



Oxford Heart Centre

Oxford Radcliffe Hospitals **NHS**  
NHS Trust

# Hansen Medical – Robotic ablation

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# Overview

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- **The case - video**
  - **The case – essential components**
  - **Current literature**
  - **Questions**
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# Workflow

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- **Not just the same procedure with a robot – that's a case with the Registrar pushing the catheters!**
  - **Need to identify how to get the best out of the system within your own procedure**
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# The equipment

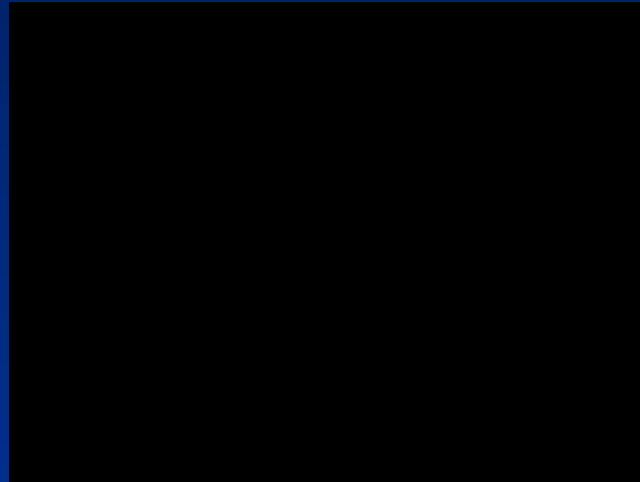
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- Robotic arm attached to cath lab table
- Console (behind screens)



# The equipment

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# The setup

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- Sheaths
- 14F (short vs. long)
- Artisan  
(Extend)
- Lynx (12F)



# The setup

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# The setup

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# The setup

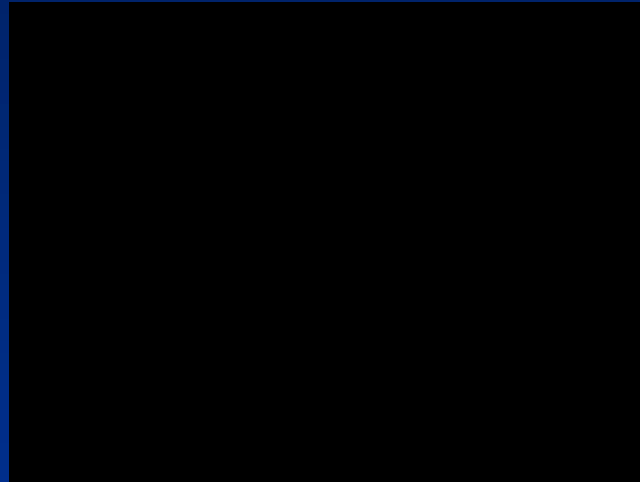
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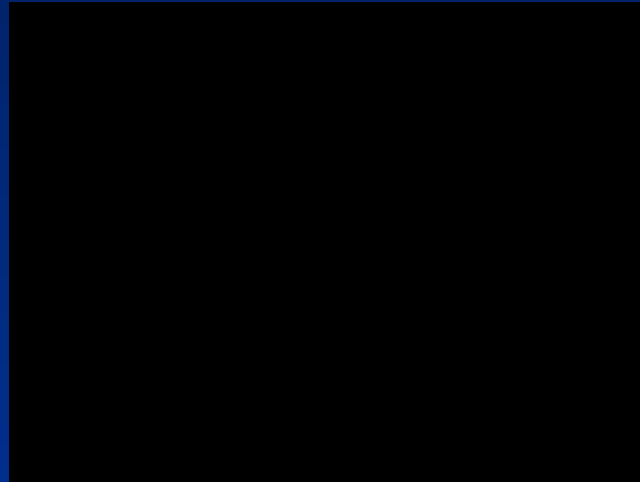
# Getting in the left atrium

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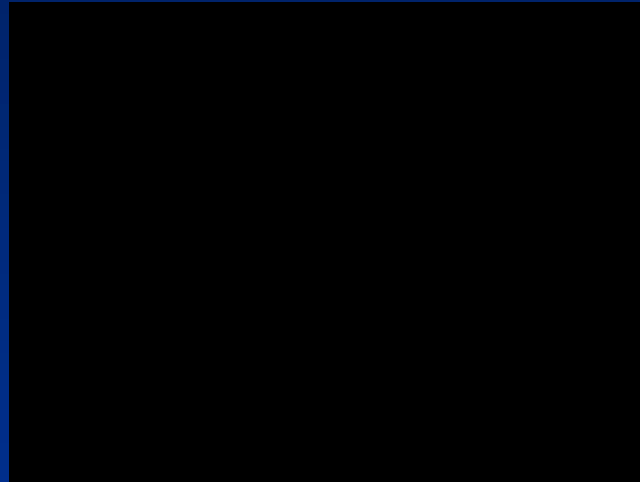
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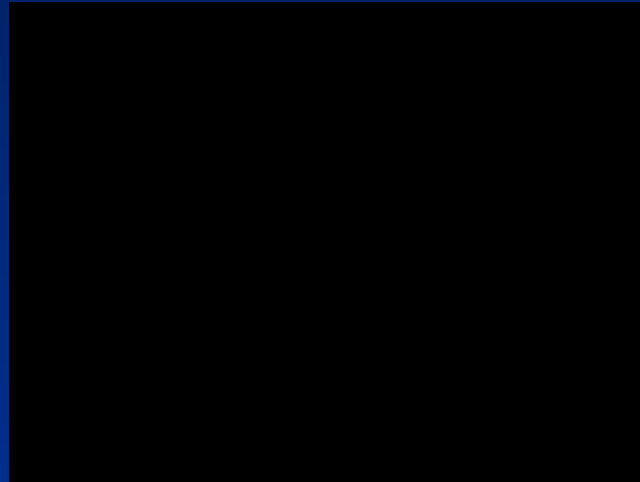
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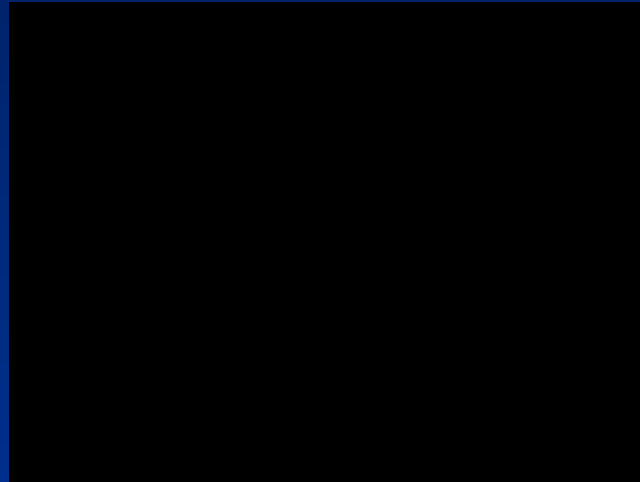
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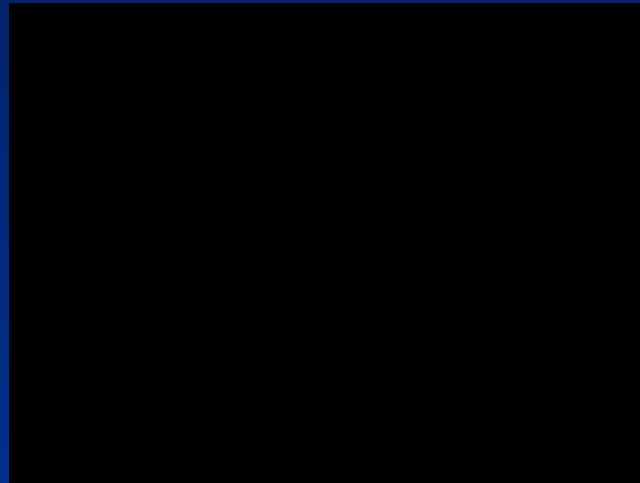
# Catheter manipulation & ablation

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# Catheter manipulation & ablation

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# Current literature

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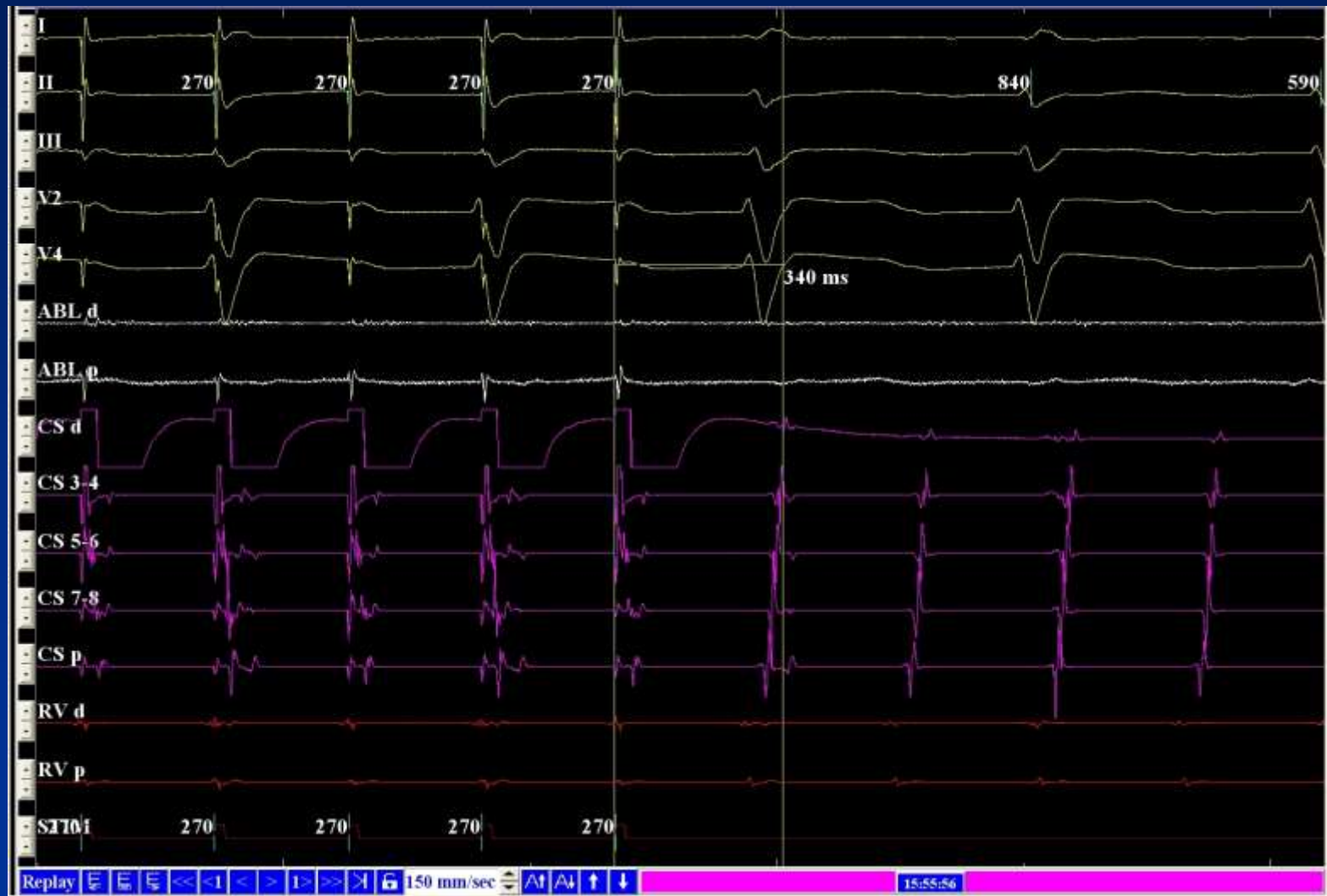
## The learning curve

- **Single centre AF ablation**
- **162 cases (106 paroxysmal)**
- **Fluoro times fell (53.8 mins to 38.3)**
- **Procedure times fell (188 mins to 163)**
  
- **Barts experience reported at HRC**
- **No significant learning curve identified**

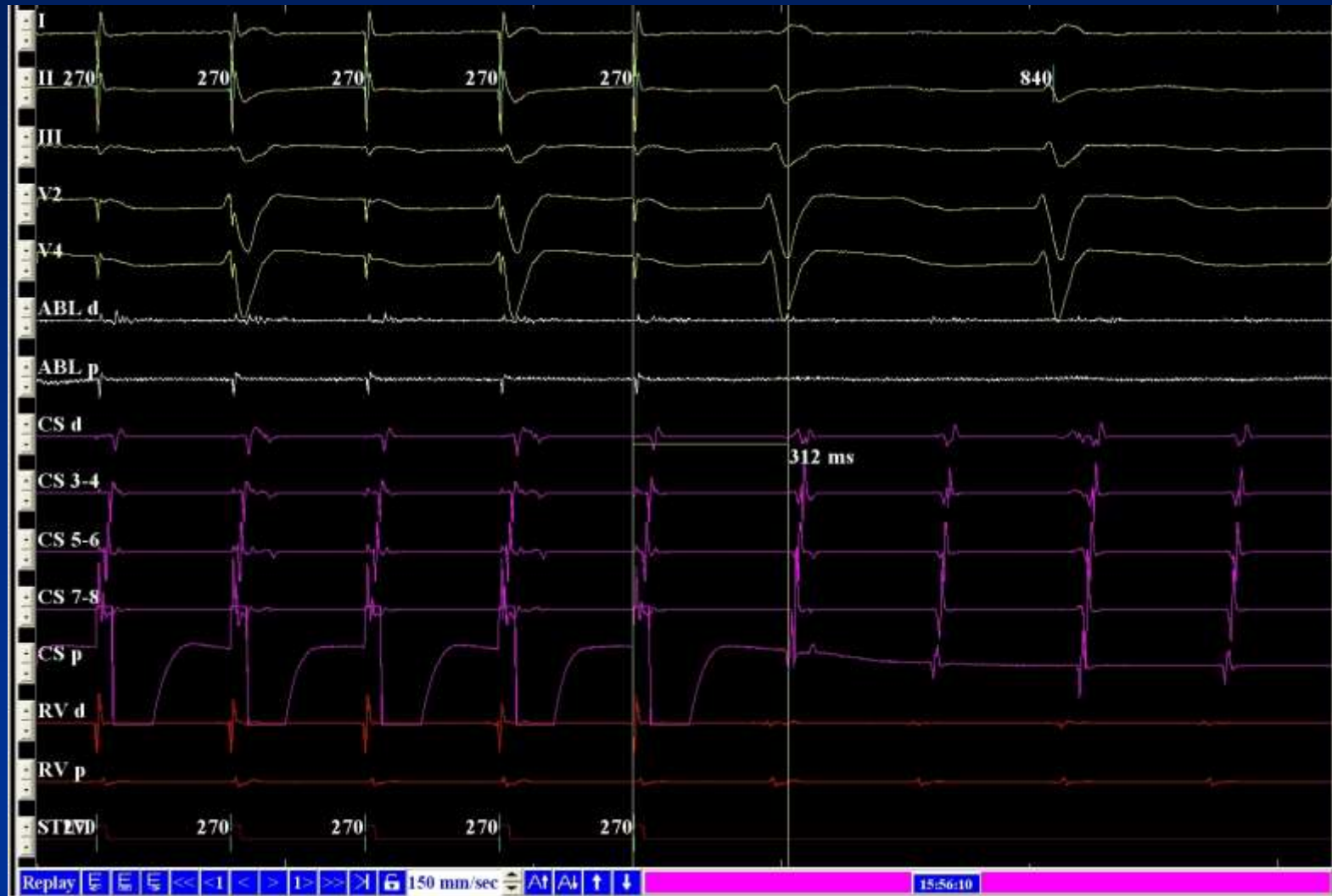
# Traces and images



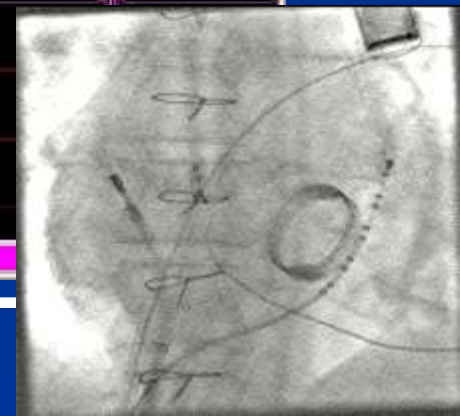
# Traces and images



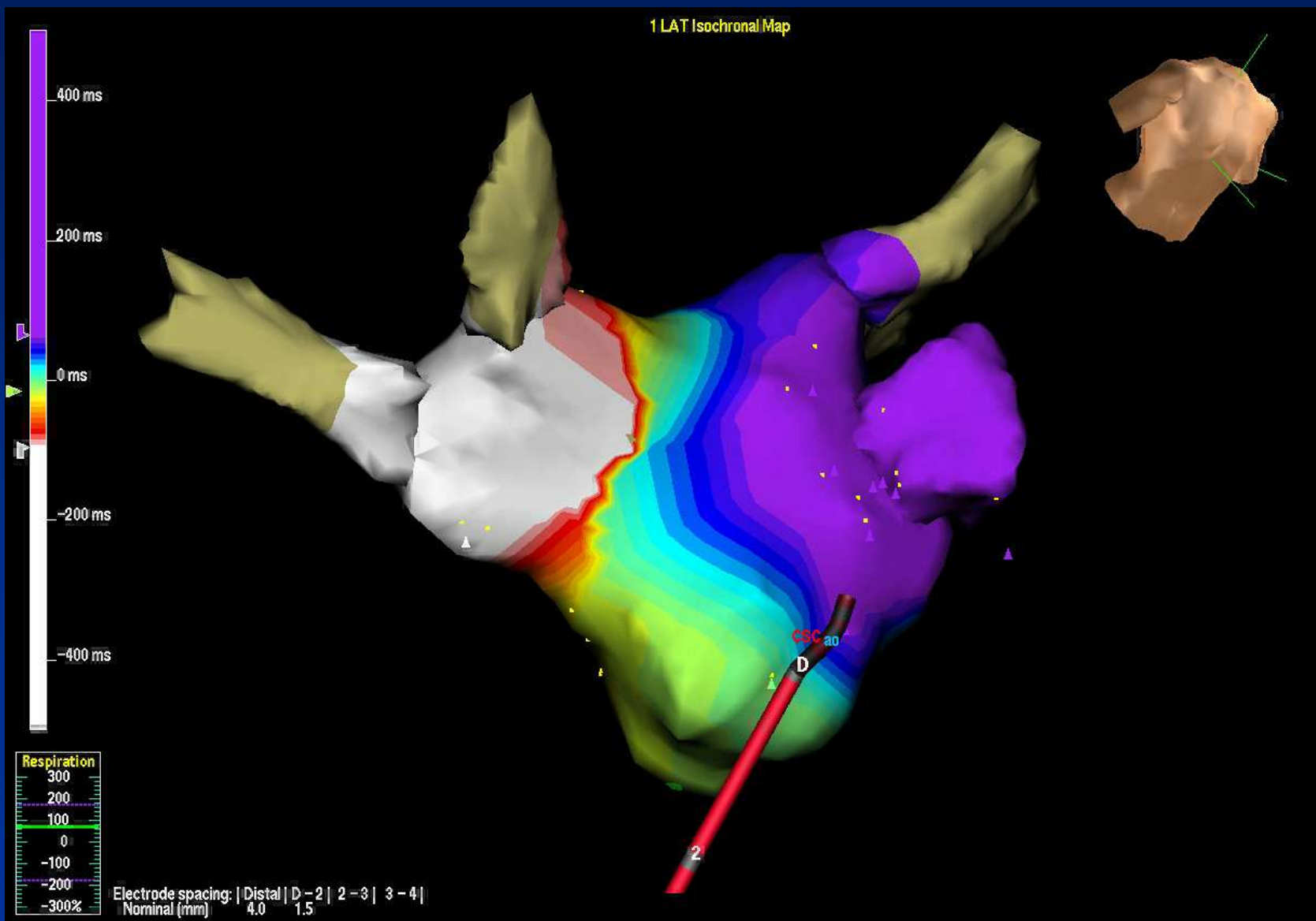
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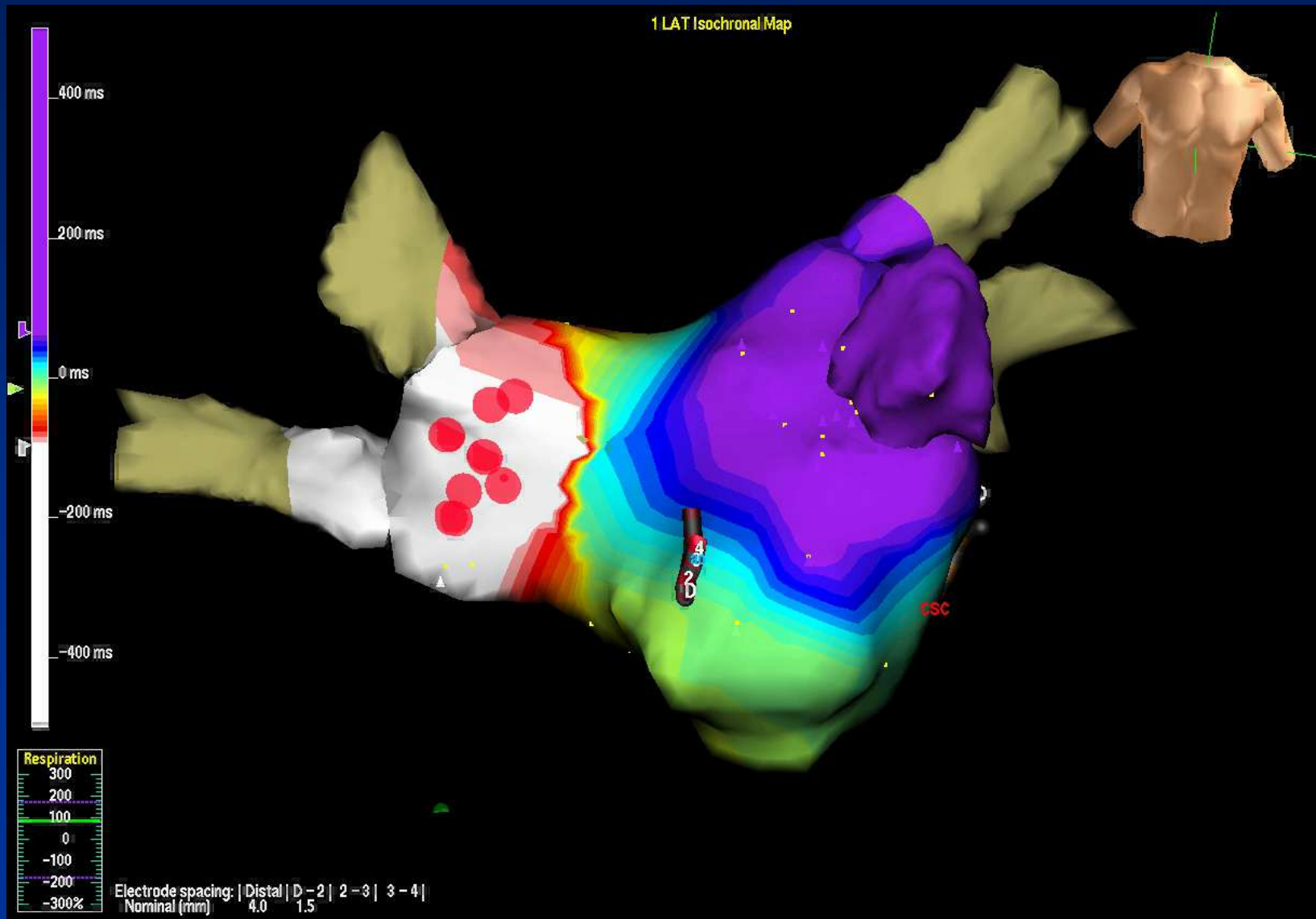
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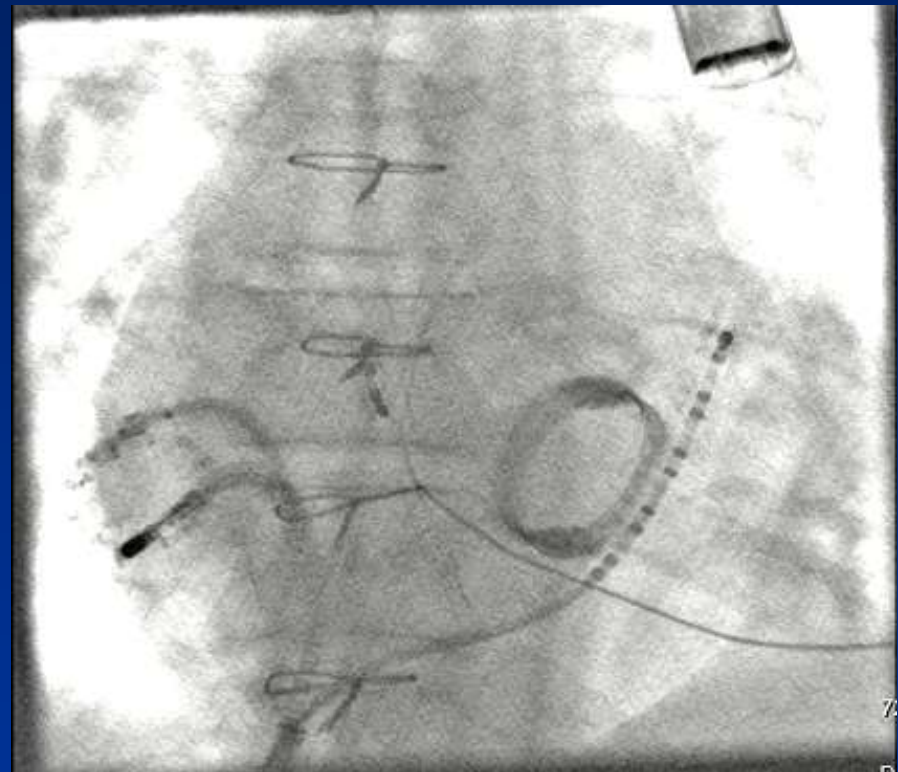
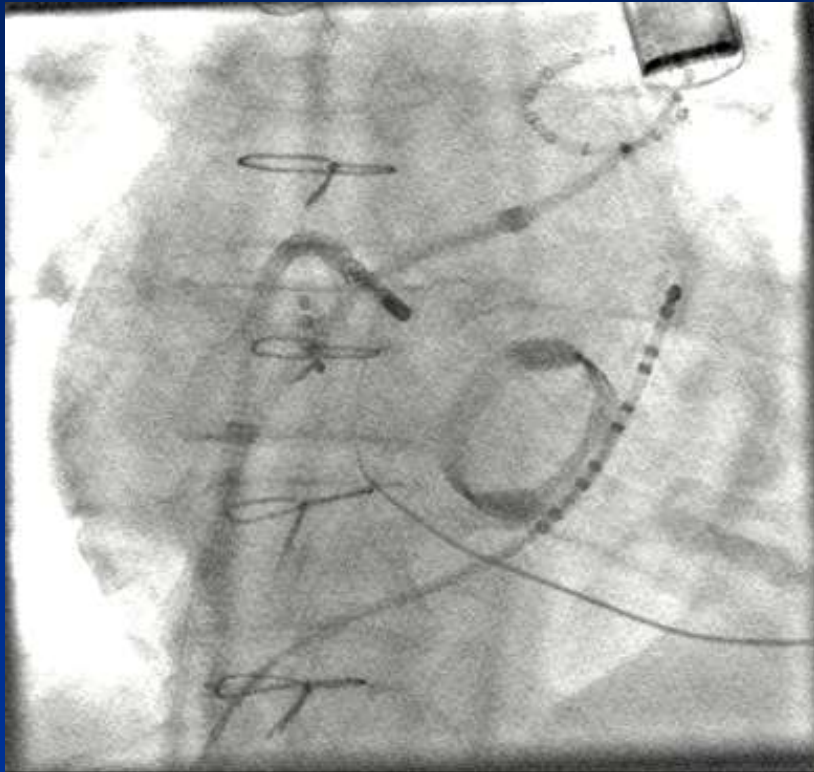


# Traces and images

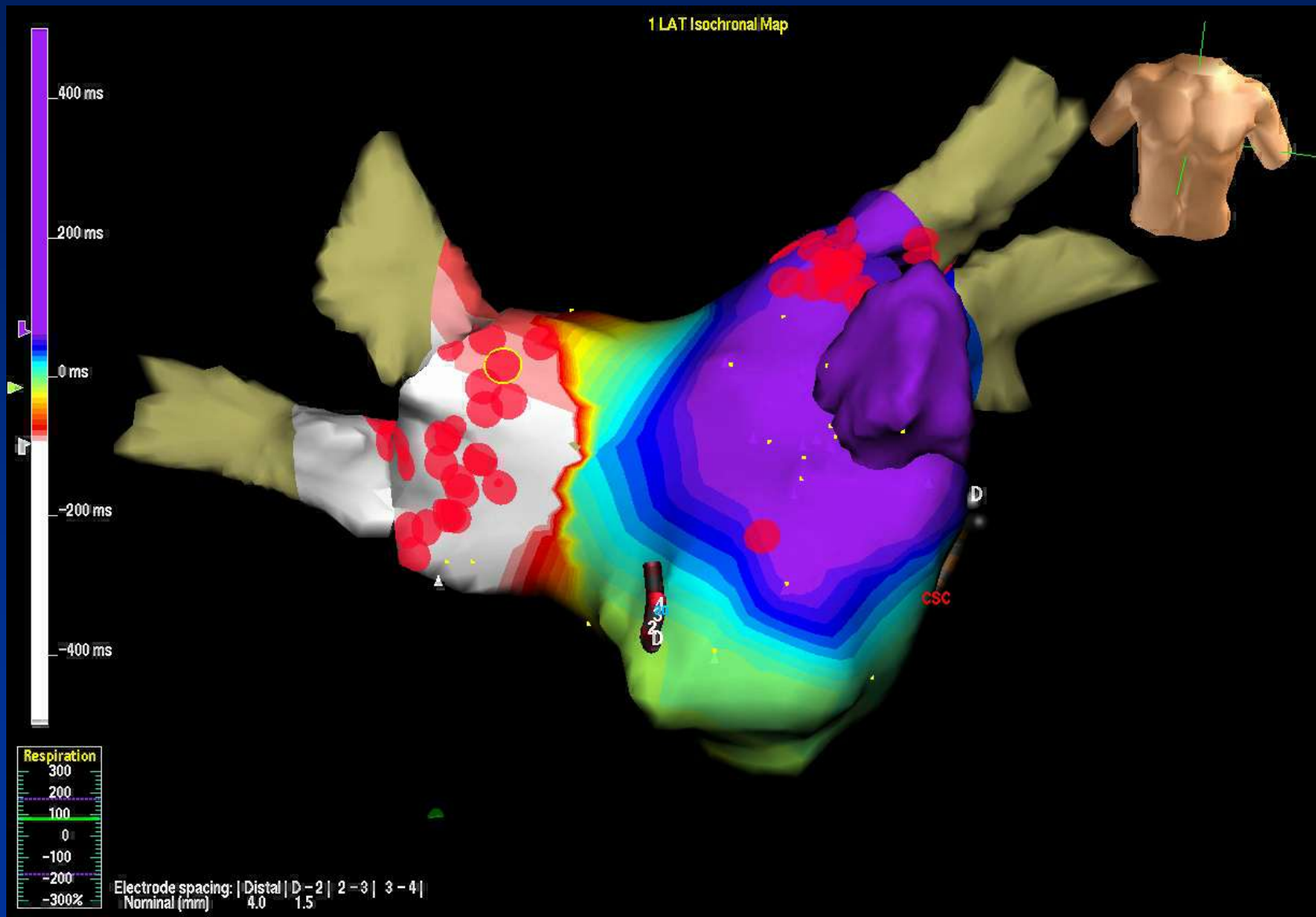


# Traces and images

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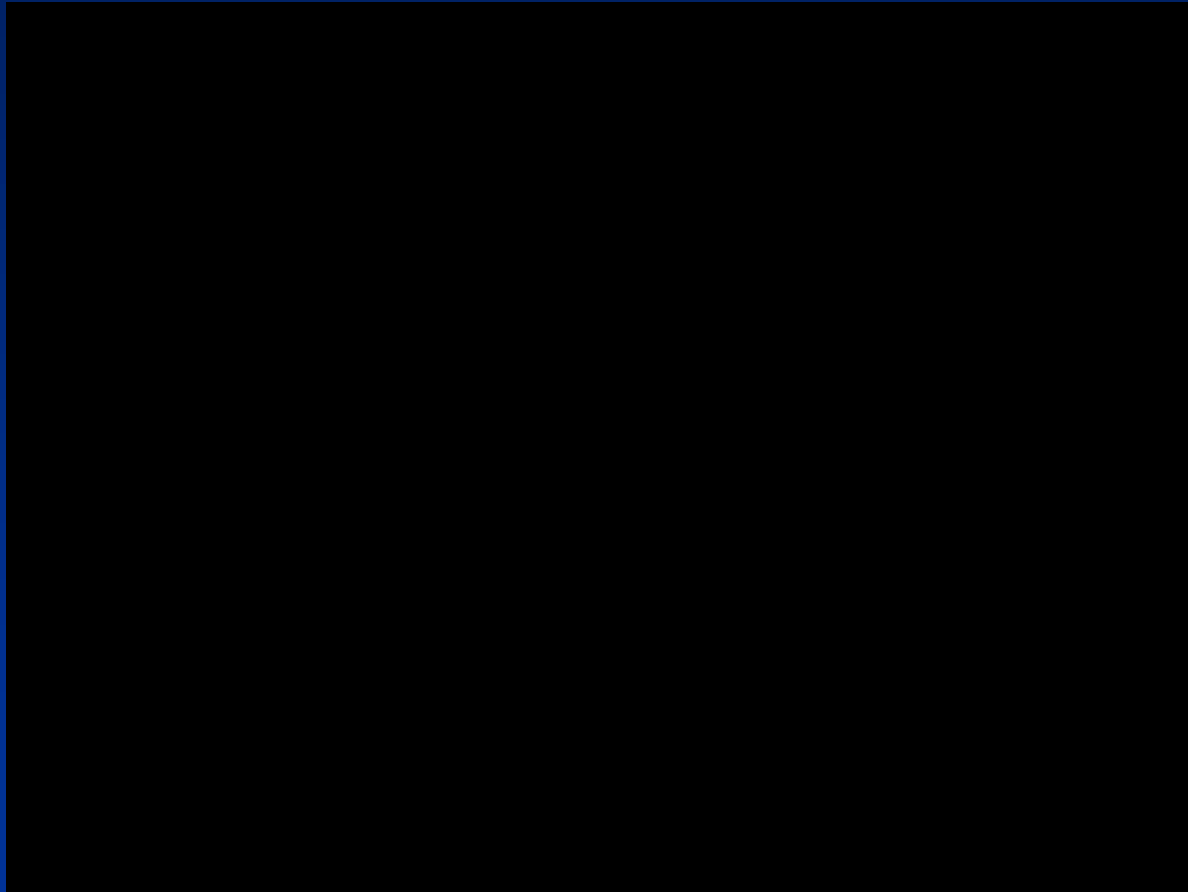
# Traces and images



# Special considerations

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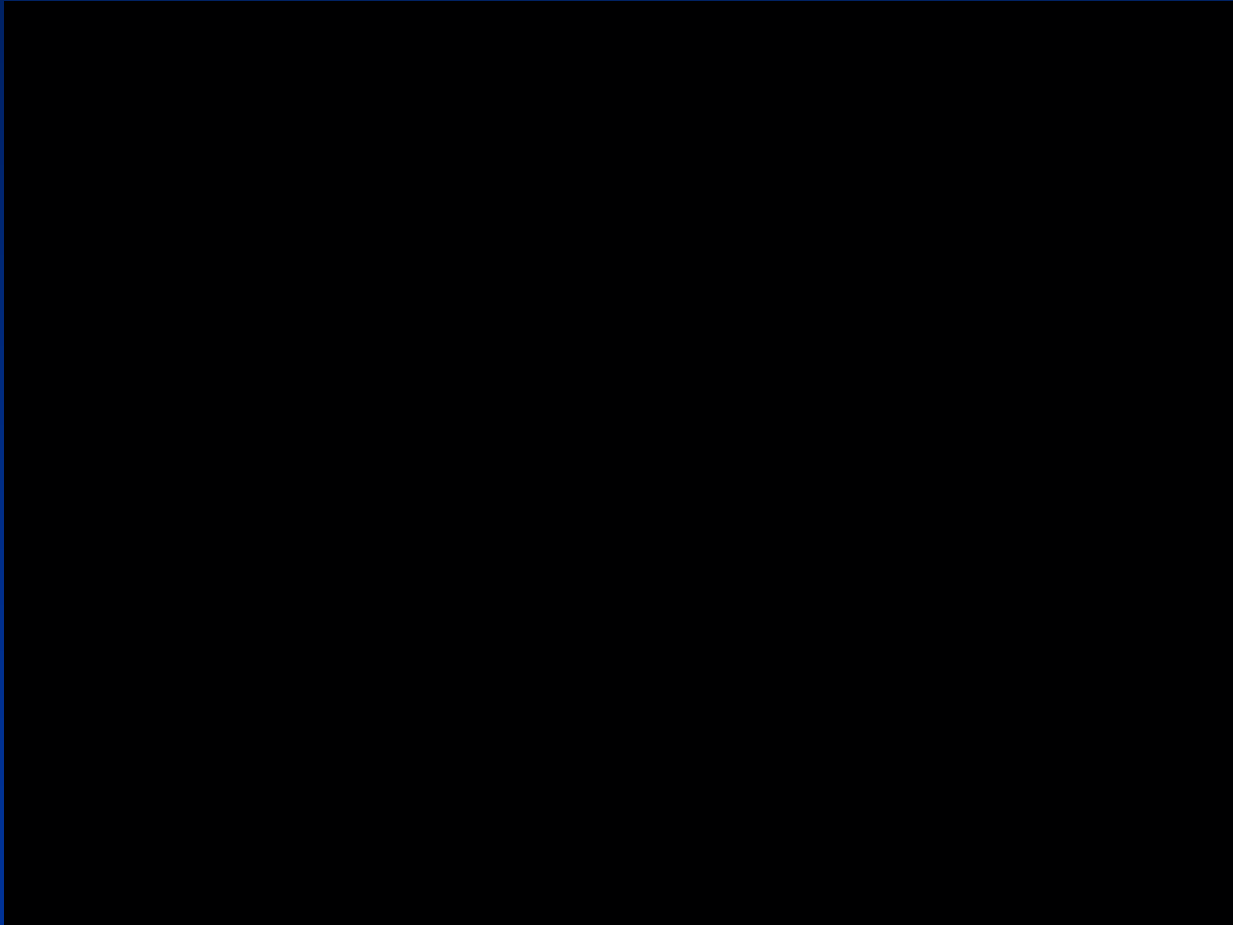
- Fluoroscopy vs. Cohesion



# Safety considerations

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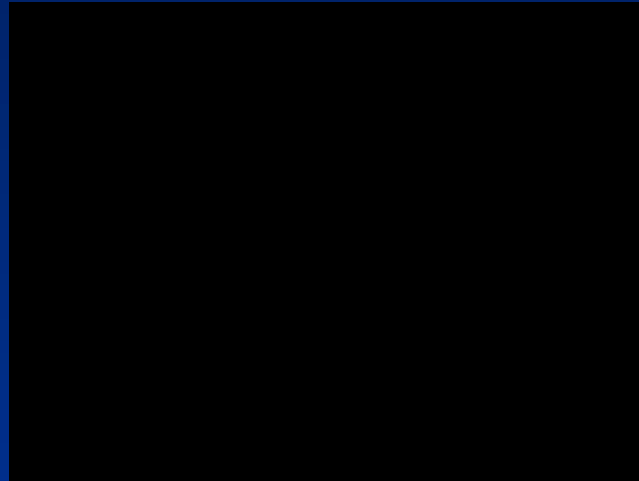
- Tissue contact – Intellisense



# Safety considerations

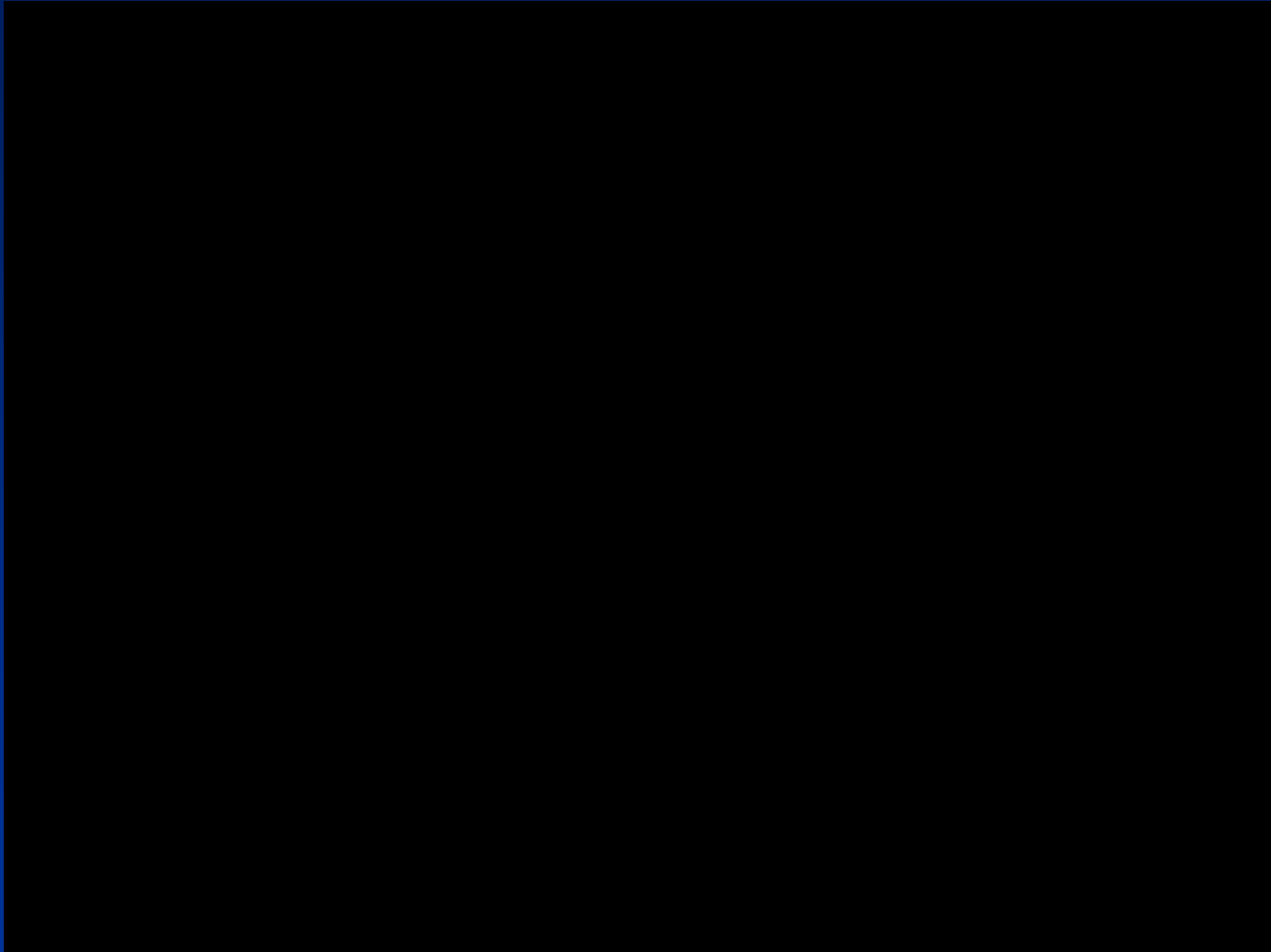
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- Tissue contact – Intellisense



# Safety considerations

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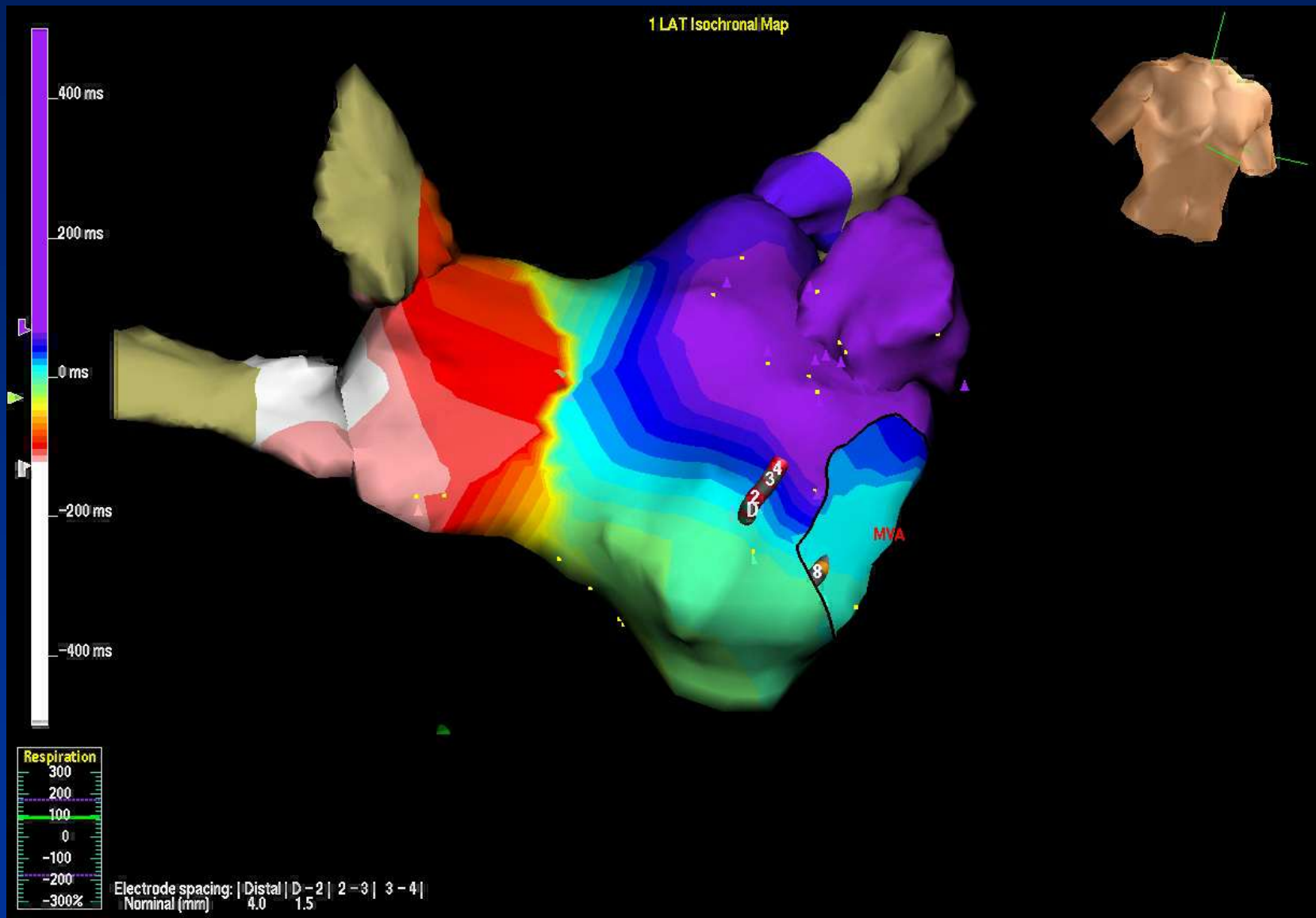
# Current literature

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## Safety

- **Worldwide experience**
- **601 patients**
- **Mostly AF (466) but also flutter, AVNRT, & WPW**
- **No procedure mortality**
- **Vascular complications 0.7%**
- **Pericardial effusion 1.3%**
- **Similar to conventional cases**

# Normal use of mapping systems



# Current literature

## Outcomes

- 40 patients for AF ablation (29 paroxysmal)
- 1 year follow up
- 34 patients (86%) free of AF off AAD
- 5 additional patients free of AF on AAD

| Duration, min    | Total     | Atrial Fibrillation | Atrial Flutter |
|------------------|-----------|---------------------|----------------|
| Procedure time   | 163 ± 88  | 189 ± 88            | 126 ± 56       |
| Ablation time    | 89.6 ± 43 | 106 ± 25            | 56 ± 54        |
| Fluoroscopy time | 64 ± 33   | 83 ± 15             | 37 ± 35        |

# Current literature

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## Further publications

- Small randomised comparisons
  - Variable results
  - Robotic procedures same length or longer
  - Complication rates similar or slightly higher
  - Success rates higher
  - Await larger scale randomised trials
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# Where do I see the future?

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- Learning curve is steep – different technique
  - Complication rate low
  - Smaller sheath
  - Safety tools
  - Operator longevity
  - Application to other arrhythmias (VT)
  - Improved 1<sup>st</sup> time success rates
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# Acknowledgements

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- All the Hansen Medical Team
  - Bobby Willis
  - Drew Cox
  - All the staff in the Cardiac Department at the John Radcliffe Hospital
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