colour Boost 5

Tool

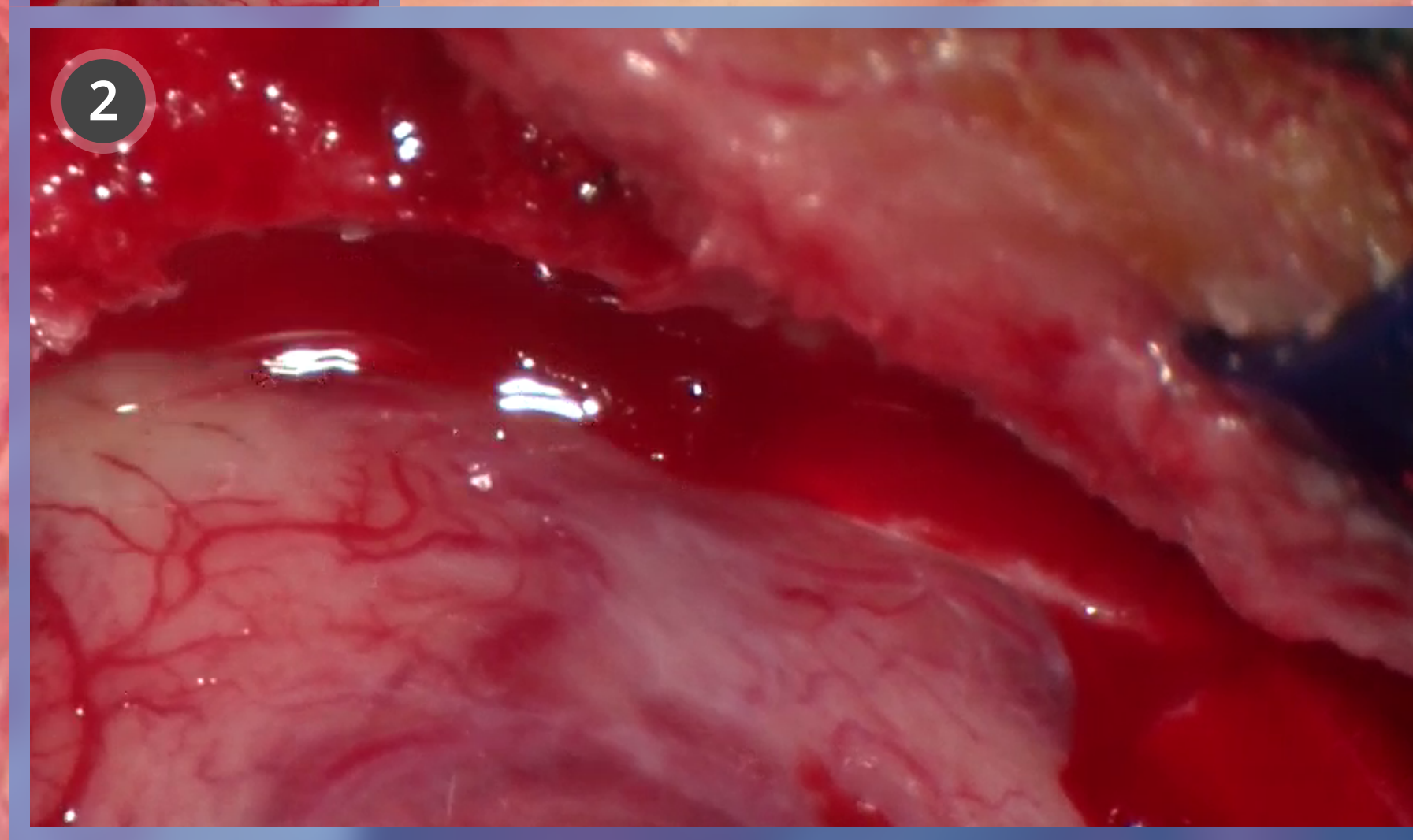
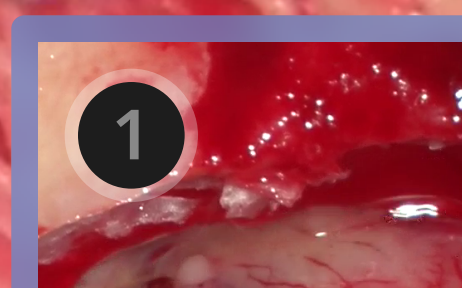
Alignment

REC 3:47:09

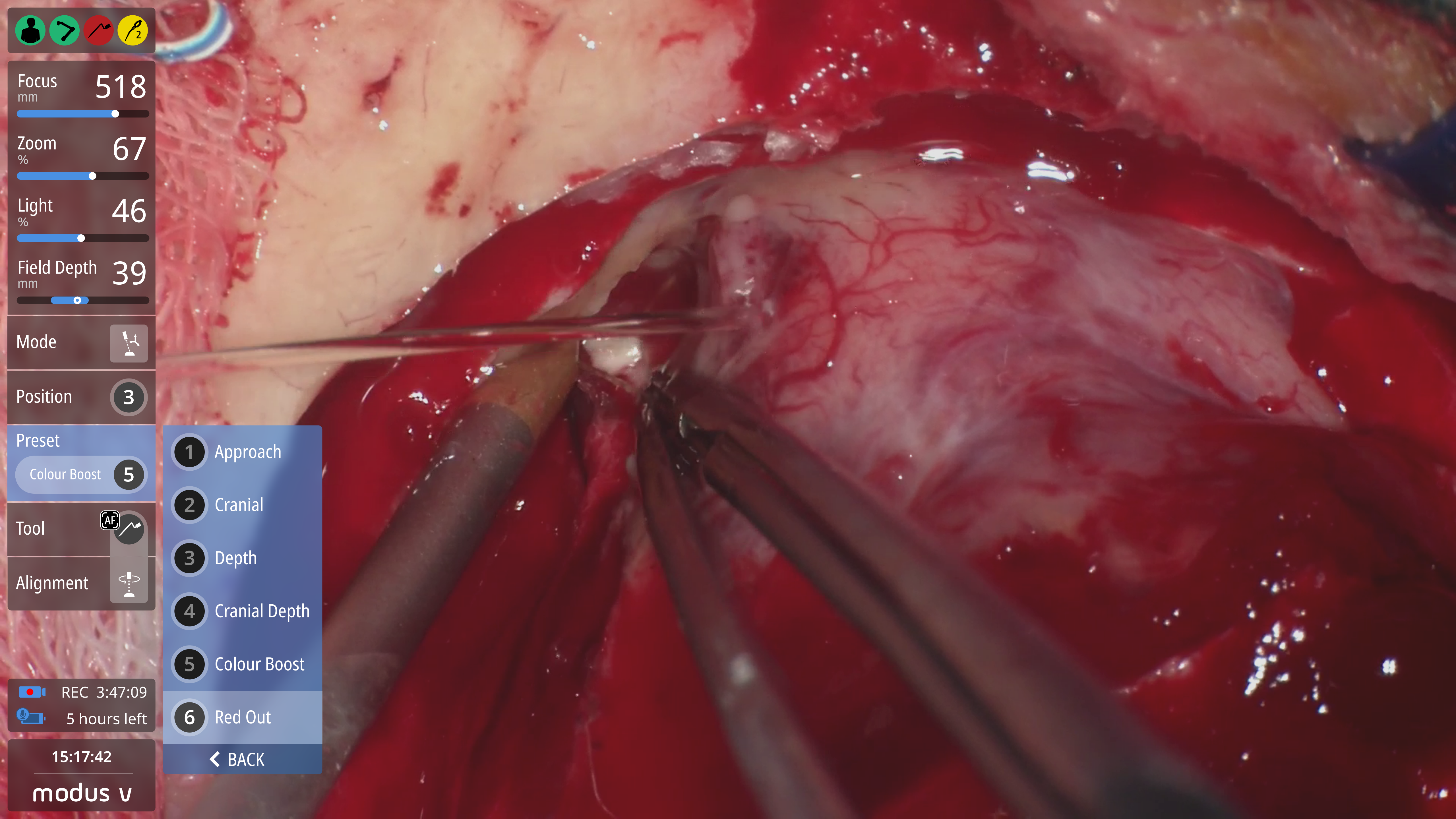
5 hours left

15:17:42

modus v



← BACK



Focus mm 518
Zoom % 67
Light % 46
Field Depth mm 39

Mode

Position 3

Preset
Colour Boost 5

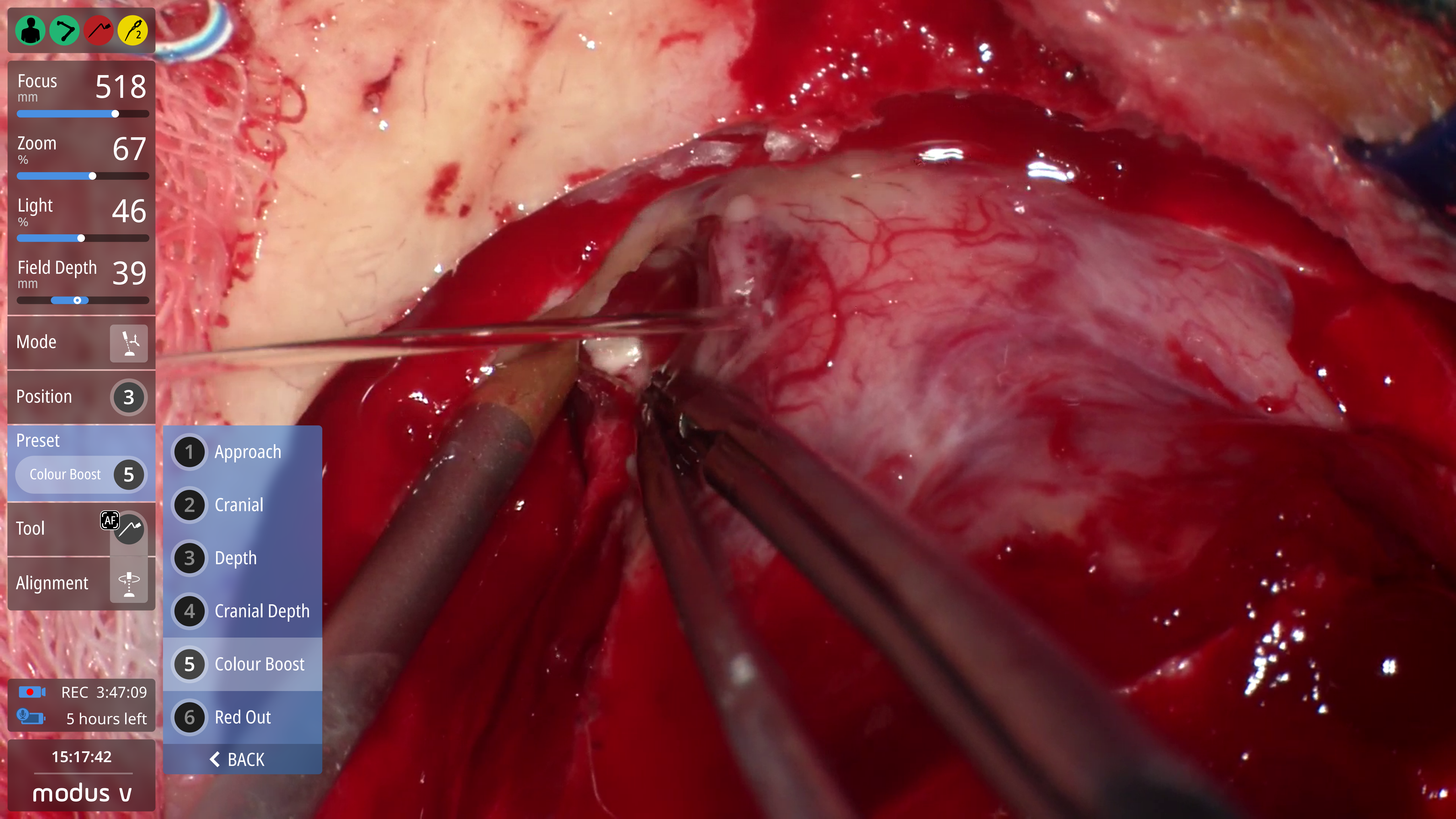
Tool

Alignment

REC 3:47:09
5 hours left

15:17:42
modus v

- 1 Approach
- 2 Cranial
- 3 Depth
- 4 Cranial Depth
- 5 Colour Boost
- 6 Red Out
- ← BACK



Focus
mm 518

Zoom
% 67

Light
% 46

Field Depth
mm 39

Mode

Position 3

Preset

Colour Boost 5

Tool

Alignment

1 Approach

2 Cranial

3 Depth

4 Cranial Depth

5 Colour Boost

6 Red Out

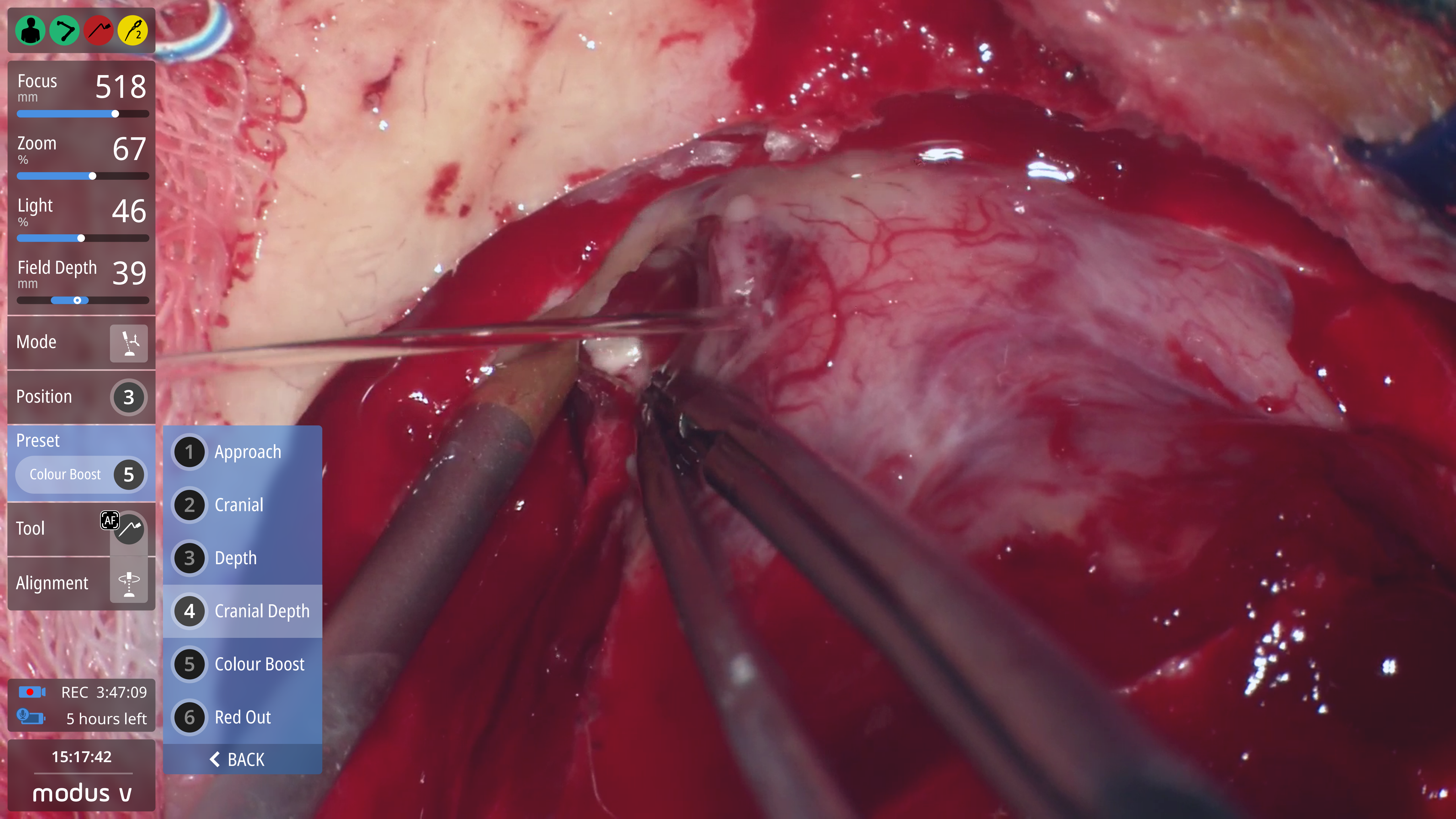
← BACK

REC 3:47:09

5 hours left

15:17:42

modus v



Focus
mm 518

Zoom
% 67

Light
% 46

Field Depth
mm 39

Mode

Position 3

Preset

Colour Boost 5

Tool AE

Alignment

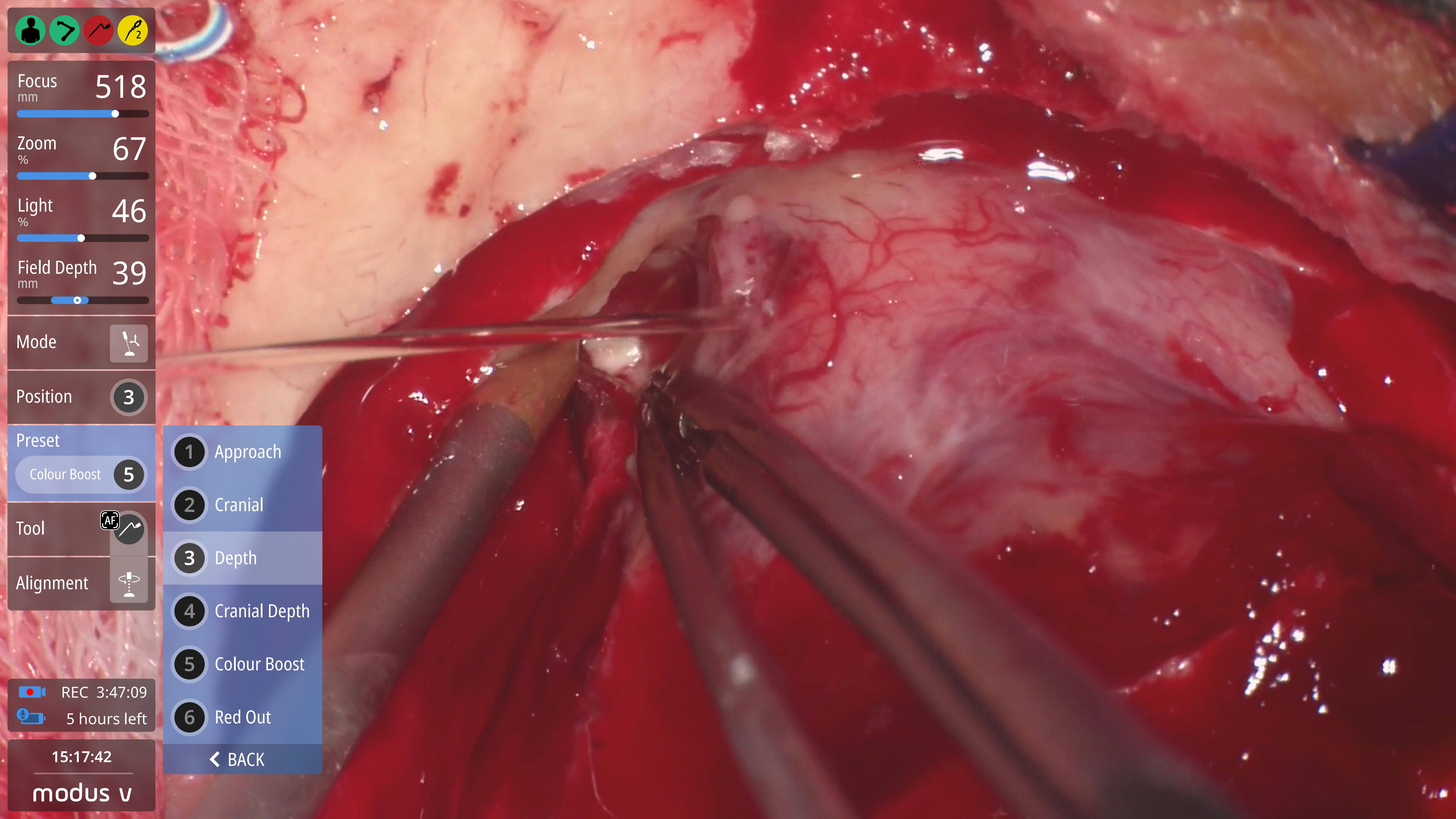
REC 3:47:09

5 hours left

15:17:42

modus v

- 1 Approach
- 2 Cranial
- 3 Depth
- 4 Cranial Depth
- 5 Colour Boost
- 6 Red Out
- ← BACK



Focus
mm 518

Zoom
% 67

Light
% 46

Field Depth
mm 39

Mode

Position 3

Preset

Colour Boost 5

Tool AE

Alignment

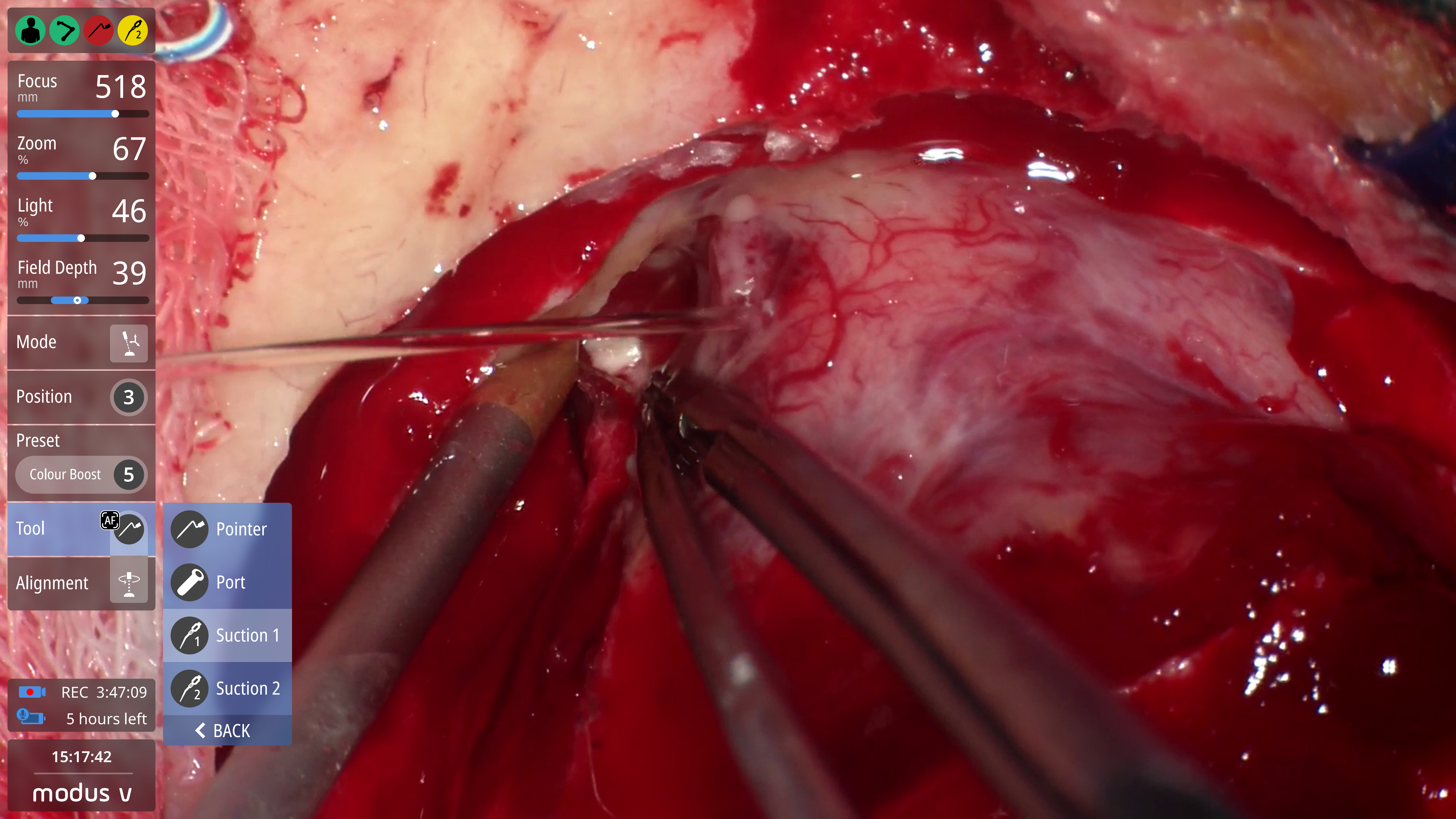
- 1 Approach
- 2 Cranial
- 3 Depth
- 4 Cranial Depth
- 5 Colour Boost
- 6 Red Out
- ← BACK

REC 3:47:09

5 hours left

15:17:42

modus v



Focus mm 518
Zoom % 67
Light % 46
Field Depth mm 39

Mode

Position 3

Preset
Colour Boost 5

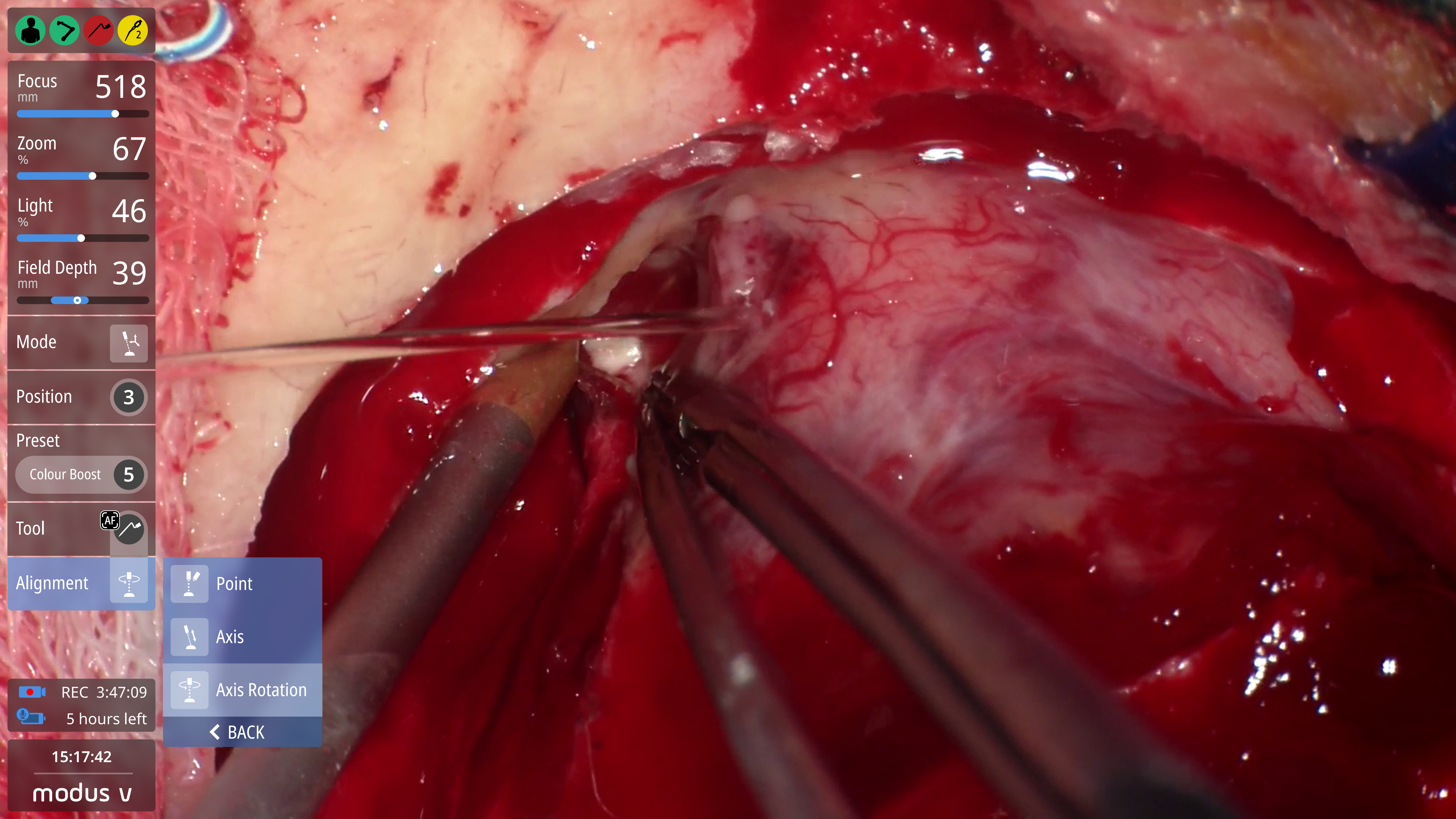
Tool

Alignment

- Pointer
- Port
- Suction 1
- Suction 2
- BACK

REC 3:47:09
5 hours left

15:17:42
modus v



Focus mm 518

Zoom % 67

Light % 46

Field Depth mm 39


Mode 

Position 3

Preset Colour Boost 5

Tool  

Alignment 

 Point

 Axis

 Axis Rotation

 BACK

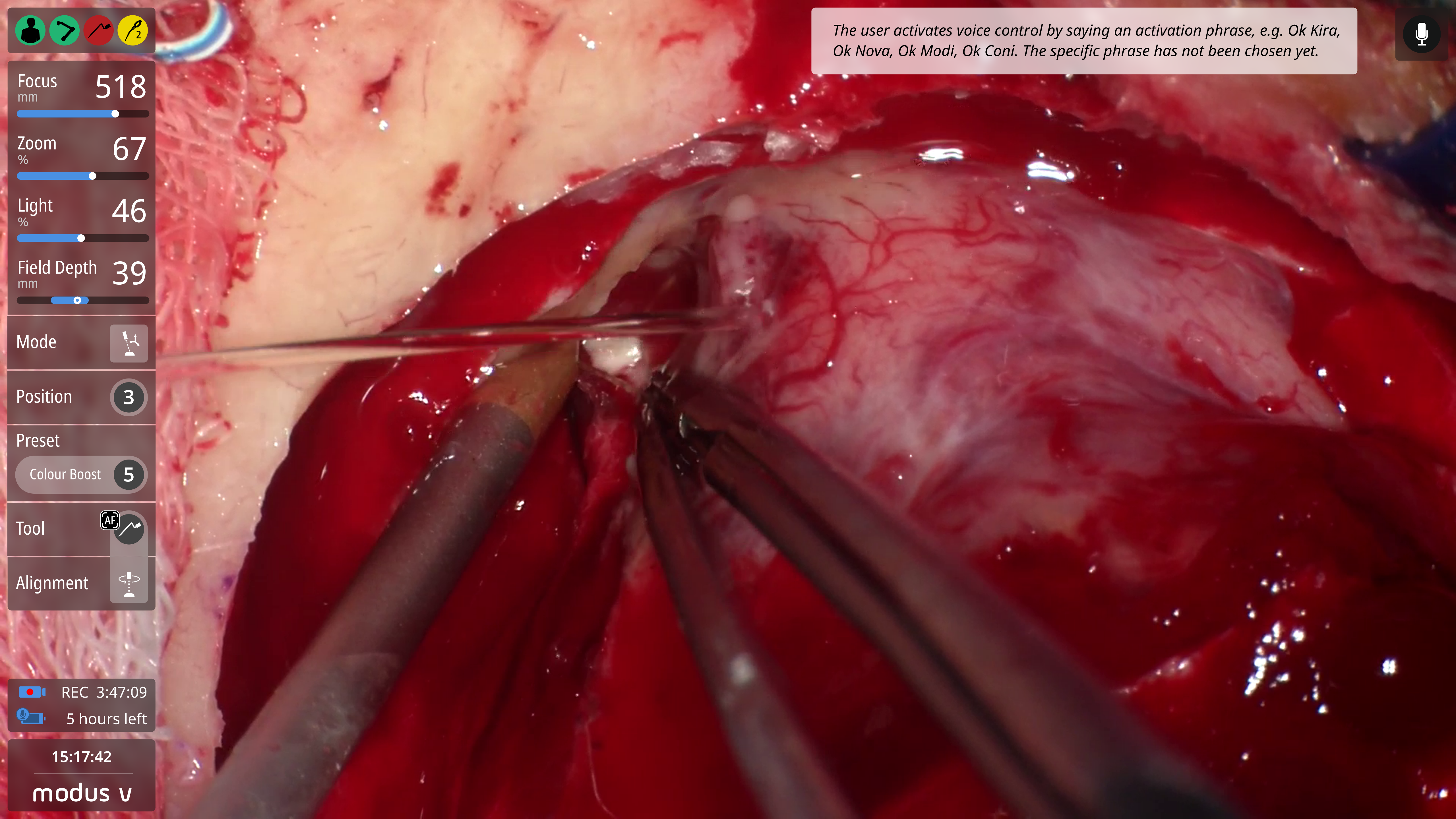
REC 3:47:09

5 hours left

15:17:42

modus v

Voice Control



The user activates voice control by saying an activation phrase, e.g. Ok Kira, Ok Nova, Ok Modi, Ok Coni. The specific phrase has not been chosen yet.



Focus mm 518
Zoom % 67
Light % 46
Field Depth mm 39

Mode

Position 3

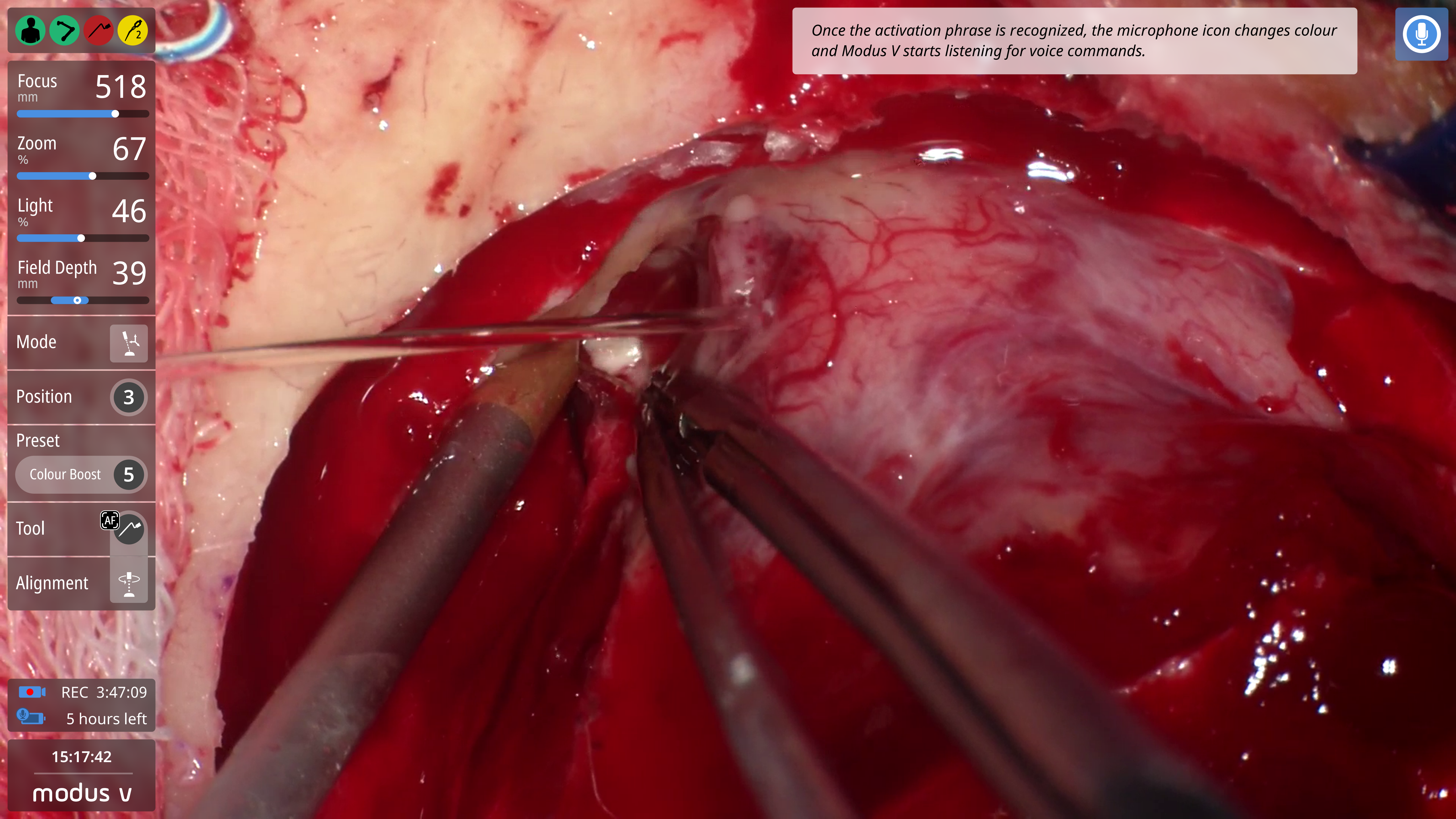
Preset
Colour Boost 5

Tool

Alignment

REC 3:47:09
5 hours left

15:17:42
modus v



Once the activation phrase is recognized, the microphone icon changes colour and Modus V starts listening for voice commands.



Focus mm 518

Zoom % 67

Light % 46

Field Depth mm 39

Mode

Position 3

Preset

Colour Boost 5

Tool

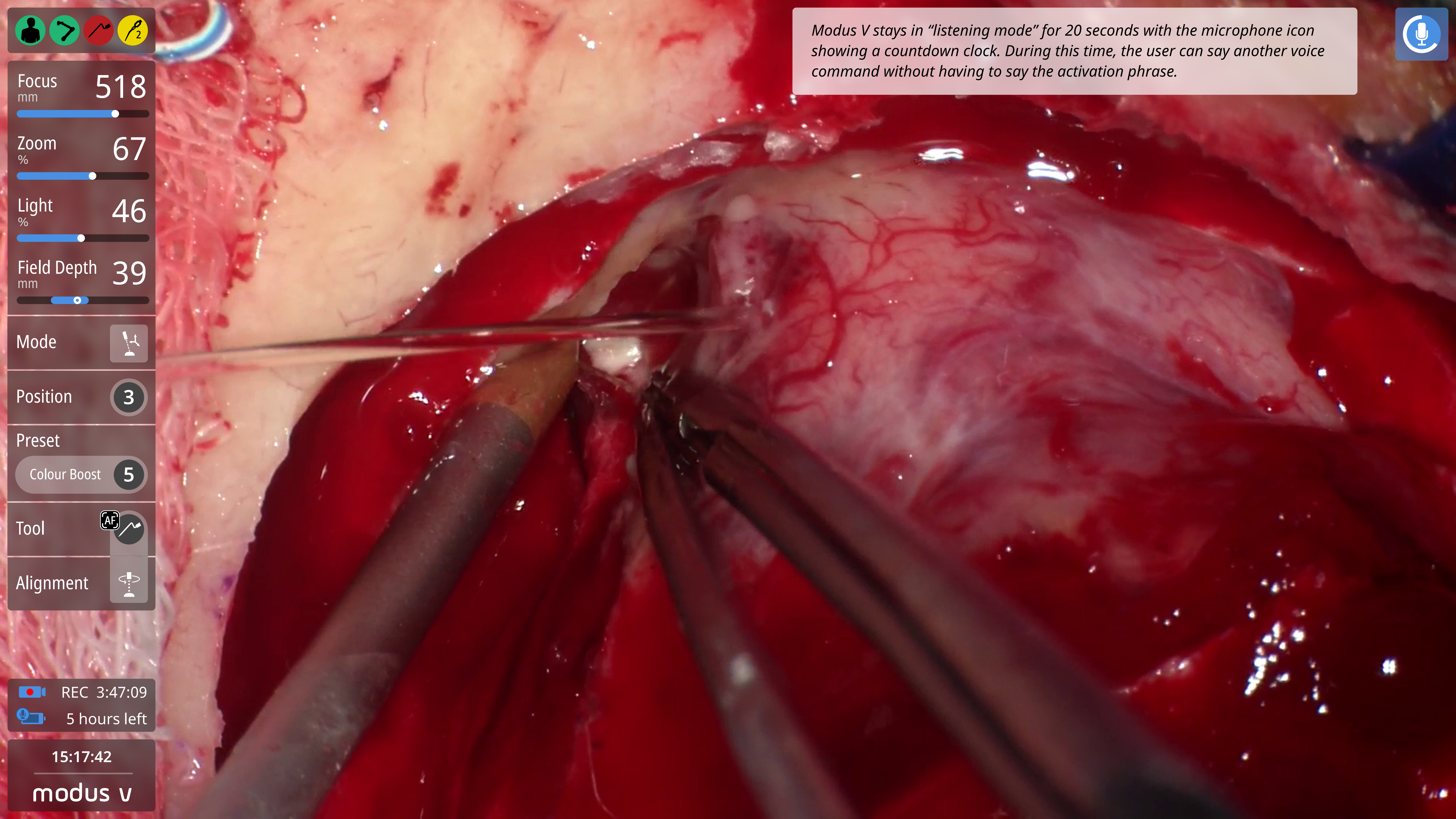
Alignment

REC 3:47:09

5 hours left

15:17:42

modus v



Modus V stays in "listening mode" for 20 seconds with the microphone icon showing a countdown clock. During this time, the user can say another voice command without having to say the activation phrase.



Focus mm 518
Zoom % 67
Light % 46
Field Depth mm 39

Mode

Position 3

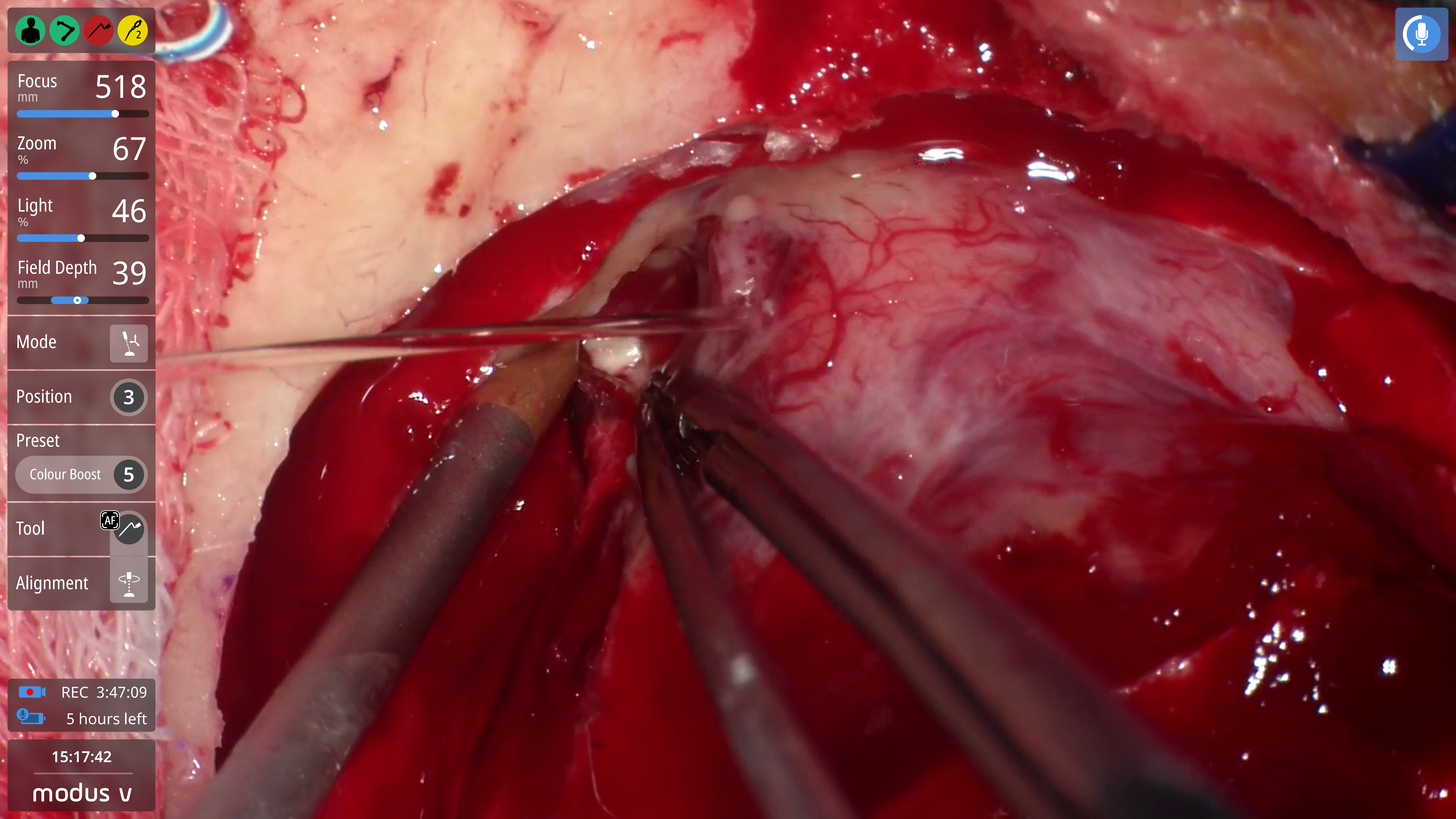
Preset
Colour Boost 5

Tool

Alignment

REC 3:47:09
5 hours left

15:17:42
modus v



Focus
mm 518

Zoom
% 67

Light
% 46

Field Depth
mm 39

Mode

Position 3

Preset
Colour Boost 5

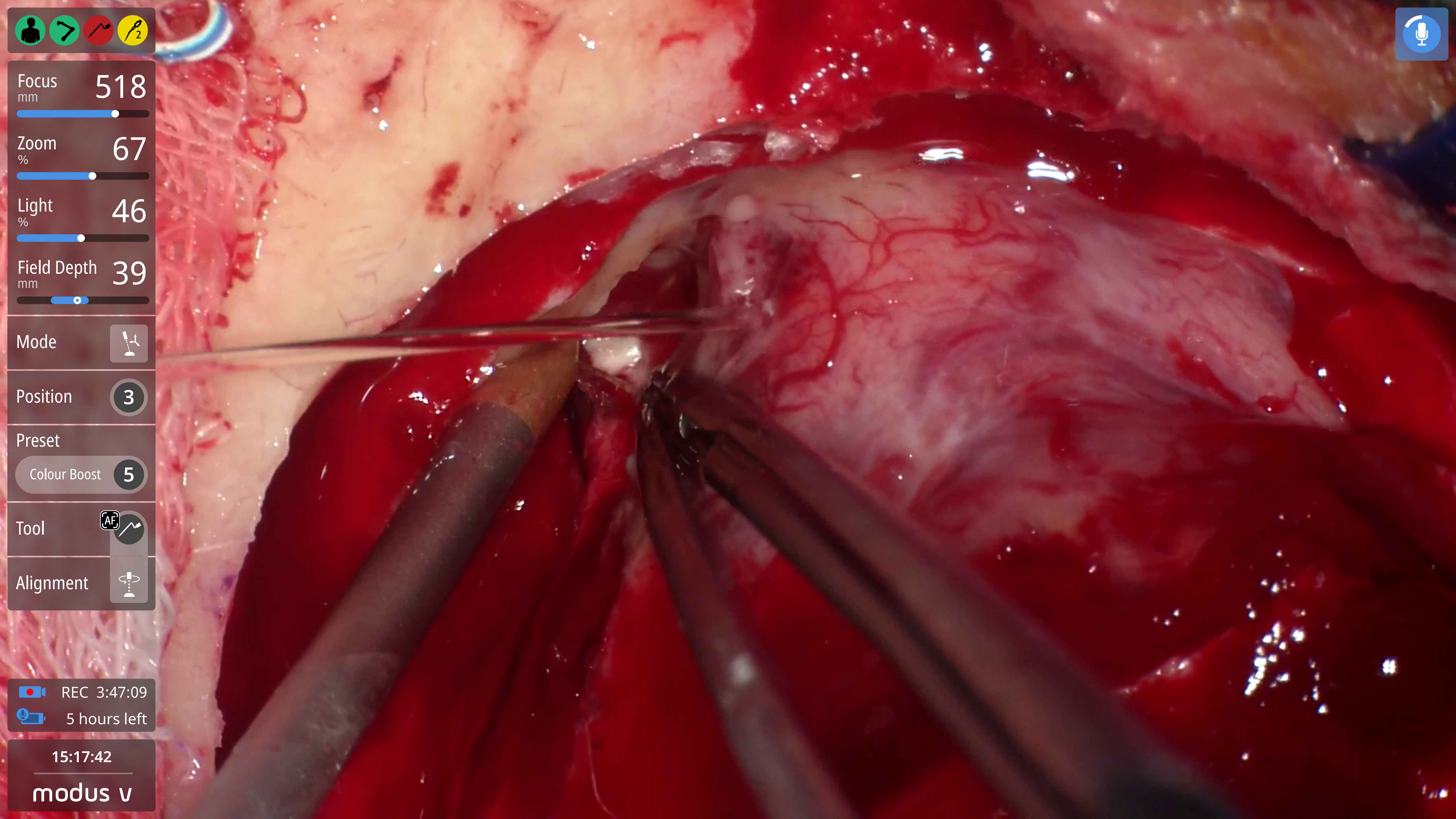
Tool

Alignment

REC 3:47:09

5 hours left

15:17:42
modus v



Focus mm 518

Zoom % 67

Light % 46

Field Depth mm 39

Mode

Position 3

Preset Colour Boost 5

Tool

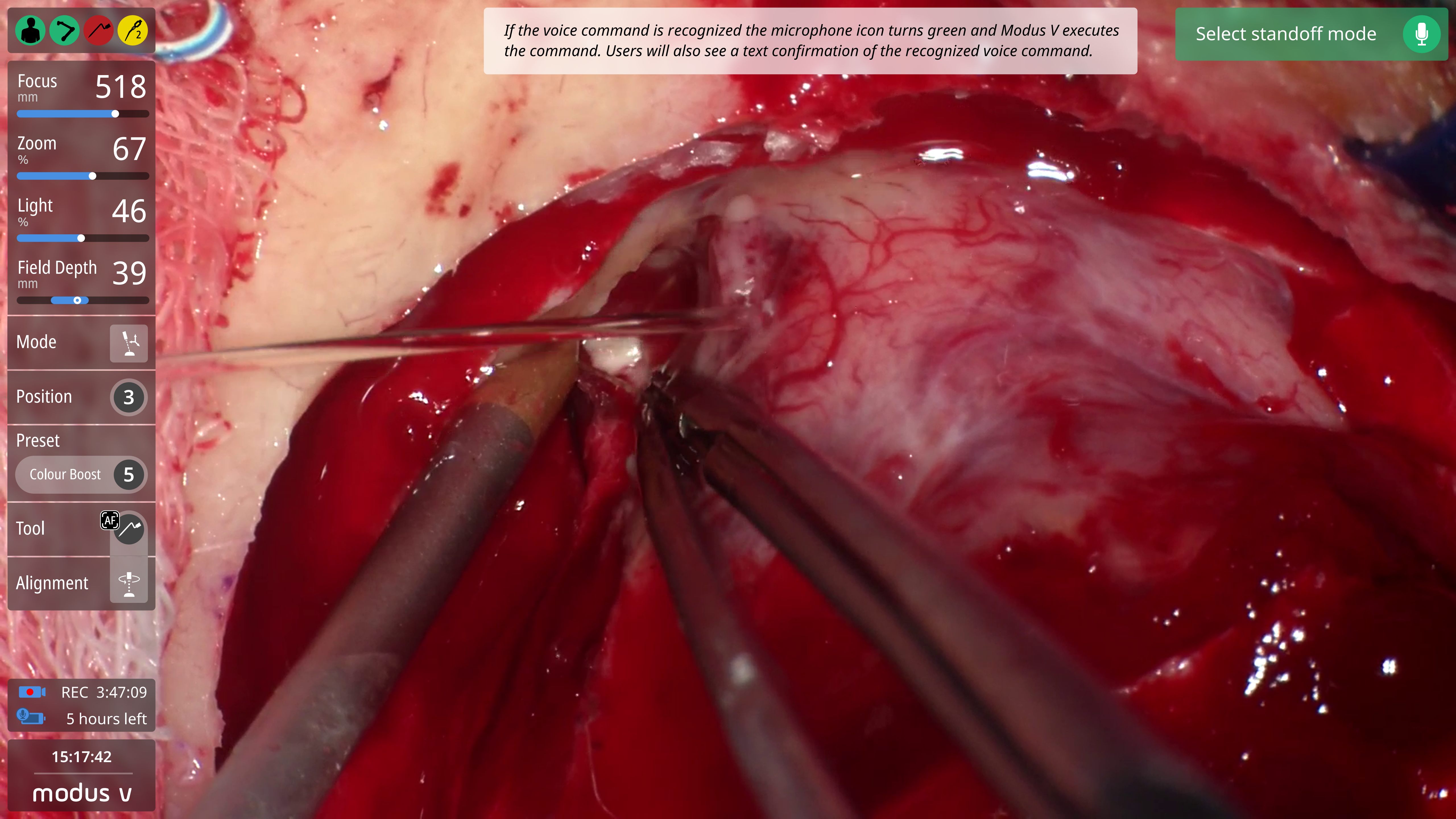
Alignment

REC 3:47:09

5 hours left

15:17:42

modus v



If the voice command is recognized the microphone icon turns green and Modus V executes the command. Users will also see a text confirmation of the recognized voice command.


Select standoff mode 

Focus mm 518

Zoom % 67

Light % 46


Field Depth mm 39


Mode 

Position 3

Preset

Colour Boost 5

Tool 

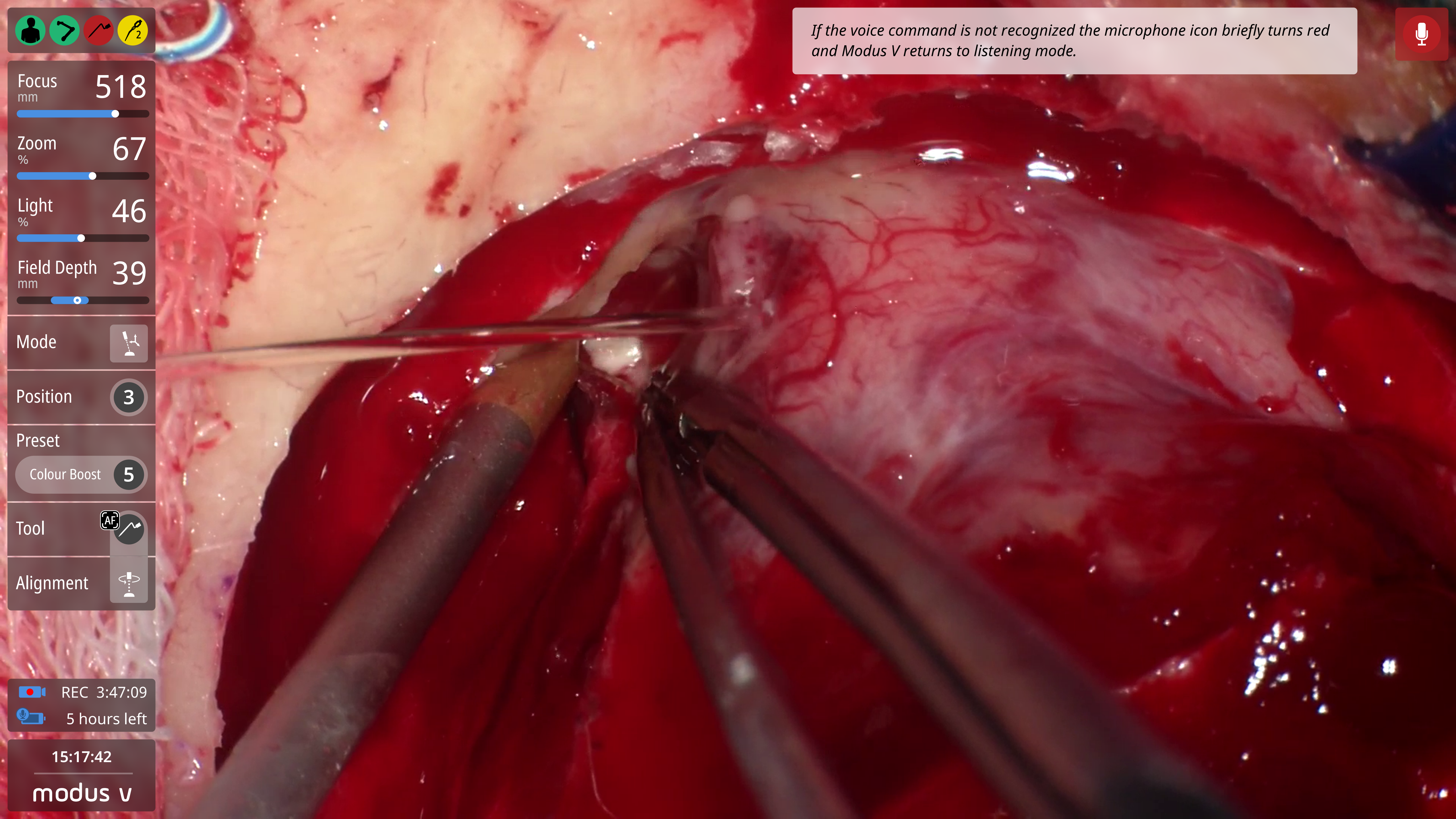
Alignment 

REC 3:47:09

5 hours left

15:17:42

modus v



If the voice command is not recognized the microphone icon briefly turns red and Modus V returns to listening mode.



Focus mm 518
Zoom % 67
Light % 46
Field Depth mm 39

Mode

Position 3

Preset
Colour Boost 5

Tool

Alignment

REC 3:47:09
5 hours left

15:17:42
modus v



The voice command "show help" displays available commands.
 This is the shorter "essential commands" list. A complete commands list is also available for users who want access to all voice commands.



Focus mm **518**

Zoom % **67**

Light % **46**

Field Depth mm **39**

Mode

Position **3**

Preset

Colour Boost **5**

Tool

Alignment

CATEGORY	VOICE COMMAND	
	Example: say "OK Kira, Select Standoff"	
Zoom	Zoom Zoom Level	In · Out · Max · Min 10 · 20 · 30 · 40 · 50 · 60 · 70 · 80 · 90 · 100
Focus	Focus Auto-focus	In · Out · Max · Min Here · On · Off
Lights	Lights Lights Level	On · Up · Down · Max · Min 10 · 20 · 30 · 40 · 50 · 60 · 70 · 80 · 90 · 100
Tool	Select	Pointer · Port · Suction 1 · Suction 2 · Trajectory
Alignment	Align To	Point · Axis · Axis Rotation
Arm Mode	Mode	Free · Orbit · Standoff · Translate · Rotate · Manual
Position	Position	1 · 2 · 3 · 4 · 5 · 6
	Save Position Select	1 · 2 · 3 · 4 · 5 · 6 Last Position
Help	Show / Hide	Help

REC 3:47:09

5 hours left

15:17:42

modus v



Focus mm **518**

Zoom % **67**

Light % **46**

Field Depth mm **39**

Mode

Position **3**

Preset

Colour Boost **5**

Tool

Alignment

REC 3:47:09

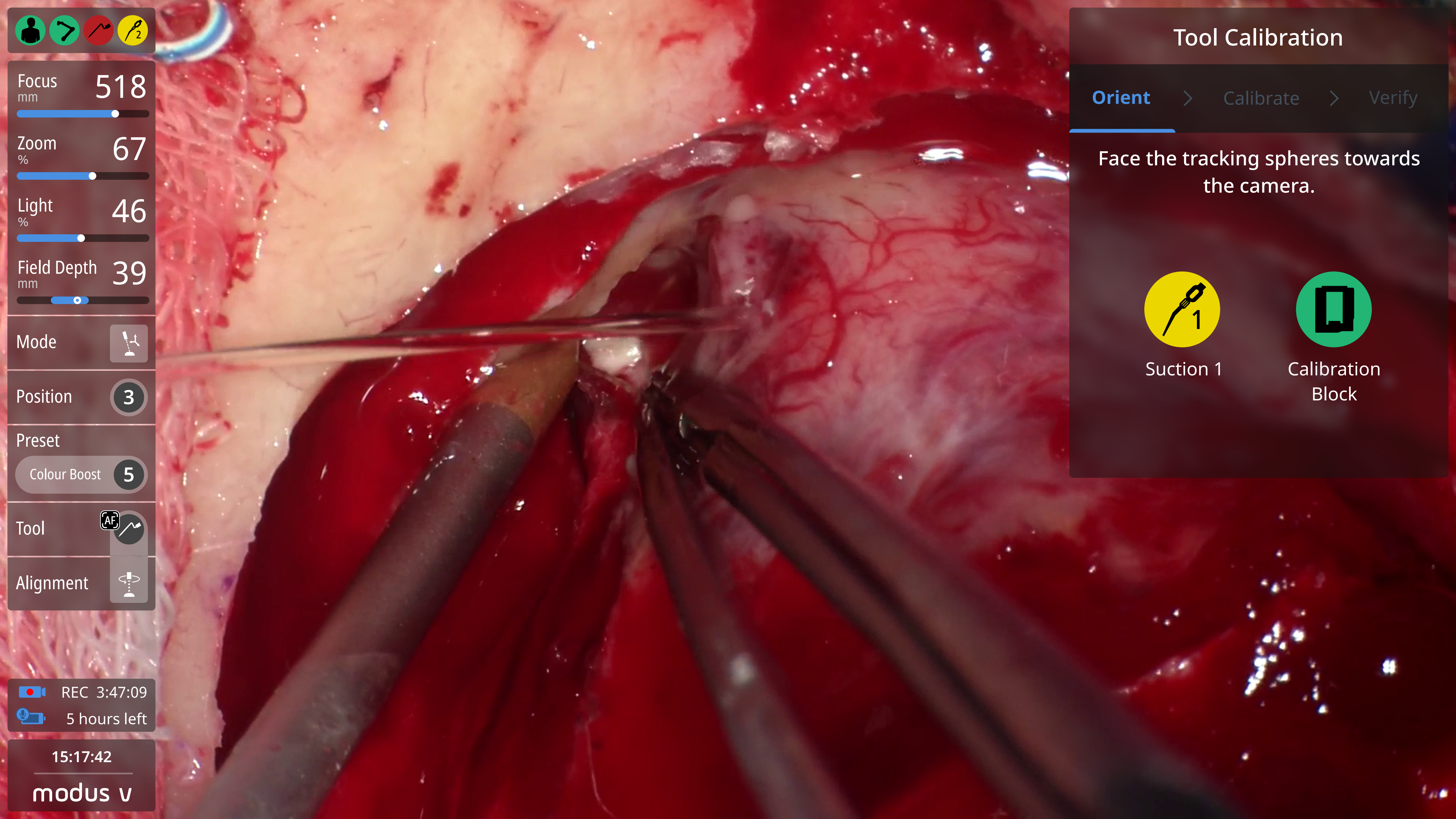
5 hours left

15:17:42

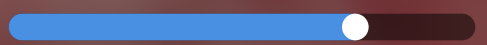
modus v

CATEGORY	VOICE COMMAND	
	Example: say "OK Kira, Select Standoff"	
Zoom	Zoom Zoom Level	In · Out · Max · Min 10 · 20 · 30 · 40 · 50 · 60 · 70 · 80 · 90 · 100
Focus	Focus Auto-focus	In · Out · Max · Min Here · On · Off
Lights	Lights Lights Level	On · Up · Down · Max · Min 10 · 20 · 30 · 40 · 50 · 60 · 70 · 80 · 90 · 100
Tool	Select	Pointer · Port · Suction 1 · Suction 2 · Trajectory
Alignment	Align To	Point · Axis · Axis Rotation
Arm Mode	Mode	Free · Orbit · Standoff · Translate · Rotate · Manual
Position	Position	1 · 2 · 3 · 4 · 5 · 6
	Save Position	1 · 2 · 3 · 4 · 5 · 6
	Select	Last Position
Help	Show / Hide	Help
Calibration	Calibrate	Pointer · Port · Suction 1 · Suction 2
Video Recording	Start / Stop	Video Recording
Screenshot	Screenshot	Now
Overlay	Show / Hide	Overlay
Focus Tool	Focus	Pointer · Port · Suction 1 · Suction 2
Pose	Set / Reset	Pose

Tool Calibration



Focus mm 518



Zoom % 67



Light % 46



Field Depth mm 39



Mode 

Position 3

Preset

Colour Boost 5

Tool 

Alignment 

REC 3:47:09

5 hours left

15:17:42

modus v

Tool Calibration

Orient > Calibrate > Verify

Face the tracking spheres towards the camera.



Suction 1



Calibration Block



Focus mm **518**

Zoom % **67**

Light % **46**

Field Depth mm **39**

Mode

Position **3**

Preset

Colour Boost **5**

Tool

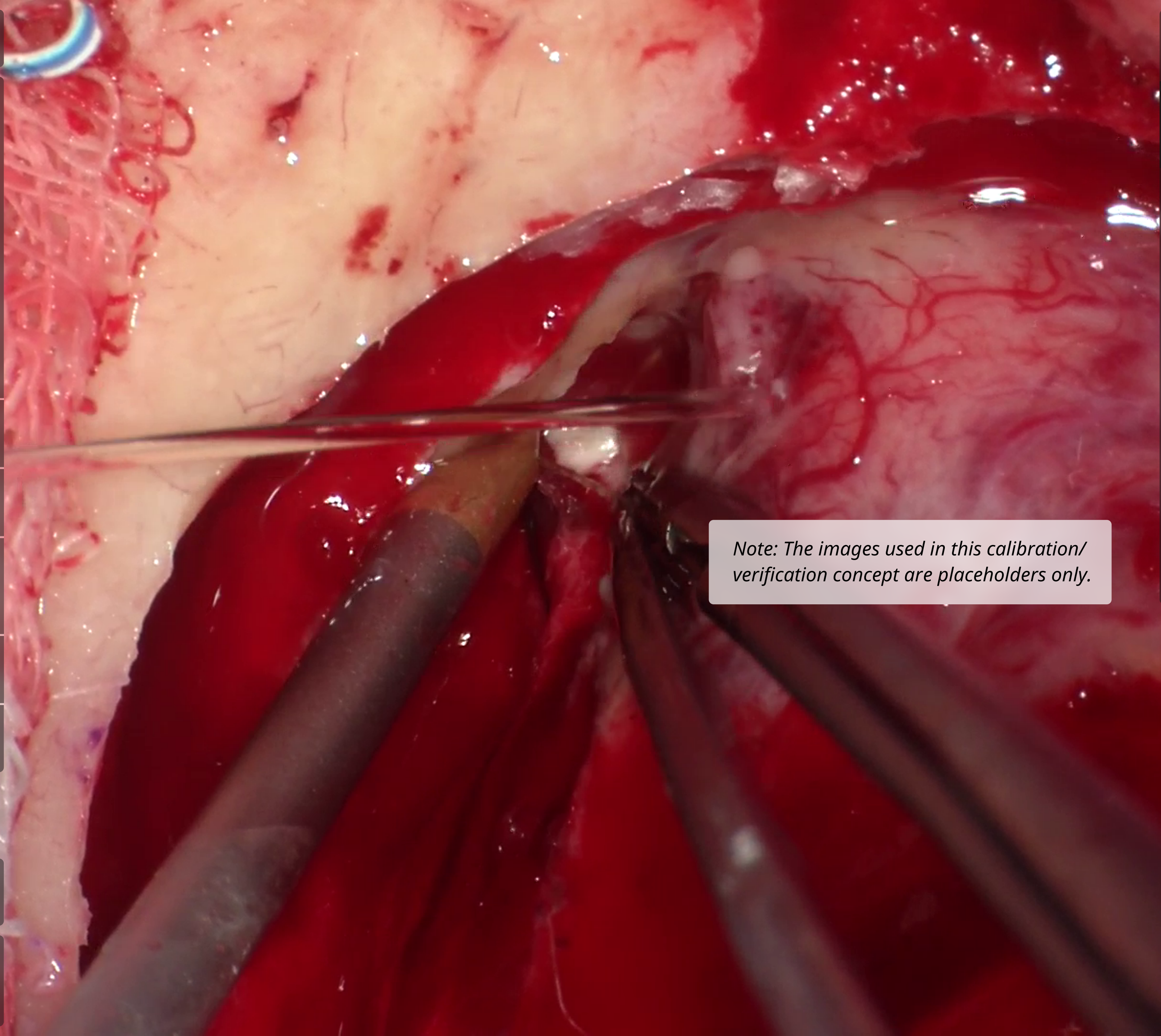
Alignment

REC 3:47:09

5 hours left

15:17:42

modus v

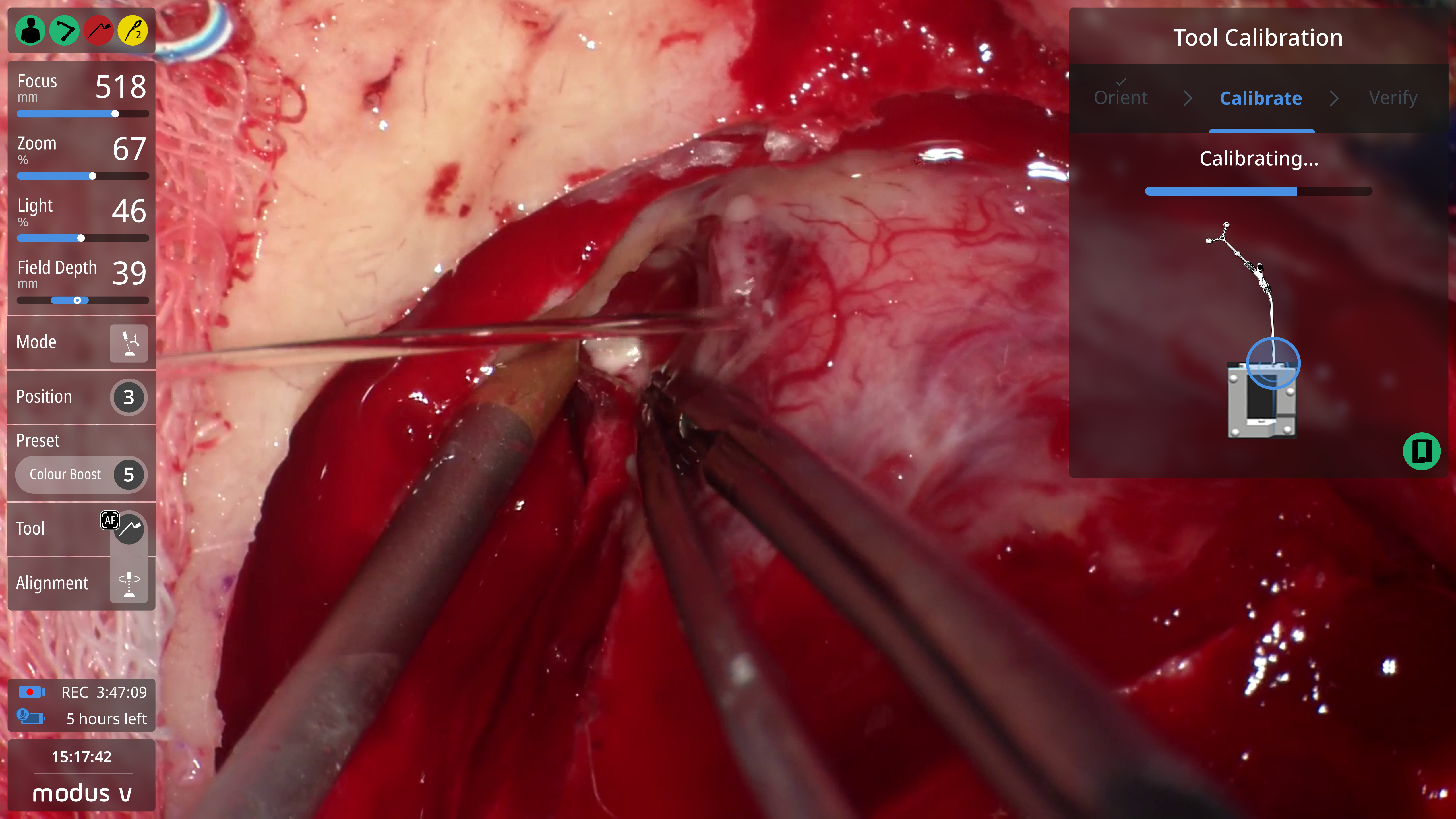


Note: The images used in this calibration/ verification concept are placeholders only.

Tool Calibration

✓ Orient > **Calibrate** > Verify

Place Suction 1 tool into the calibration block...



Focus mm 518

Zoom % 67

Light % 46

Field Depth mm 39

Mode

Position 3

Preset

Colour Boost 5

Tool

Alignment

REC 3:47:09

5 hours left

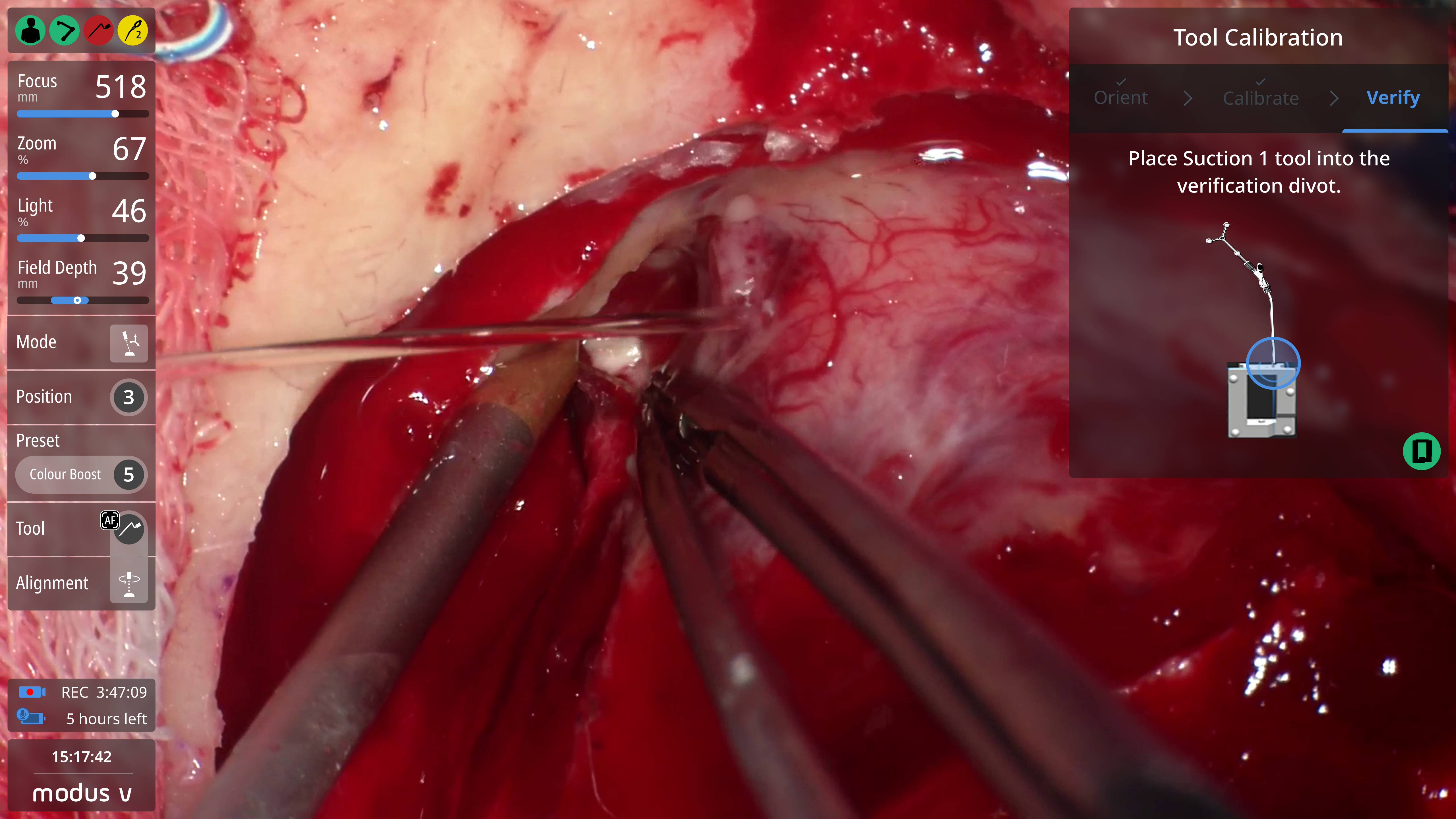
15:17:42

modus v

Tool Calibration

✓ Orient > **Calibrate** > Verify

Calibrating...



Focus mm 518

Zoom % 67

Light % 46

Field Depth mm 39

Mode 

Position 3

Preset Colour Boost 5

Tool 

Alignment 

REC 3:47:09

5 hours left

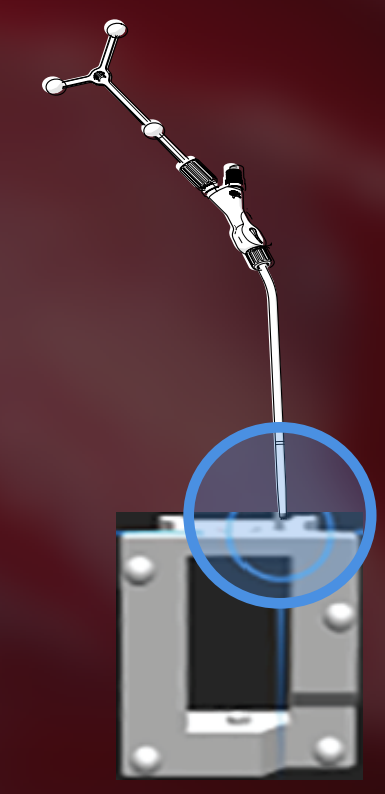
15:17:42

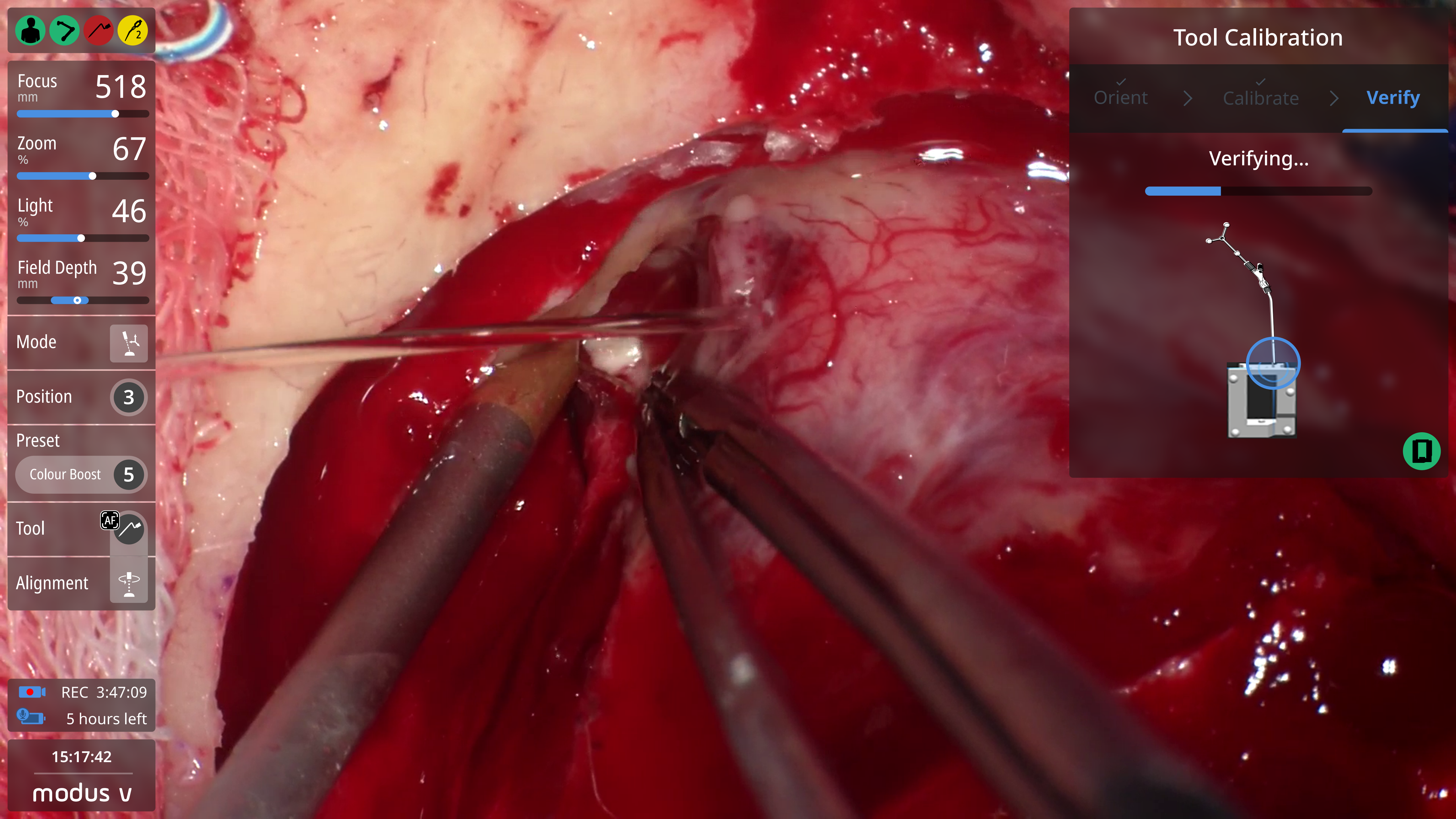
modus v

Tool Calibration

✓ Orient > ✓ Calibrate > **Verify**

Place Suction 1 tool into the verification divot.





Focus mm 518

Zoom % 67

Light % 46

Field Depth mm 39

Mode 

Position 3

Preset
Colour Boost 5

Tool 

Alignment 

REC 3:47:09

5 hours left

15:17:42

modus v

Tool Calibration

✓ Orient > ✓ Calibrate > **Verify**

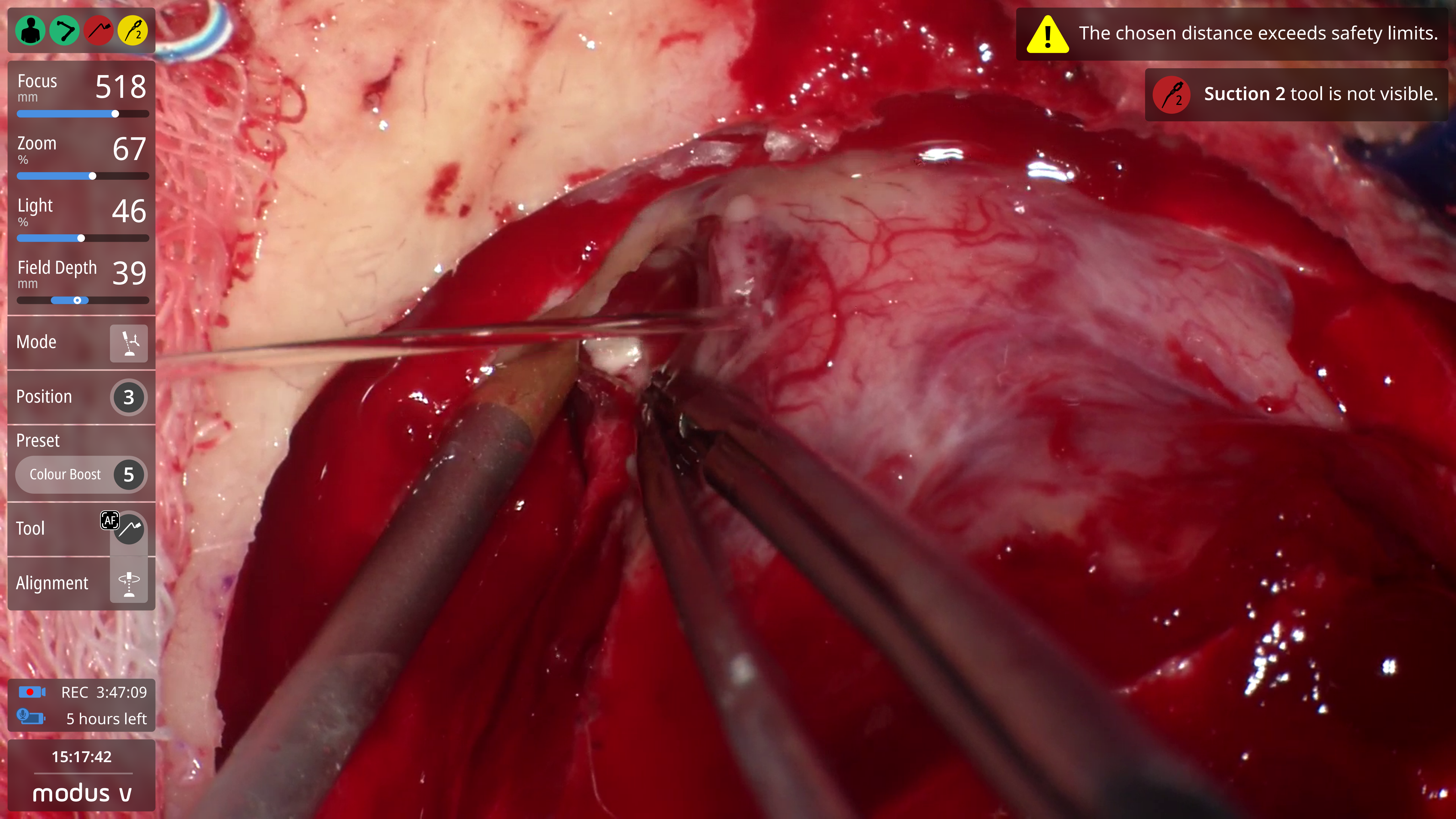
Verifying...








Notifications





 The chosen distance exceeds safety limits.


 Suction 2 tool is not visible.



Focus mm **518**


Zoom % **67**


Light % **46**


Field Depth mm **39**




Mode 

Position **3**

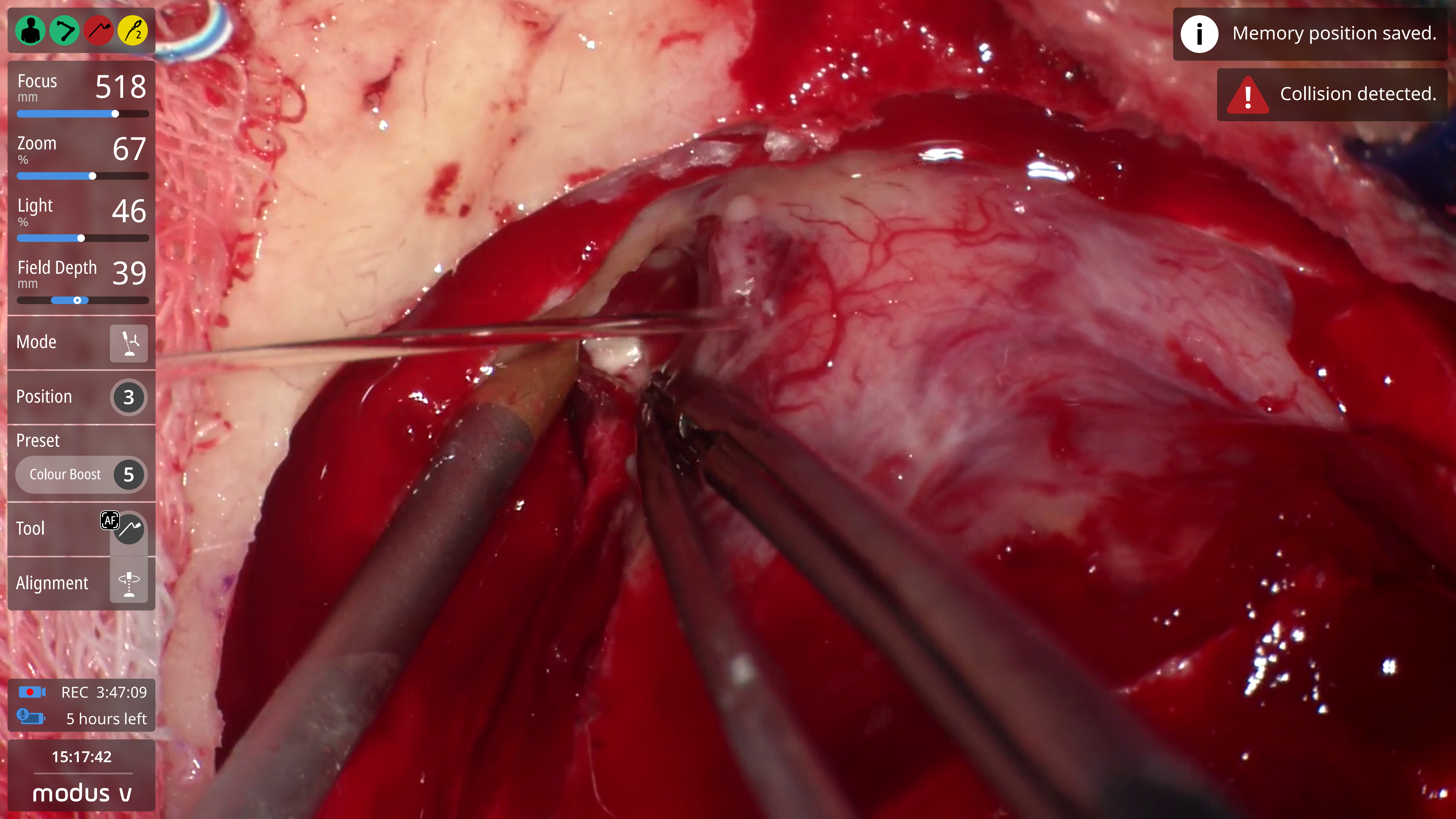
Preset
Colour Boost **5**

Tool 

Alignment 

 REC 3:47:09
 5 hours left

15:17:42
modus v



 Memory position saved.

 Collision detected.



Focus mm 518

Zoom % 67

Light % 46

Field Depth mm 39

Mode 


Position 3

Preset
Colour Boost 5

Tool 

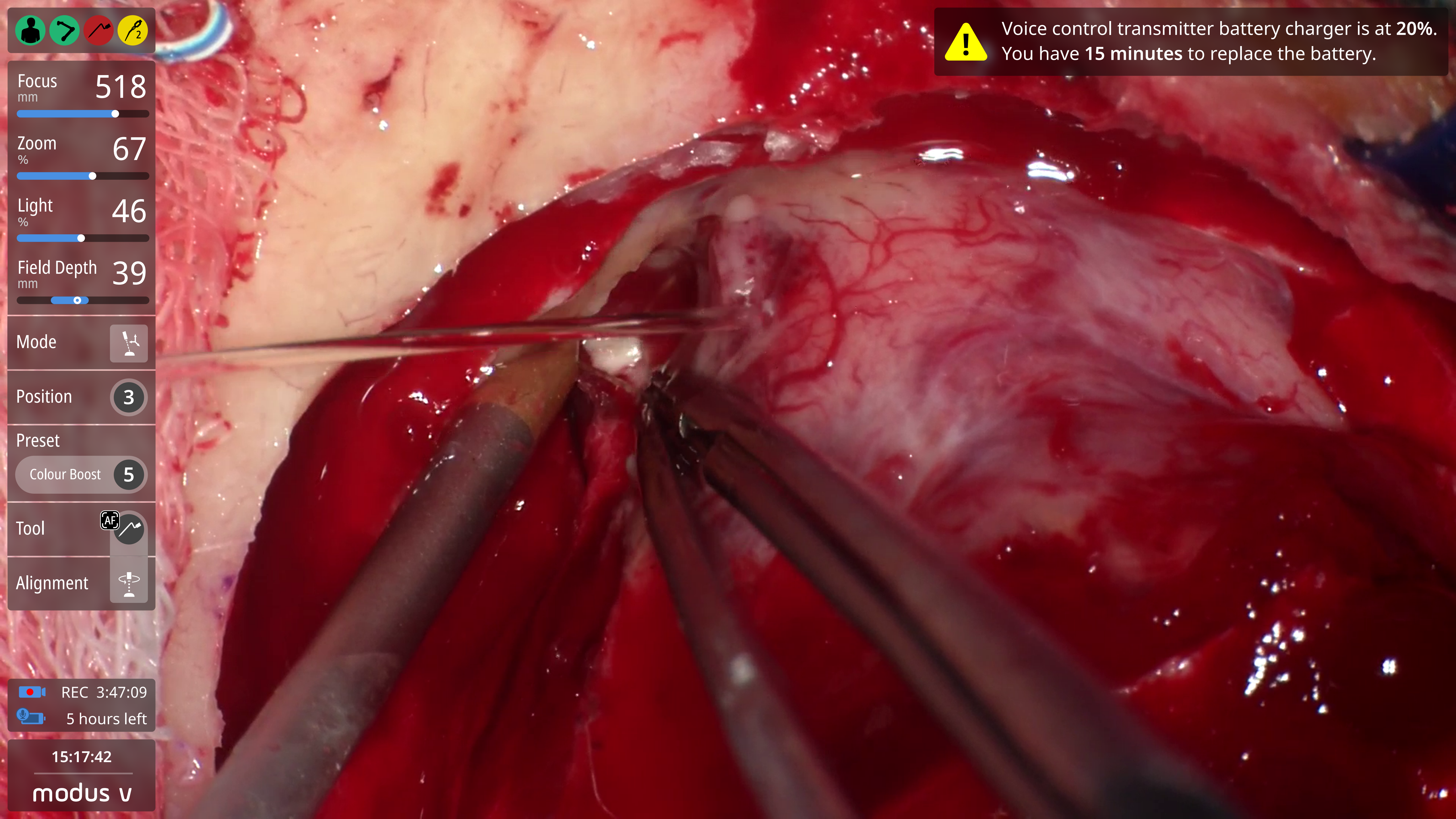
Alignment 


 REC 3:47:09

 5 hours left

15:17:42

modus v



 Voice control transmitter battery charger is at 20%.
You have 15 minutes to replace the battery.





Focus mm 518
Zoom % 67
Light % 46
Field Depth mm 39

Mode 

Position 3

Preset
Colour Boost 5

Tool 

Alignment 

REC 3:47:09
5 hours left

15:17:42
modus v