

SPHERICAL STENT

New Occlusion Device



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PRESENTATION OUTLINE

Motivation & Purpose	●	Cerebral Aneurysm
	●	
	●	
	●	Liver Cancer
	●	
	●	
Creativity & Progress	●	Novel Applications
	●	
	●	
Results & Future	●	Prototype Design
	●	
	●	
	●	Prototype Manufacturing
	●	
	●	
	●	Target Market

PRESENTATION OUTLINE

Motivation & Purpose

Cerebral Aneurysm

Liver Cancer

Creativity & Progress

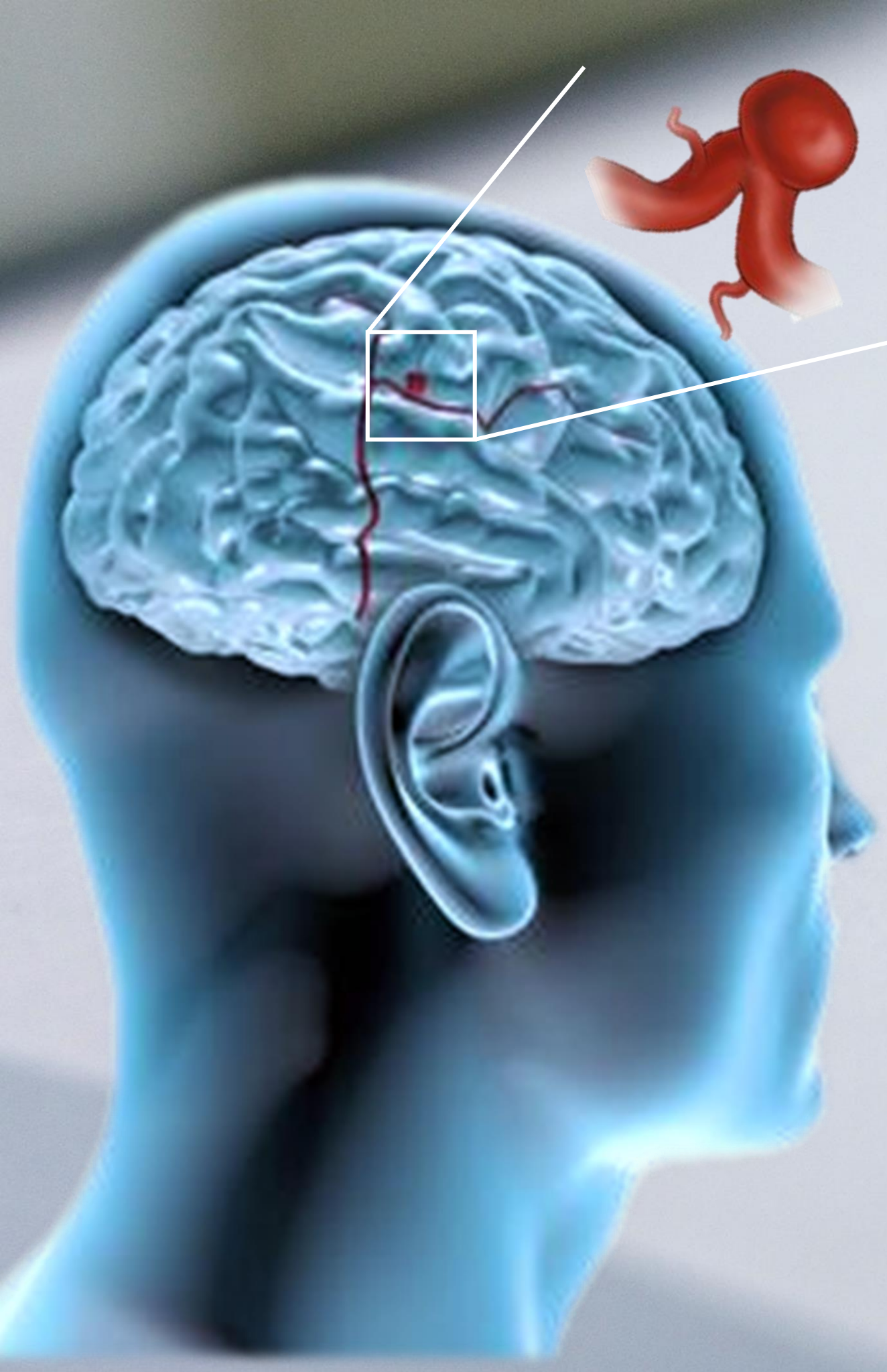
Novel Applications

Results & Future

Prototype Design

Prototype Manufacturing

Target Market



Cerebral Aneurysm

Shaped like a balloon

Vulnerable to blood flow

Hemorrhagic stroke

Liver Cancer

Cirrhosis of the liver and cellular carcinogenesis

The leading cause of death in Taiwan

Fatality rate is 95%



PRESENTATION OUTLINE

Creativity & Progress

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Novel Applications

Results & Future

Prototype Design

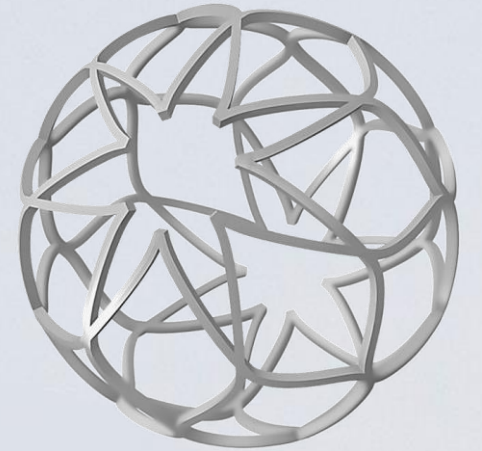
Prototype Manufacturing

Target Market

Novel Applications about Stents

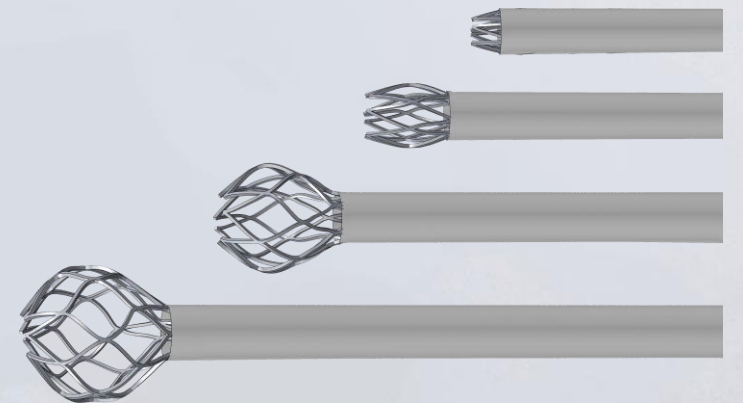
Break through geometrical limitations

- ✓ The world's first spherical stent



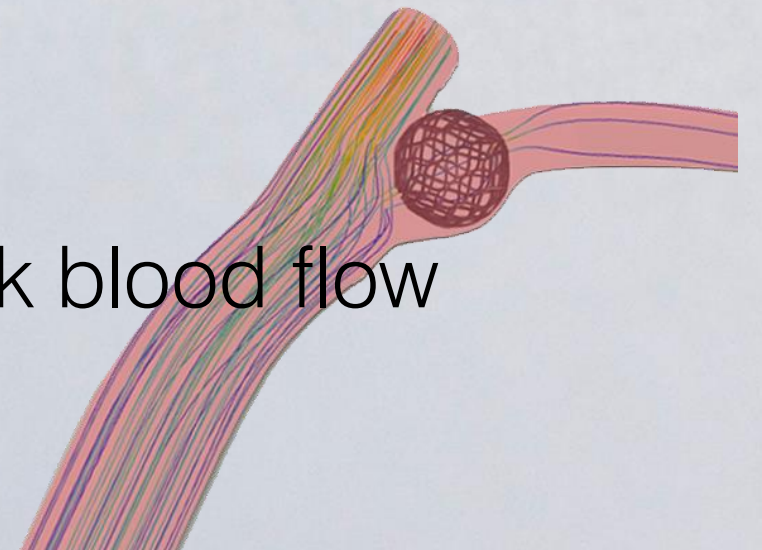
Use shape memory alloys

- ✓ Self - expansion



New thinking about stents

- ✓ Stents were used for the first time to block blood flow



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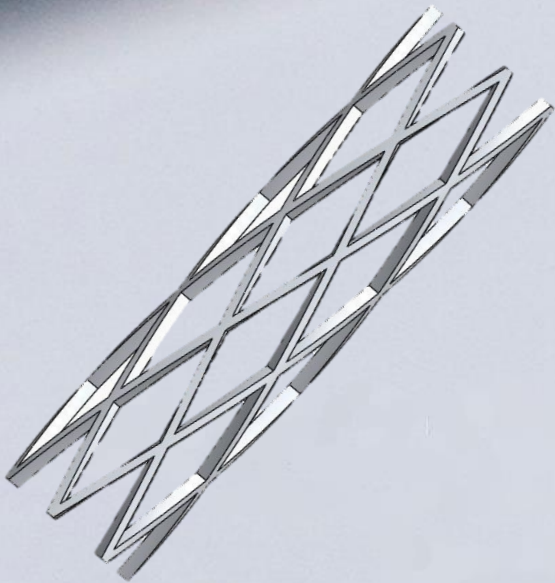
Results & Future

Prototype Design

Prototype Manufacturing

Target Market

Prototype Optimization Design

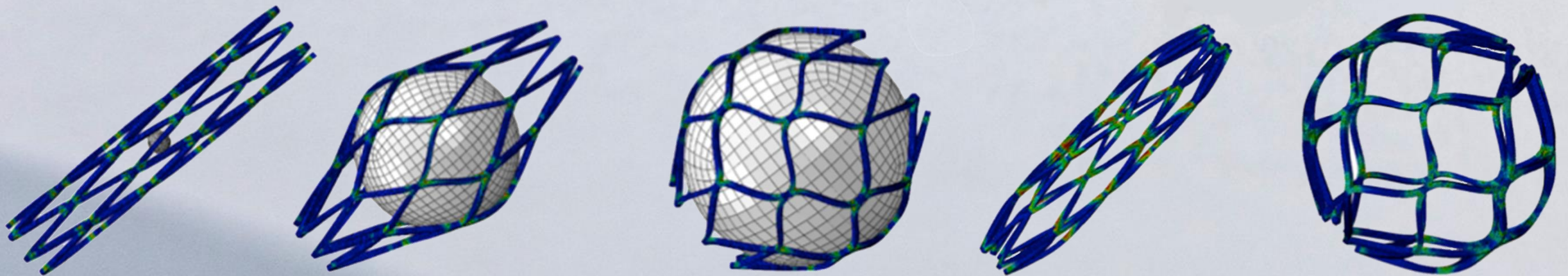


- Design stents via SolidWorks

- Symmetry design
- Different parameters

Use ABAQUS to simulate stress-strain distribution

- Analyze the stress of structure
- Avoid material damage

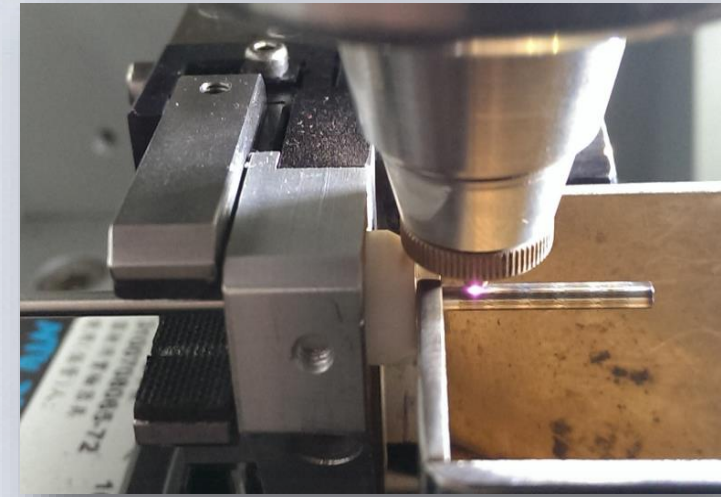


Find out the optimal design through repeated design and simulation iteration

Prototype Manufacturing

Pulsed - fiber optic laser

Cut the design pattern on tubes



Gradual expansion

500°C Salt bath furnace



Sand blasting & polishing

Fine surface accuracy



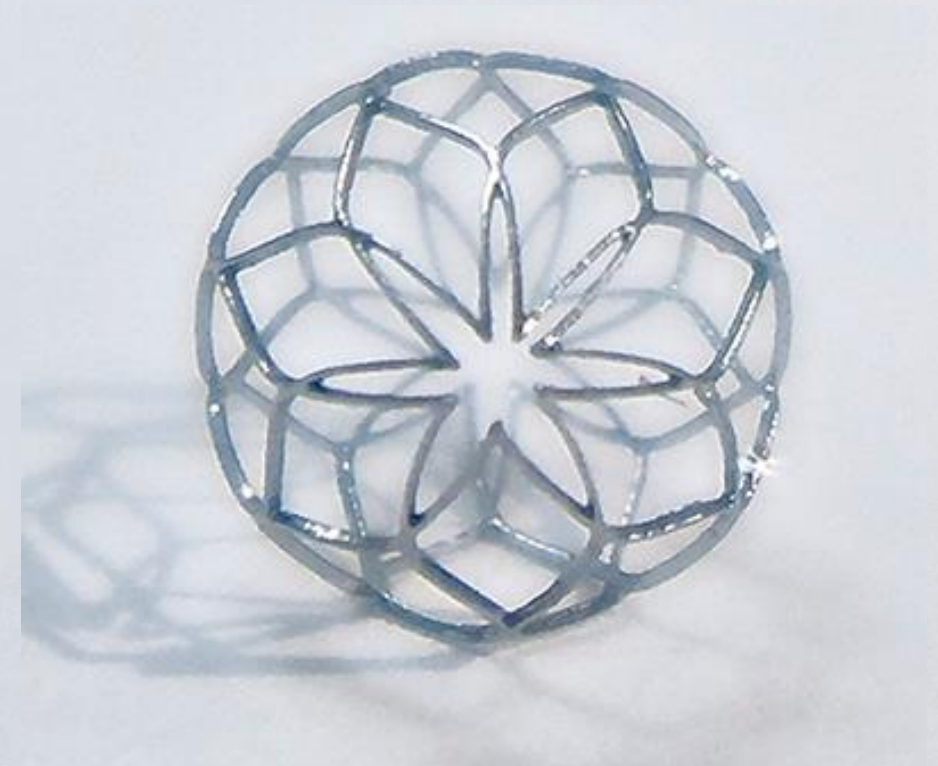
Target market

Spherical stent therapy

- ✓ Lower price
- ✓ Quick operation & small wound

Future

- ✓ Applications to other diseases
- ✓ Convert stents to other shapes to open new markets



Q&A

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