Robotic mitral valve repair
– Endoballoon Method

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Disclosures
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- Consultant
  - Intuitive Surgical
  - Edwards Lifesciences
  - St. Jude Medical
Endoballoon Method

• Pros:
  – Allows total endoscopic approach
  – Suitable for redos

• Cons:
  – Cost
  – Complexity
  – Risk of neurologic and vascular complications
Contraindications

- Aortic atherosclerosis
- Peripheral vascular disease
- AAA
- Ascending aorta >38 mm
- AI
Preoperative Evaluation

- Non-contrast chest and abdomen CT
  - Patients >50 y
  - Morphology and calcification of aorta and iliac vessels
- Femoral ultrasound
Surgical Technique

- Incisions and port placement
- Cardiopulmonary bypass & myocardial protection
- Pericardiotomy
- Atriotomy
- Mitral valve repair
Surgical Technique

- **Incisions and port placement**
- Cardiopulmonary bypass & myocardial protection
- Pericardiotomy
- Atriotomy
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Endoballoon Method
Endoballoon Method
Surgical Technique

- Incisions and port placement
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CPB and Myocardial Protection

- Femoral arterial cannulation
- Single venous cannulation
- Aortic balloon occlusion
- Percutaneous retrograde cardioplegia
- Pulmonary artery vent (optional)
Surgical Technique

- Incisions and port placement
- Cardiopulmonary bypass & myocardial protection
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- Atriotomy
- Mitral valve repair
Pericardiotomy
Aortic Occlusion with Endoballoon
Troubleshooting

- Balloon migration
  - Increase perfusion pressure
  - Optimize venous drainage
  - Adenosine
Troubleshooting

• Inadequate cardioplegia delivery
  – Reposition balloon
  – Exchange balloon
  – Convert to transthoracic cross-clamp
Surgical Technique

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- **Atriotomy**
- Mitral valve repair
Atriotomy
Surgical Technique

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Anuloplasty - running suture
Robotic Operations
2006 – 2010

N > 650
Mortality

0%
Repair Rate

99%
Conclusion

- Endoscopic robotic endoballoon method is the least invasive approach for MV repair
- Requires dedicated and experienced robotic surgical team
- Patient selection crucial determinant of success
Thank you