

Tips and tricks for valve-in-MAC with a balloon expandable prosthesis

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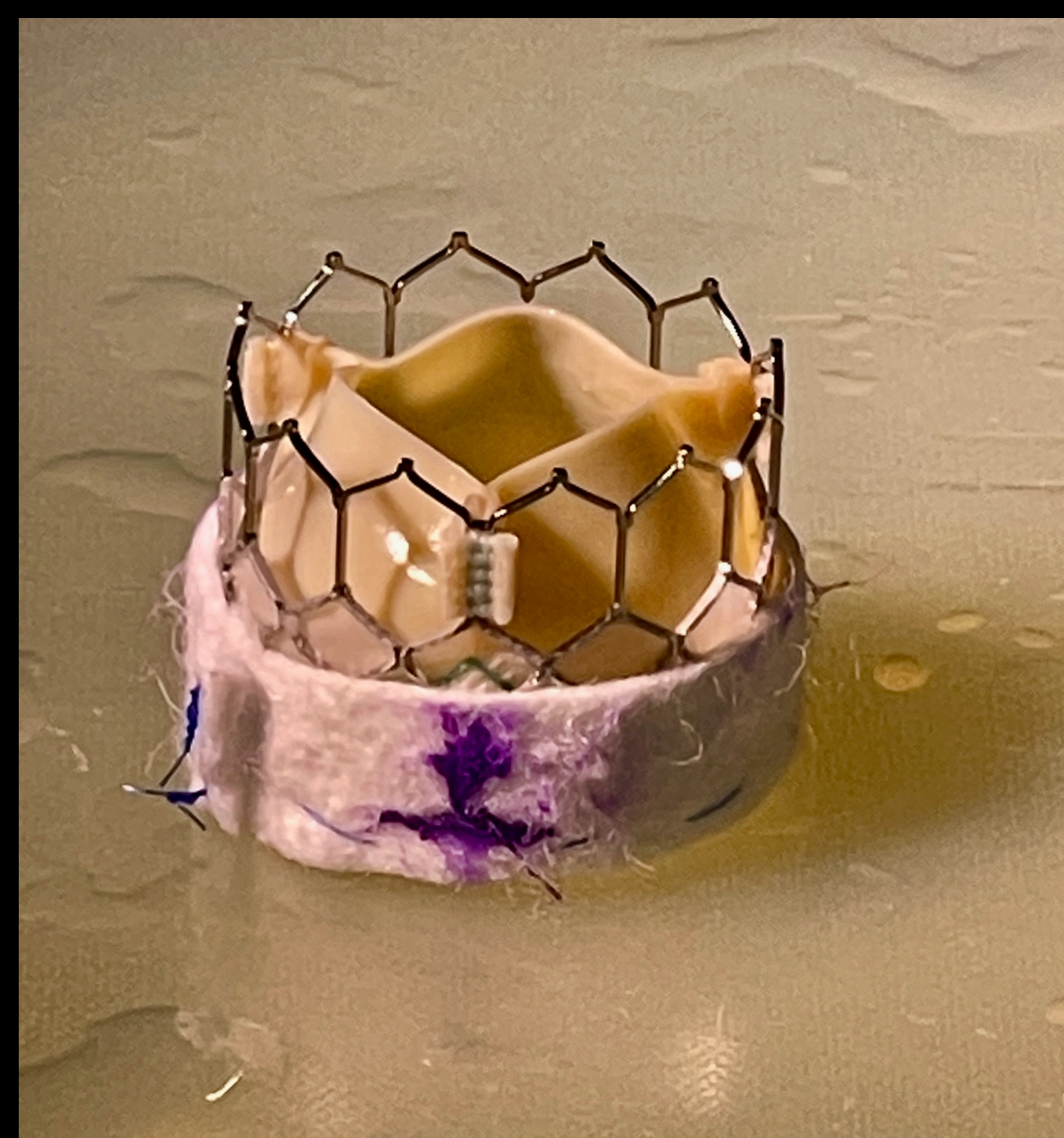
Objective

Surgery of mitral annular calcification (MAC) is challenging. Several cases have been treated using aortic balloon-expandable valve. Different methods for implantation of the valve are described, in order to limit procedural complications and leaks. Here are our tips and tricks to achieve the best valve in MAC implantation through minithoracotomy

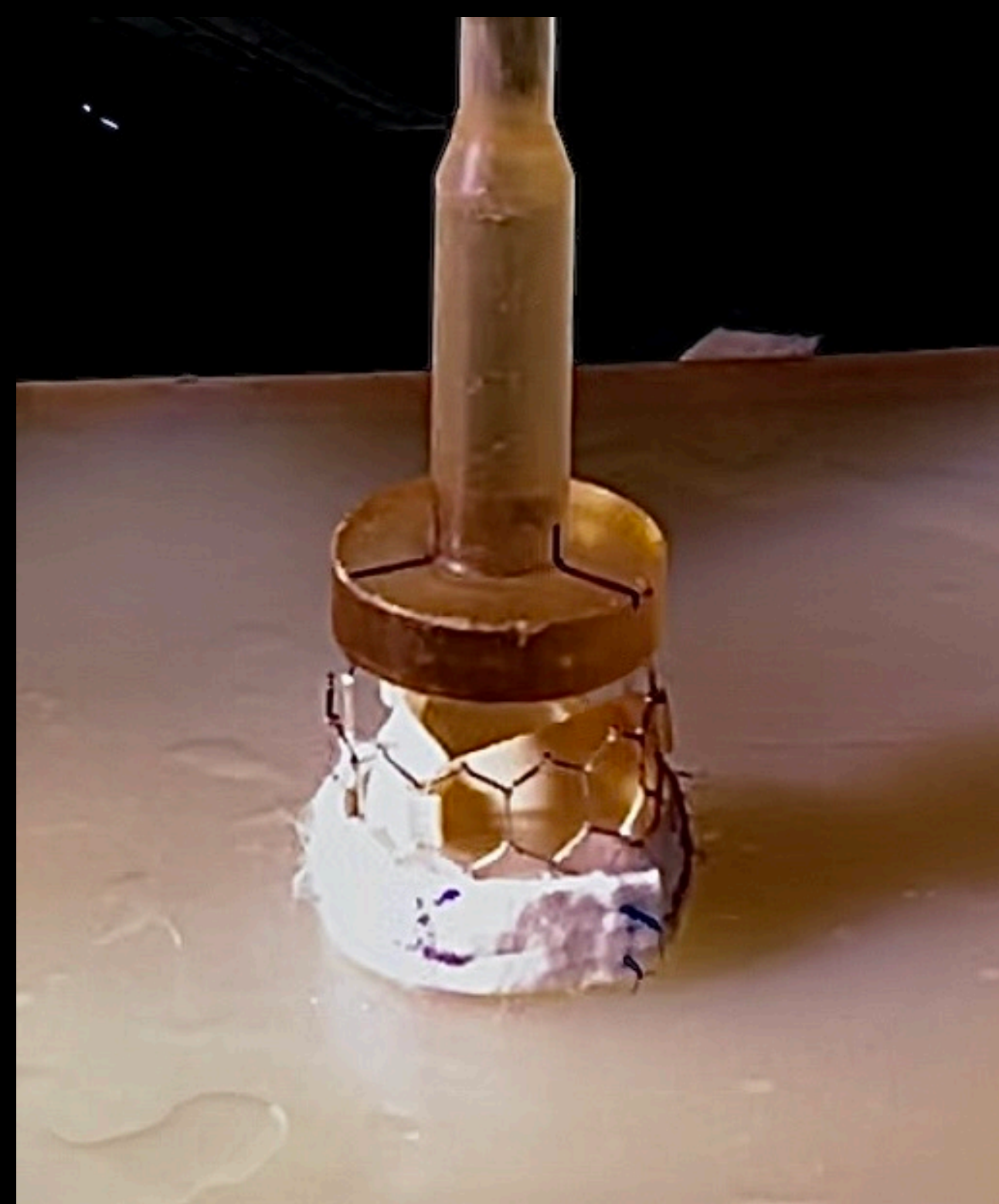
Methods

A man affected by mitral stenosis with MAC is screened for implantation of a balloon-expandable aortic valve in mitral position. Standard right anterior minithoracotomy is performed and CPB through femoral vessels is established. While the operative field is prepared and the mitral valve is resected, the valve is prepared in the following manner:

1 cm high teflon stripe is sutured through a mattress suture at the cage of the valve
- commissures and height of the cusps nadir are marked

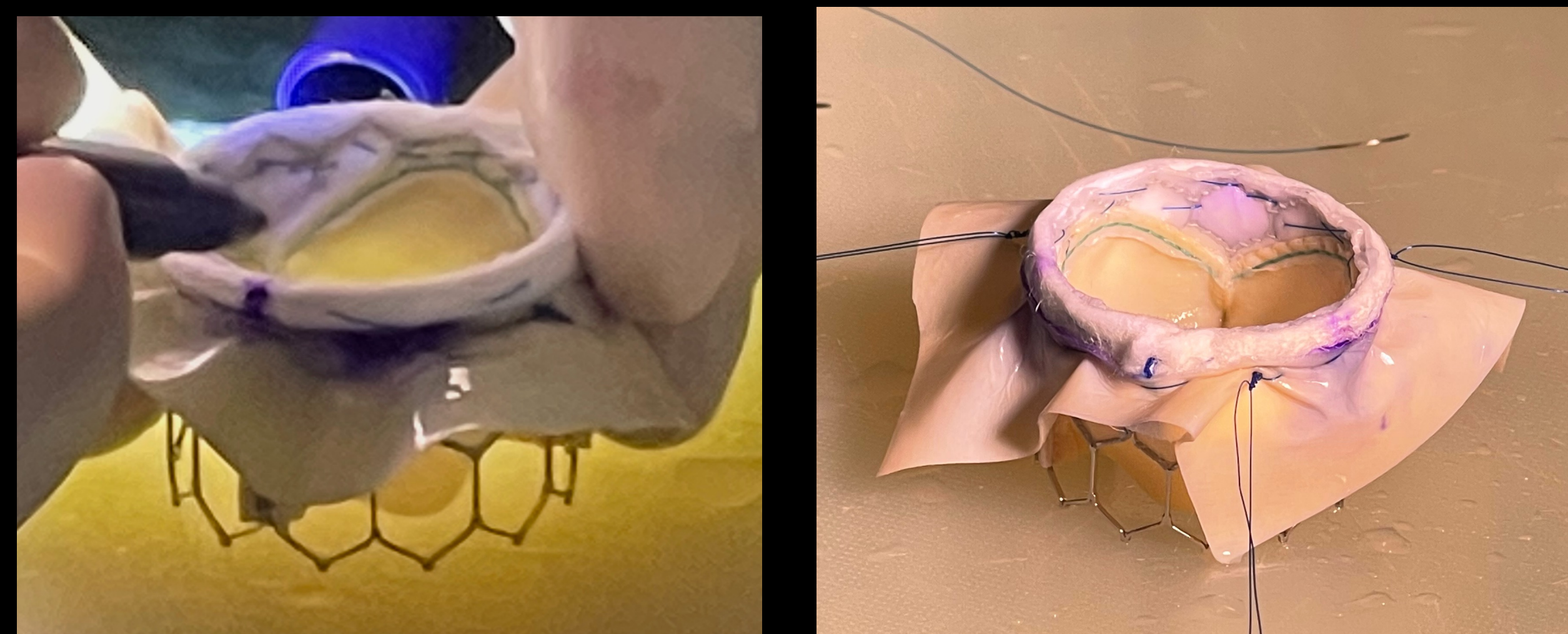


a sizer as big as the valve chosen is used to create a hole in a sheet of bovine pericardium and the sheet obtained is positioned around the valve at the level of the nadir of the cusps and fixed with three stitches



pericardium is cut to obtain a square around the prosthesis; the margins of pericardium must be high enough to fix them on the atrial surface with a running suture in order to avoid valve displacement and paravalvular leaks

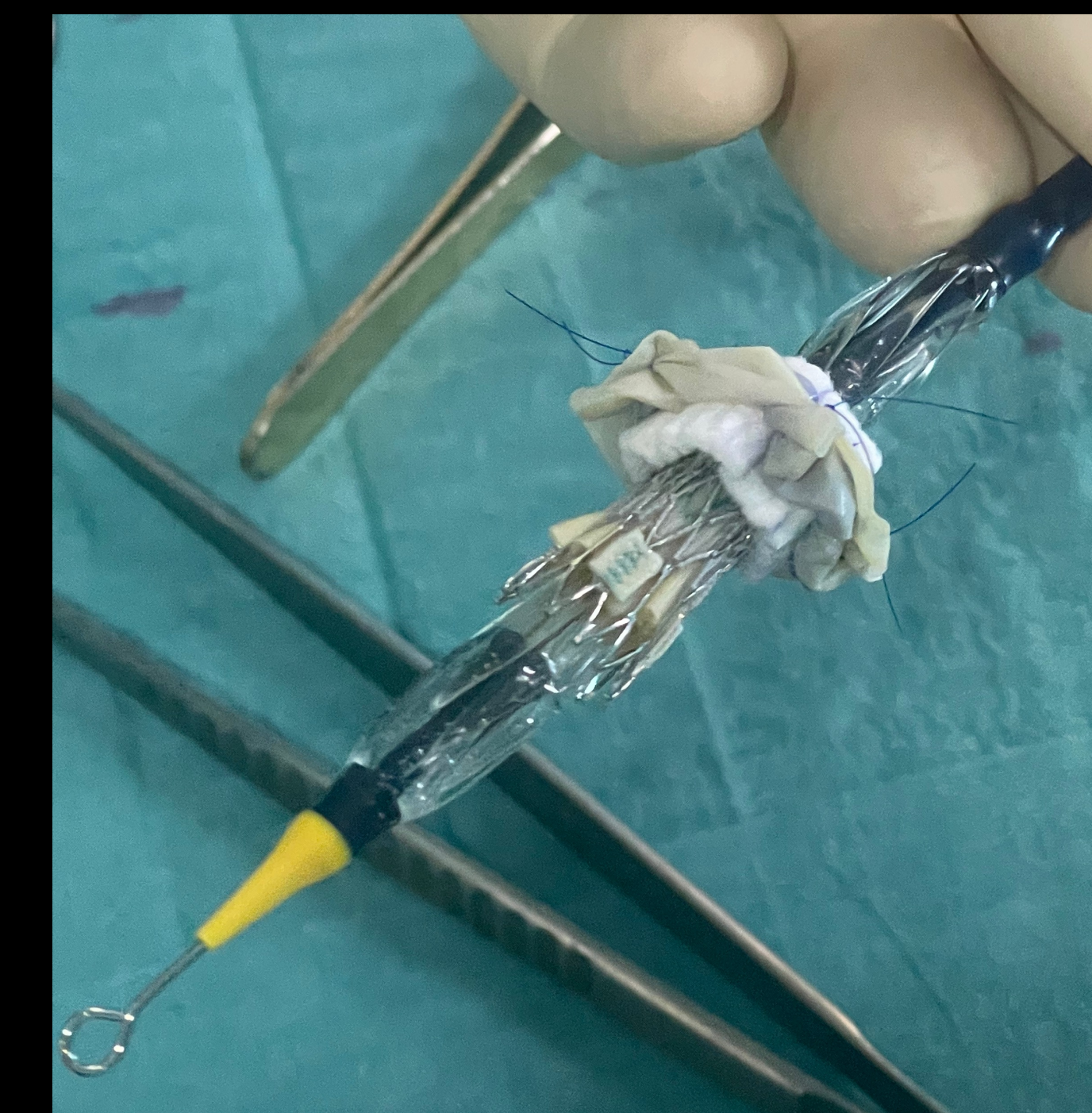
commissures are marked again to set the points where to pass the three fixing stitches to determine the height of the valve on the annulus (2/3 in the atrium, 1/3 in the ventricle)



teflon is temporary put around the cage of the valve to protect it and the valve is crimped



pericardium is folded with three stitches in the manner to see all the parts of the prosthesis while delivering; they will be released and the pericardium will be sutured to the atrial wall



Results

Intervention and post-operative care run without complications.
At discharge, echocardiography showed trivial paravalvular leak.

Conclusions

Valve-in-MAC can be safely performed through minithoracotomy. Case study, communication and cooperation between the surgeon and the cardiologist or surgeon with expertise in balloon-expandable valves is the key point for success.