

# Real Time Robotic Assisted Telemedicine Surgical Collaboration Between Ukraine and the US.

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# Disclosures


- Richard M. Schwend MD
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  - Alec Hermanson BA
  - Matthew Altrich
  - Morgan Waller
  - Robert Rinaldi MD
  - Ronald Nicholis MD
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- Software generously donated for the project by  
InTouch Health, Santa Barbara CA  
[www.intouchhealth.com](http://www.intouchhealth.com)

# Introduction

- Surgical collaboration is essential to learning.
- Visiting is interactive by time consuming and expensive.
- Recorded video is efficient by not interactive.



8 hour time difference



5500 miles, 9000 km



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# Purpose

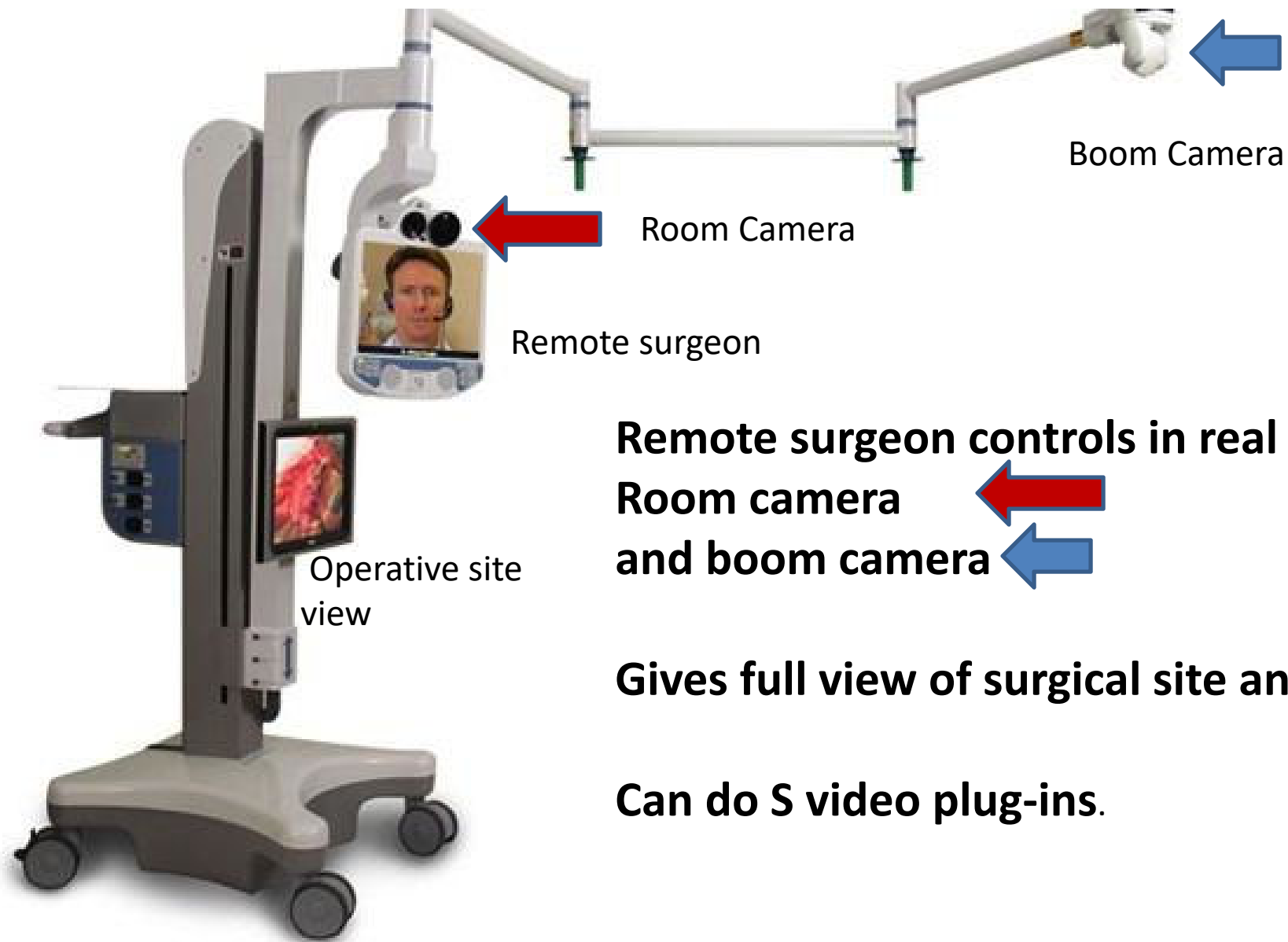
- Report our initial experience using high definition robotic camera system to provide real time remote surgical collaboration among experienced surgeons.



# Methods

- Long standing relationship had been established between the Kharkiv Ukraine (Sytenko Institute Spine and Joint Pathology) and Children's Mercy Hospital spine team.
- All SRS members.
- CMH has established telemedicine program with remote robotic camera capability
- RP-Vantage system (InTouch Health, Santa Barbara CA  
[www.intouchhealth.com](http://www.intouchhealth.com)





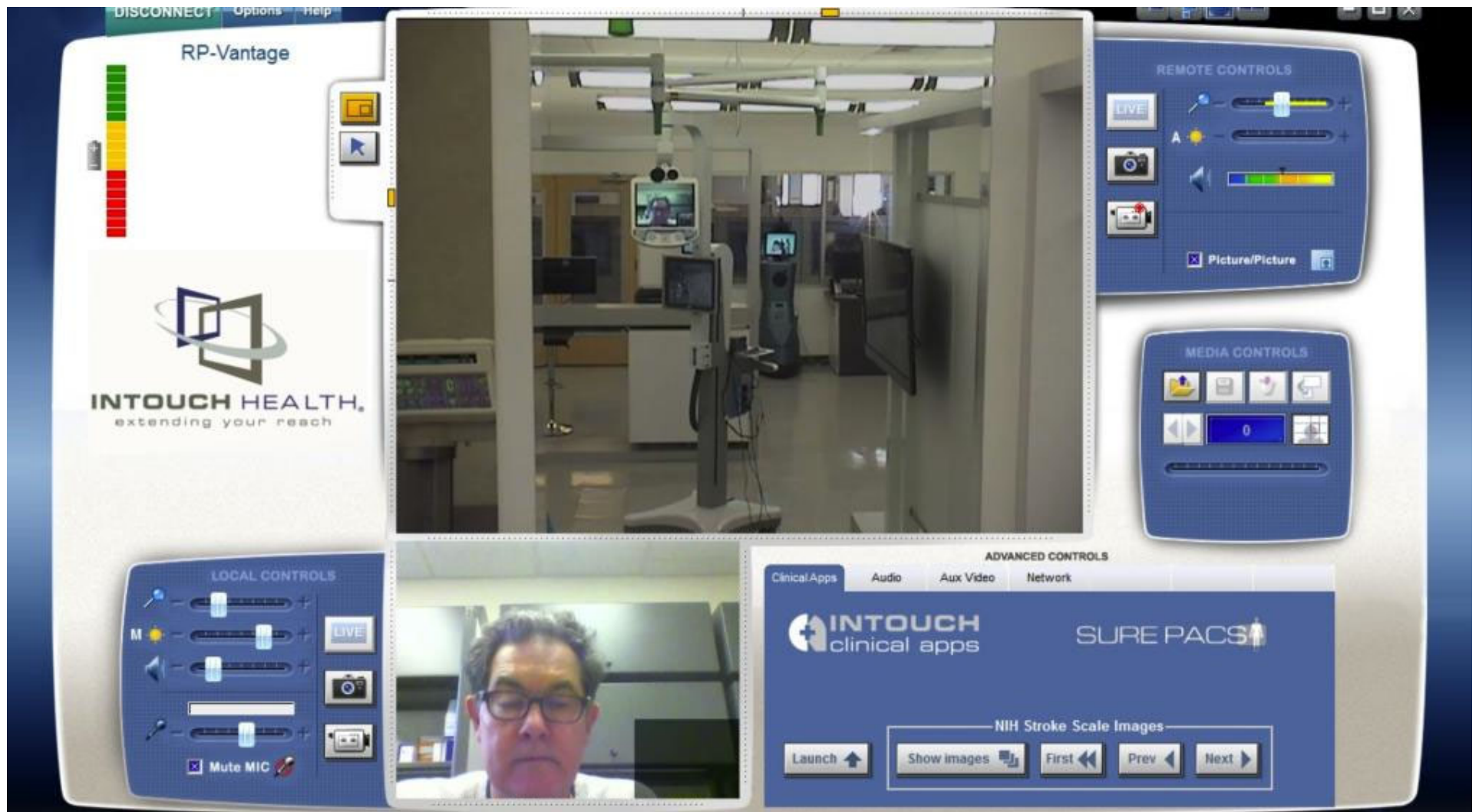
**Remote surgeon controls in real time**

**Room camera and boom camera**

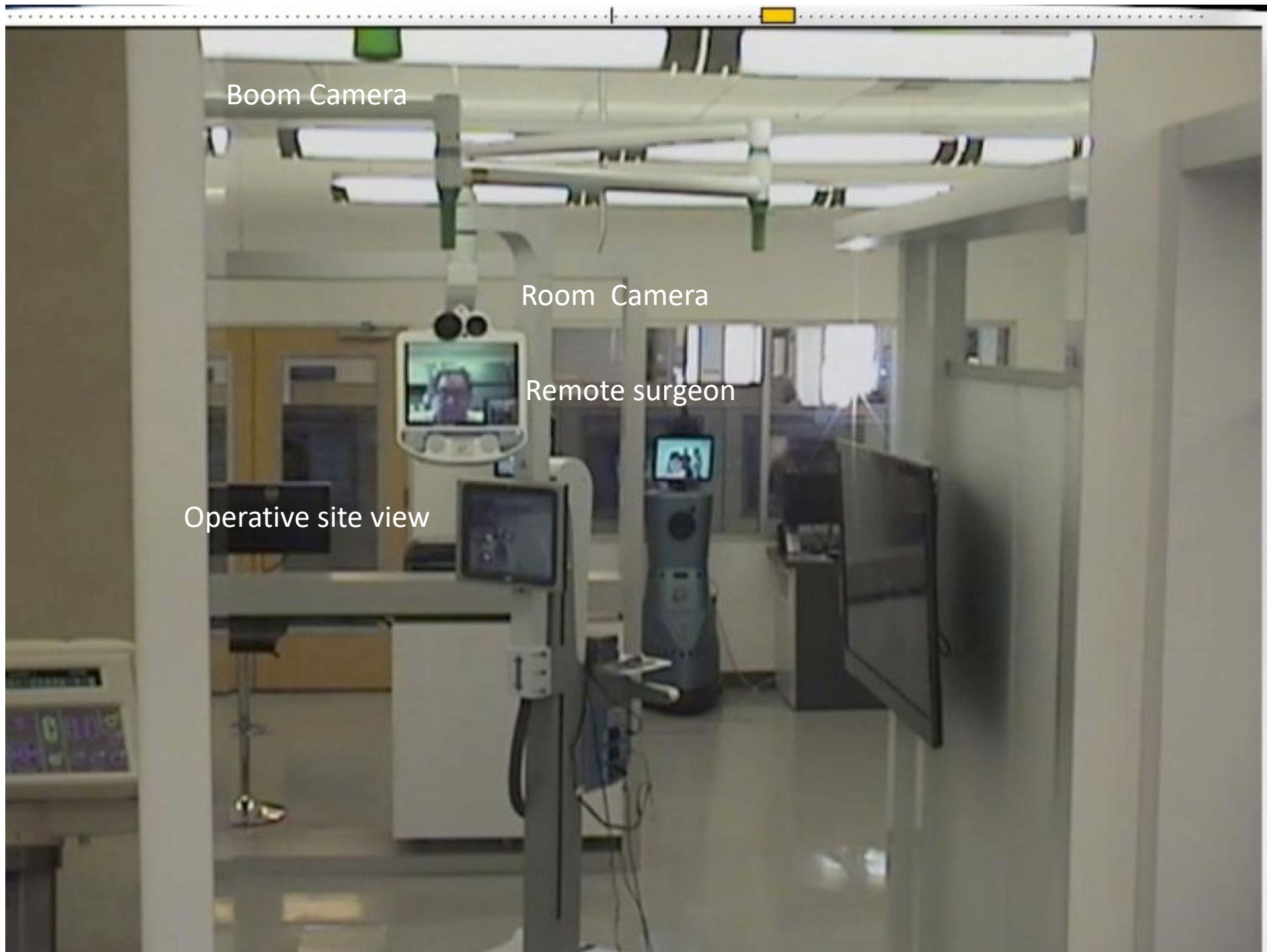
**Gives full view of surgical site and room**

**Can do S video plug-ins.**





Remote Site Screen View  
Looking at Camera in Mirror

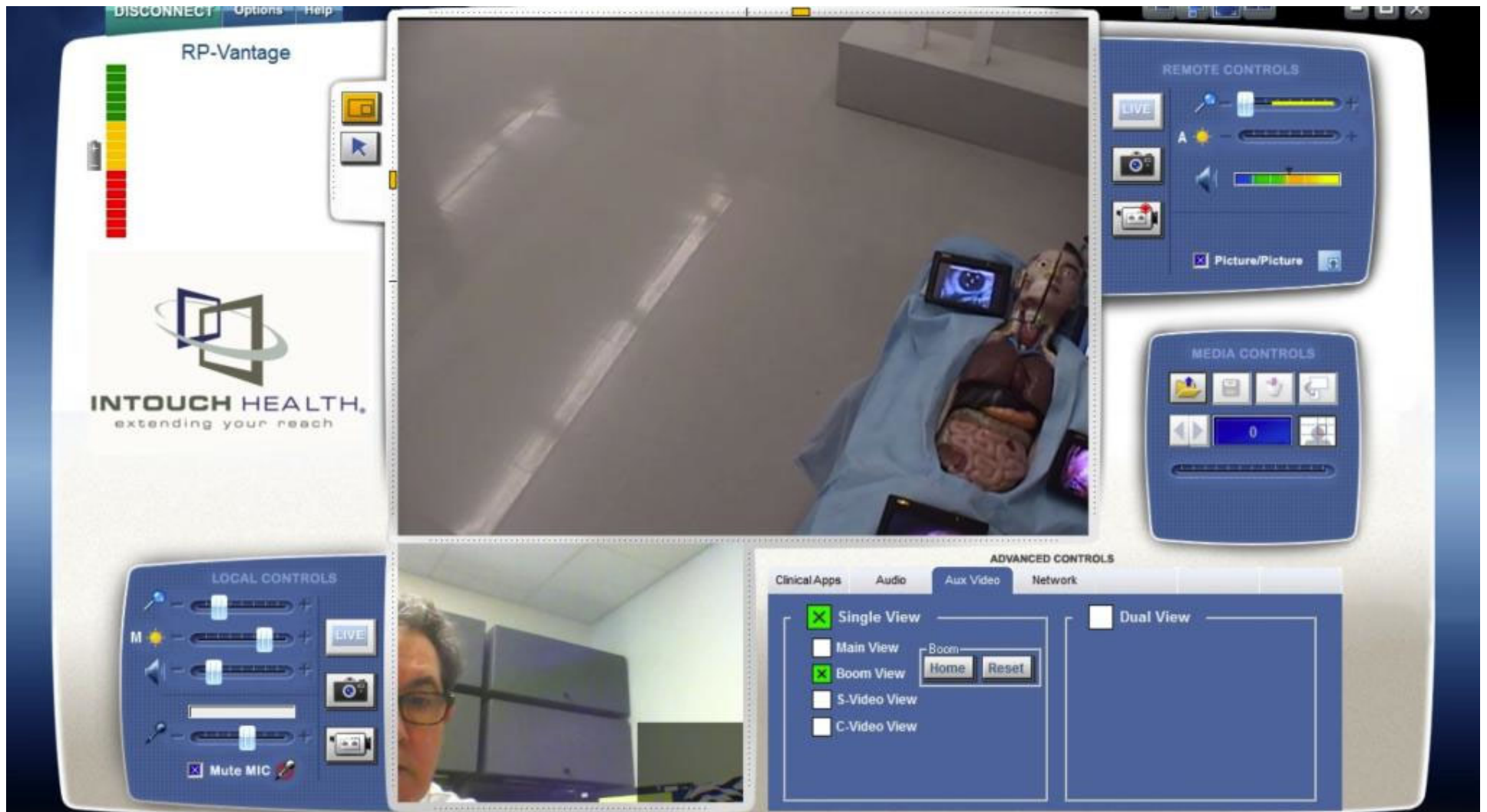


Boom Camera

Room Camera

Remote surgeon

Operative site view



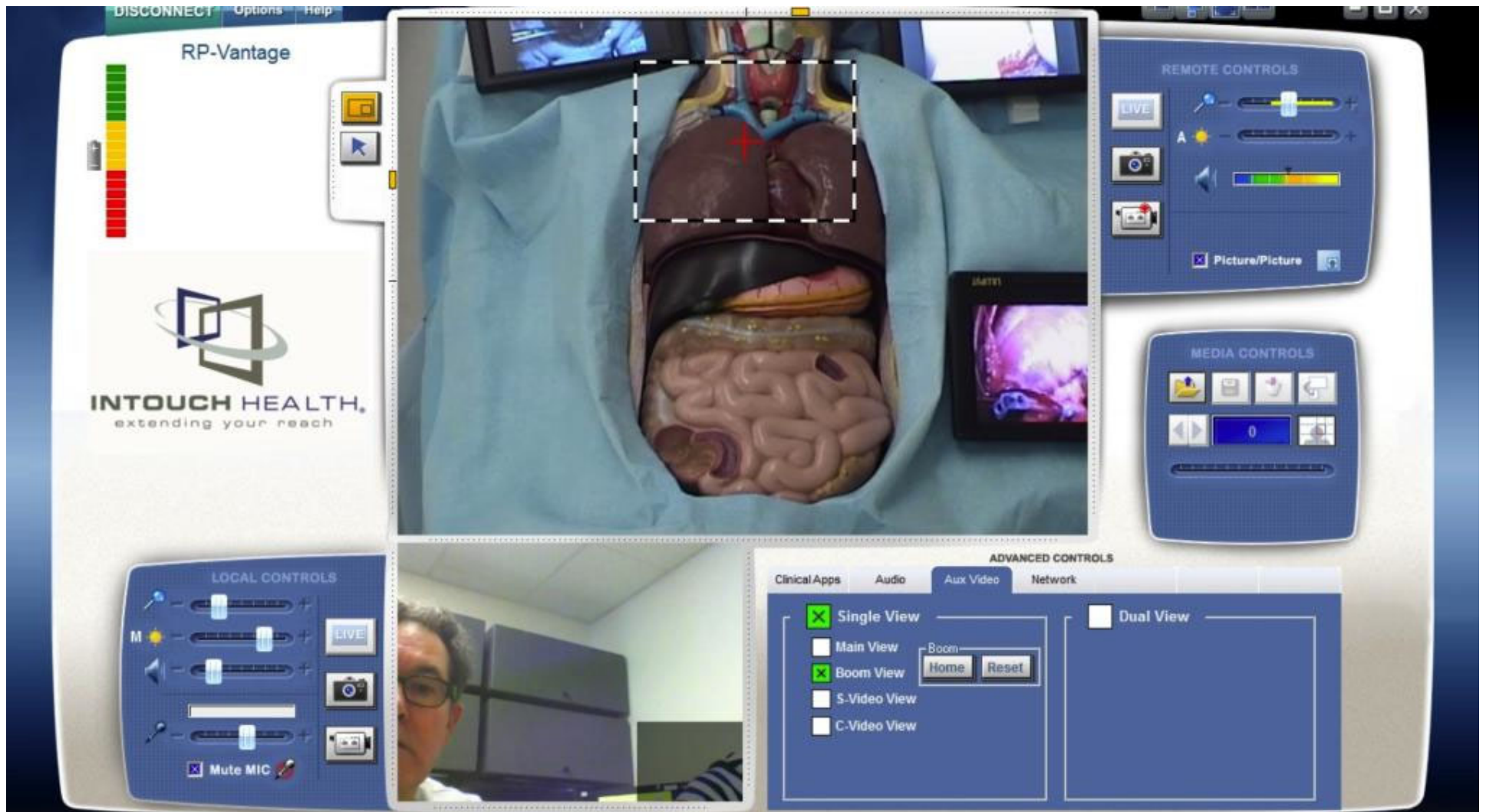
## Boom Camera View.

This is what remote surgeon controls and sees

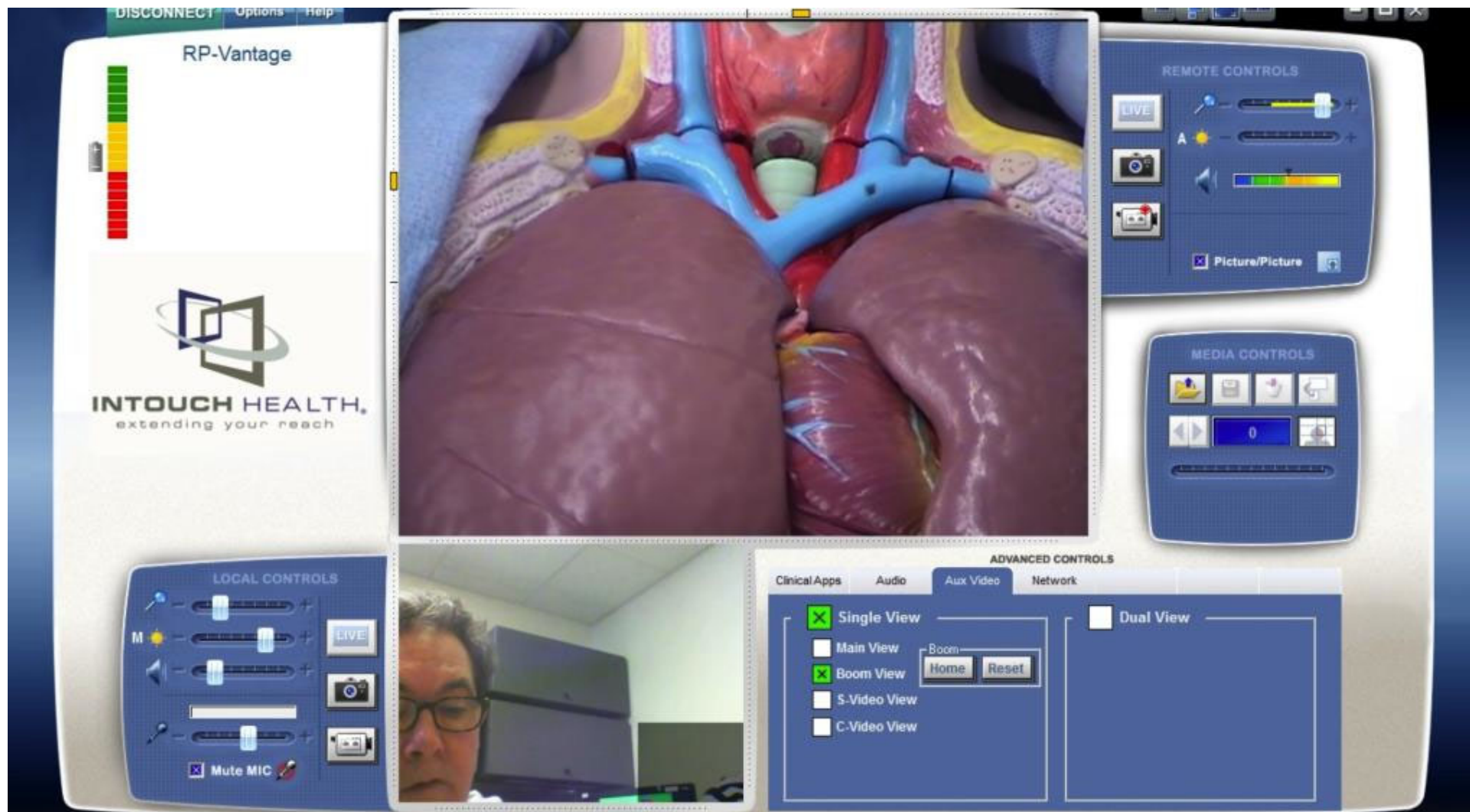




Centering boom camera  
near patient



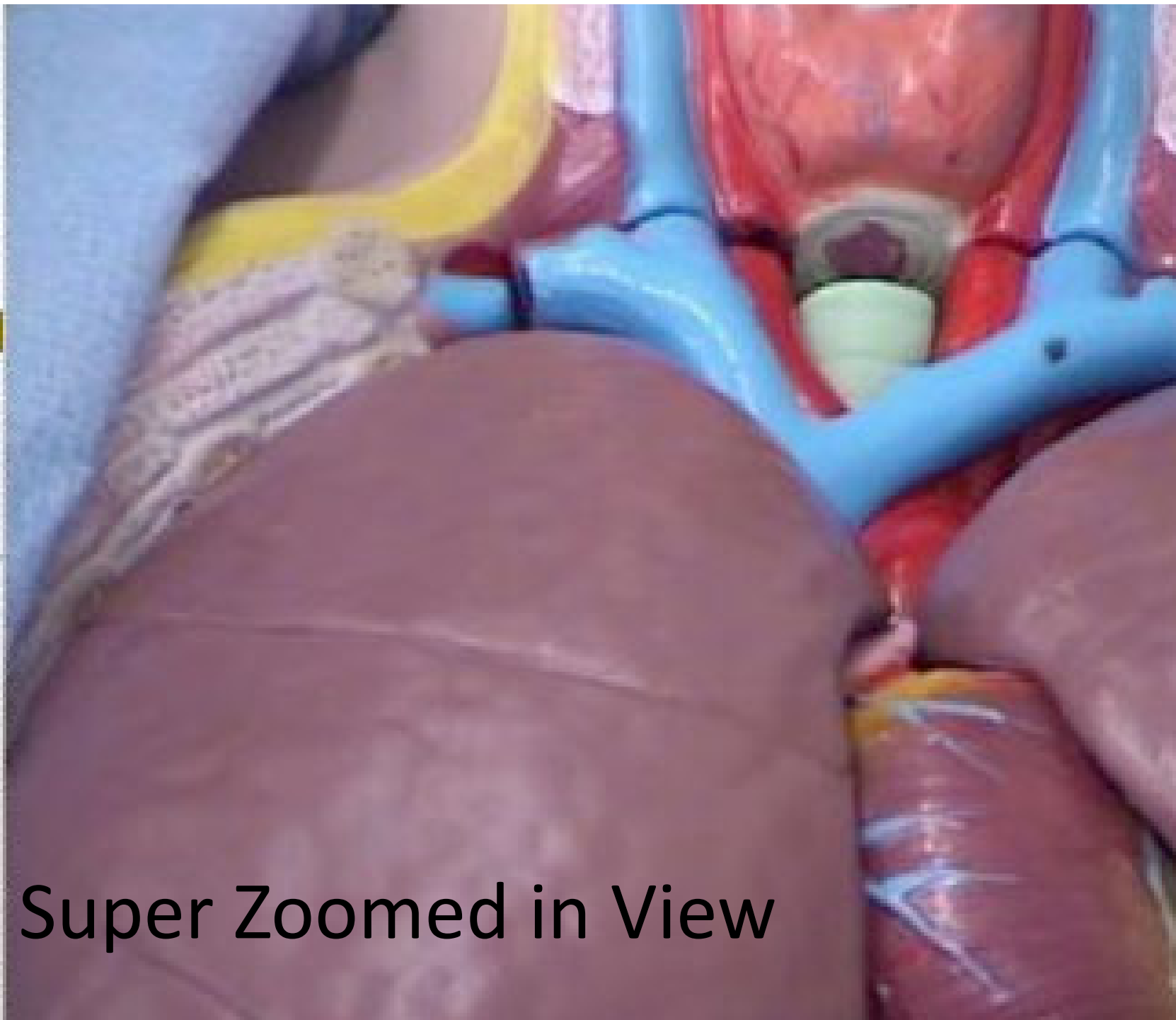
Zoom in with red curser



Zoomed in view

.TH.  
in

Super Zoomed in View







S Video View of TEE

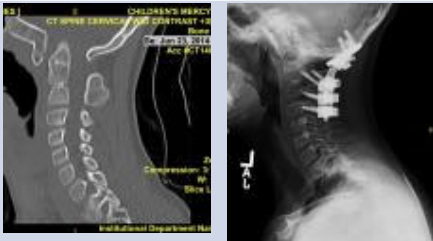







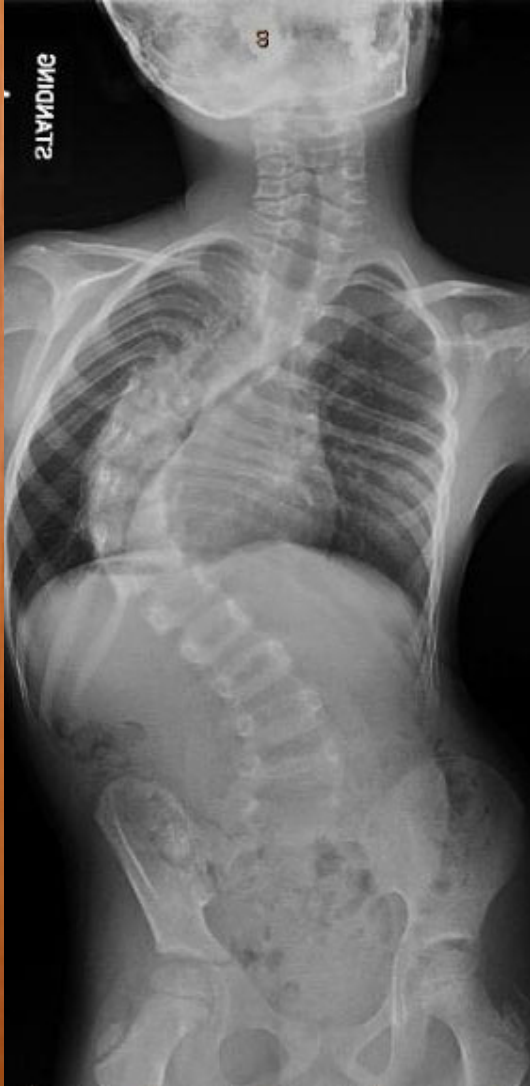

# Results

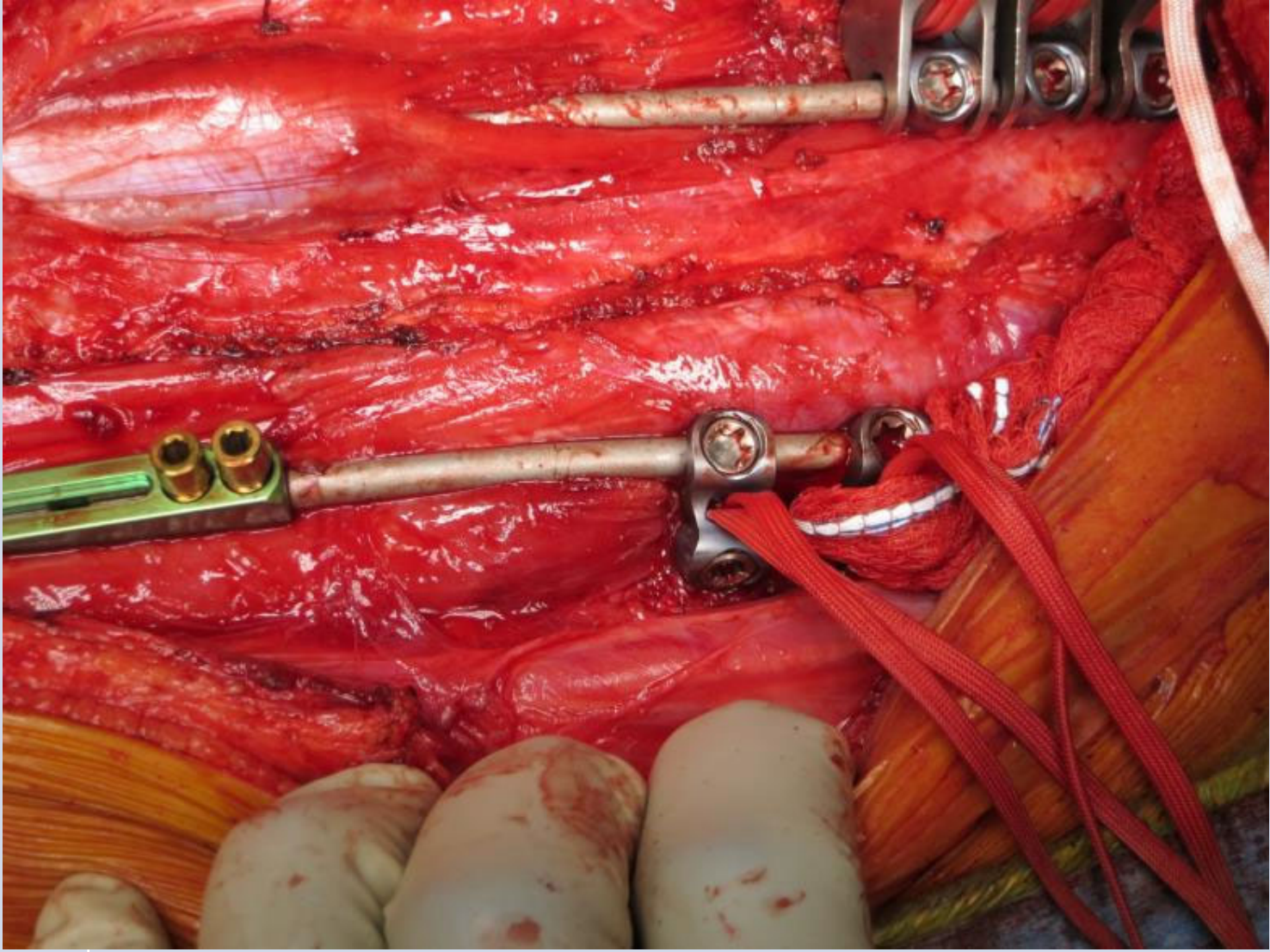
- 5 cases summer 2014.
- 8 hour time difference. Case starting 0830 in Kansas City is viewed at 16:30 in Kharkiv.



# Cases

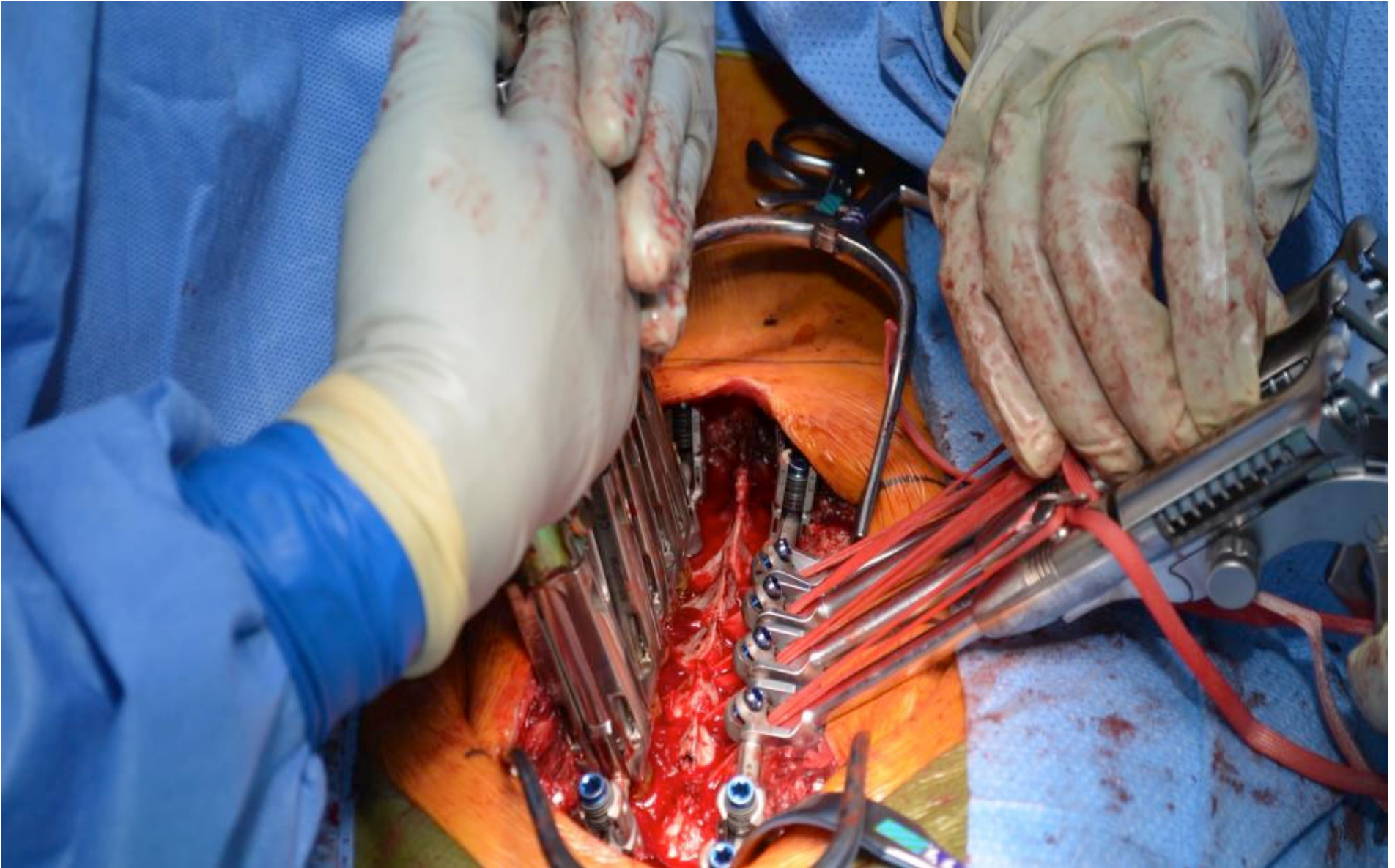
Age	Diagnosis	Procedure
10 ym	Basilar invagination, C1 stenosis, deformity 	Decompression, Occiput C4 PSFI
5 ym	C4 aneurismal bone cyst 	Excision. C3-C4 PSFI
18 ym	Kyphoscoliosis, Prune Belly syndrome 	PSFI T4 L3
6ym	EOS idiopathic 	HG traction GR Rib1,2,3,4 to L3
13yf	EOS atypical 	Ponte, PSFI T2-L3

Age	Diagnosis	
6 ym	EOS failed casting and bracing due to distance from hospital	
		
		
		

Age	Procedure	
6 ym	6 weeks HG traction.	R2,3,4,5 to L3 GR
		

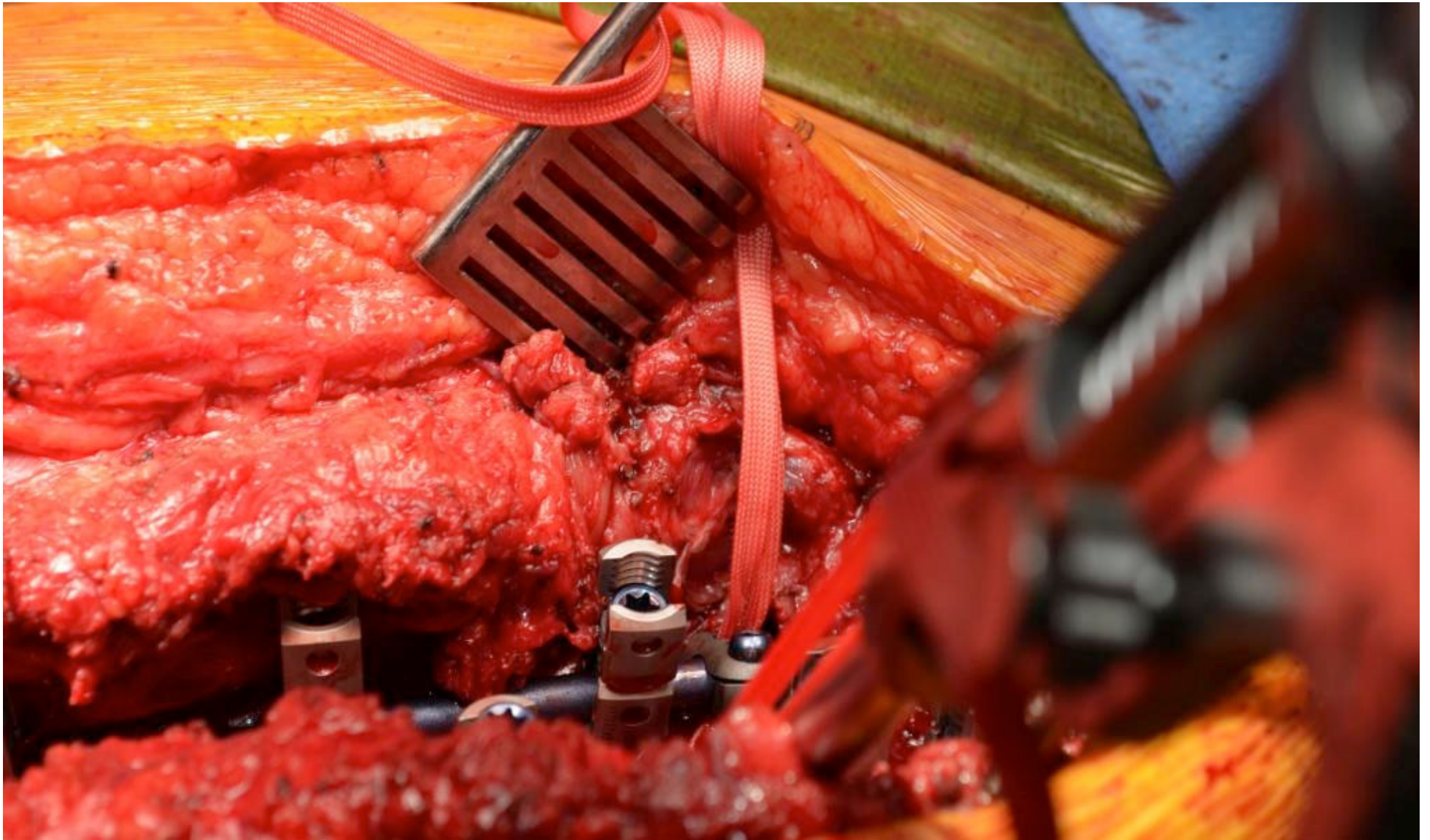


## A Different Case



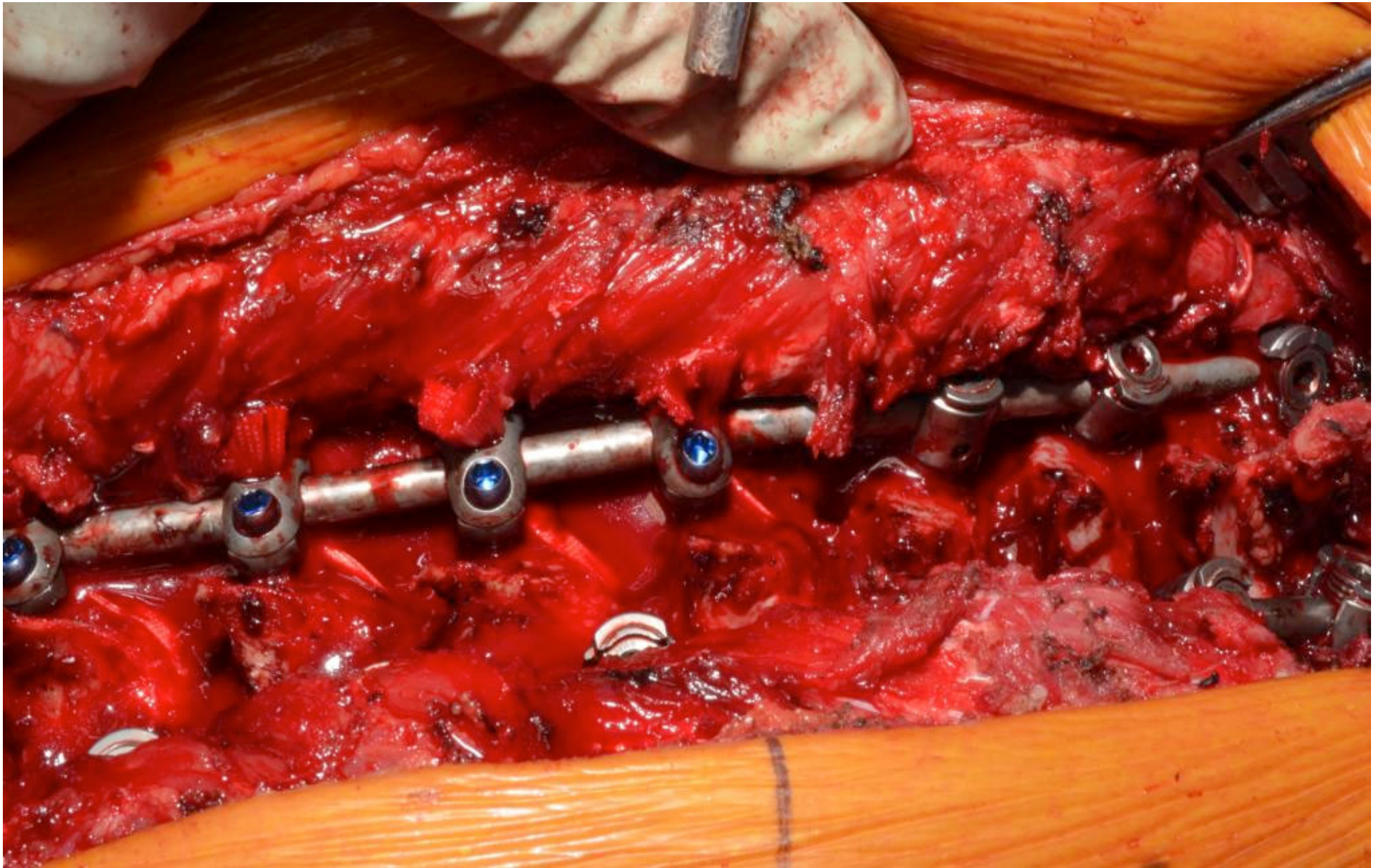
View from near the head





View from the side





Boom camera overhead view

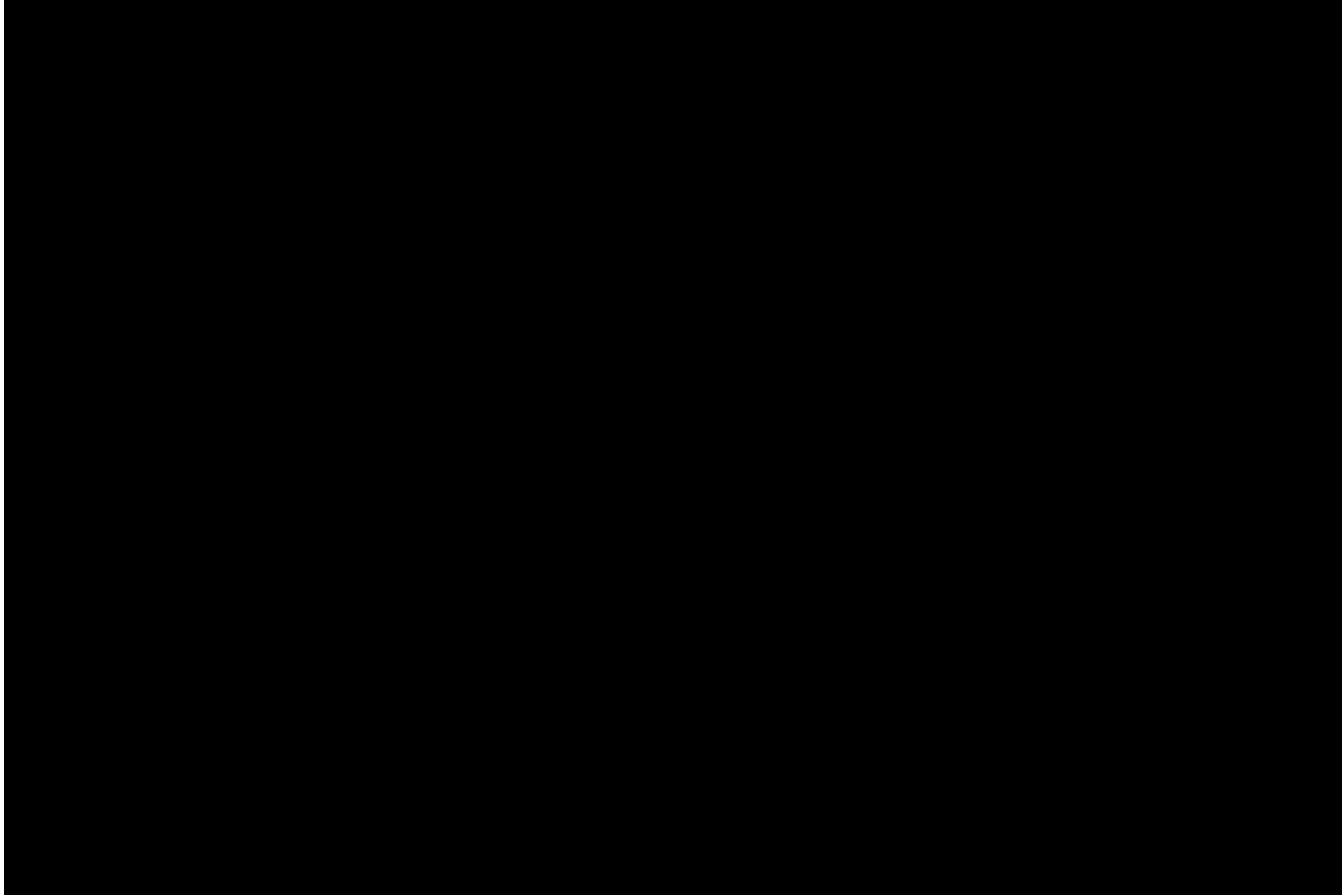




Room camera can look around at same time



# Movie Clip



# Conclusion

- Cost effective, efficient and safe for surgeons to interact and collaborate on surgical cases in real time.

# Significance

- Potential for real time interaction among experienced surgeons.
- May be effective for mentoring and proctoring spine surgery remotely from any distance.



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