Aortyx Patch: An Innovative Repair Solution for Focal Aortic Defects

Vincent Riambau, MD, PhD
Professor and Chief of Vascular Surgery Division
Cardiovascular Institute
Hospital Clinic, University of Barcelona
Consultant/Advisor/Research

- Terumo-Aortic
- Medtronic
- iVascular
- Bayer
- MSD
- Ferrer
- Jotec/Cryolife
- VB devices

- Founder of AORTYX
- Stock-holder of AORTYX

Proctor

- Terumo-Aortic
- Cook
- Medtronic
- W.L. Gore
- Cardinal/Cordis
- Jotec/Cryolife
- Lombard-Micropore
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• Background
  • What is Aortyx patch
  • Where we are
  • Where we are going to
• Summary
## Device and procedure related complications

<table>
<thead>
<tr>
<th>Complications</th>
<th>Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stroke</td>
<td>3-10%</td>
</tr>
<tr>
<td>Spinal cord ischemia</td>
<td>1%</td>
</tr>
<tr>
<td>Aortic rupture</td>
<td>1%</td>
</tr>
<tr>
<td>Stent-graft collapse</td>
<td>&lt; 1%</td>
</tr>
<tr>
<td>Proximal and distal tears</td>
<td>2%</td>
</tr>
<tr>
<td>Retrograde type A dissection</td>
<td>2%</td>
</tr>
<tr>
<td>Reinterventions</td>
<td>15% @ 1 y</td>
</tr>
<tr>
<td>Heart failure / Endograft stiffness</td>
<td>?</td>
</tr>
</tbody>
</table>

Buth et al. JVS 2007  
Rampoldi et al Ann Thor Surg 2004  
Feezor et al Ann Thor 2008  
Kasirajan et al. JVS 2011  
Eggebrecht et al Circulation 2009  
Mani et al. EJVES 2012  

A word of caution
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The endovascular patch

- Regenerative molecules (ECM-like peptides)
- Biodegradable biopolymer
- Vascular adhesive
Unique microstructure with similar aortic mechanical properties
What we have created

Patch Main Features

• Adhesive
• Viscoelastic
• Re-absorbable
• Minimally invasive
• Promotes regeneration
• High eligibility
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Where we are

In vitro tests

2 weeks later

Patch

DAPI and phalloidin dyes (x120)
Where we are

Ex vivo tests
Where we are

Deployment System

<table>
<thead>
<tr>
<th>#</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Applier catheter</td>
</tr>
<tr>
<td>2</td>
<td>Guide catheter</td>
</tr>
<tr>
<td>3</td>
<td>Unfolded wire assembly</td>
</tr>
<tr>
<td>4</td>
<td>Open hemostatic valve</td>
</tr>
<tr>
<td>5</td>
<td>Introducer tube</td>
</tr>
</tbody>
</table>
Where we are

Deployment System
Where we are

Deployment System/ Swine model
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Summary

• Aortic Endografts are related to some limitations and complications

• Endovascular patch mission is cover and heal focal aortic defects with a viscoelastic and re-absorbable biopolymer

• In vitro, ex vivo and animal tests are encouraging

• Next developments will be presented and published.
Who we are
Founders

Jordi Martorell, PhD
CEO
- Head of Vascular Engineering and Applied Biomedicine at IQS

Noemí Balà, MSc
CTO
- Materials Sciences Specialist at IQS

Vicenç Riambau, MD, PhD
CMO
- Chief of Department, Vascular Surgery at Hospital Clinic
- Worldwide KOL in Vascular Surgery

Salvador Borrós, PhD
CSO
- Chief of Bioengineering and Materials Sciences at IQS
Who we are
Advisors

Elazer Edelman, MD, PhD
Medical Advisor
- MIT-IMES Director
- FDA Advisory Board

Rosendo Garganta, MBA
Business Advisor
- CEO at Devicare
- Business Angel

Adam Groothuis, PhD, MBA
Animal Studies Advisor
- VP Therapy Development at Cardiovalve
- Co-founder at CBSET

Brian Howlett
Strategy Advisor
- Chairman at Oxford Endovascular
- Ex-CEO at Lombard Medical
Who we are
Technical Staff

Júlia López, PhD
R&D
• PhD in Biomedicine and specialized in Vascular Bioengineering

Alex Aranda, MSc
R&D
• PhD Candidate, Industrial Engineer specialized in medical device manufacturing

Pau Teixidó, MSc
R&D
• PhD Candidate in Pharmaceutical Chemistry specialized in adhesives
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