

Robotic Mitral Valve Repair with AtriClip Placement Through the Transverse Sinus

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OBJECTIVE

- Left atrial appendage occlusion during robotic mitral valve repair through right mini-thoracotomy has traditionally been performed through endocardial suture closure.
- We demonstrate the feasibility of left atrial appendage closure with the AtriClip Pro 2 device (AtriCure, OH, USA) placement through the transverse sinus at the time of robotic assisted mitral valve repair.

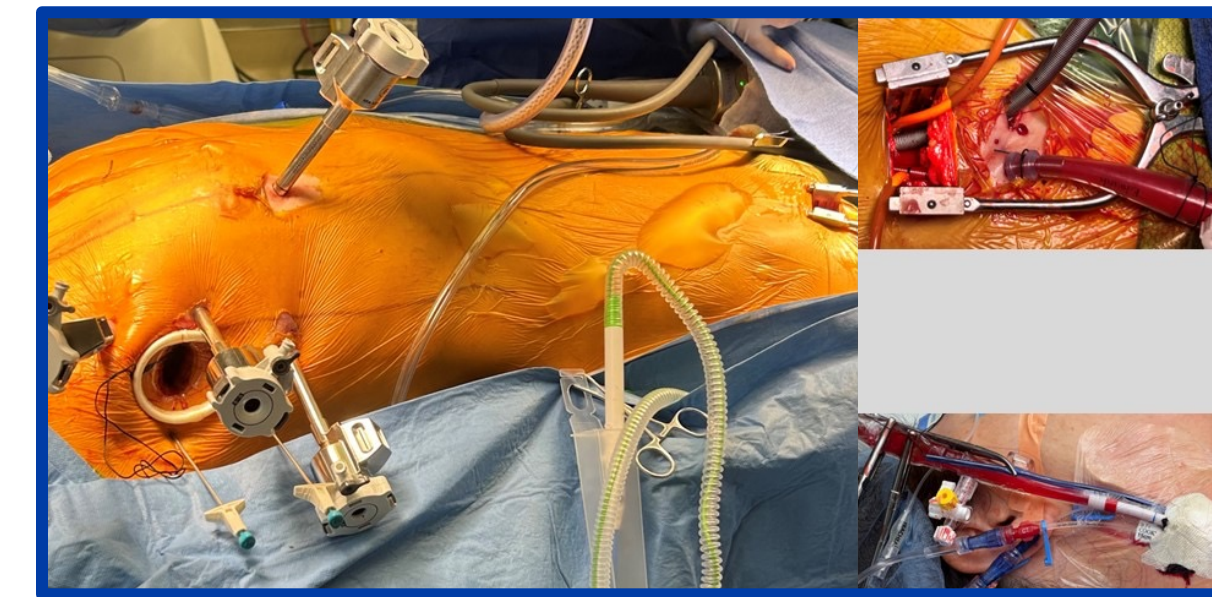
CASE SUMMARY

- Repair for severe mitral regurgitation with P2 prolapse with neocords and annuloplasty band.
- Left sided cryoablation for management of AF.
- The left atrial appendage is managed through the transverse sinus with the AtriClip Pro2 device.
- TEE demonstrated obliteration of the left atrial appendage and confirmed mitral competency.

CONCLUSIONS

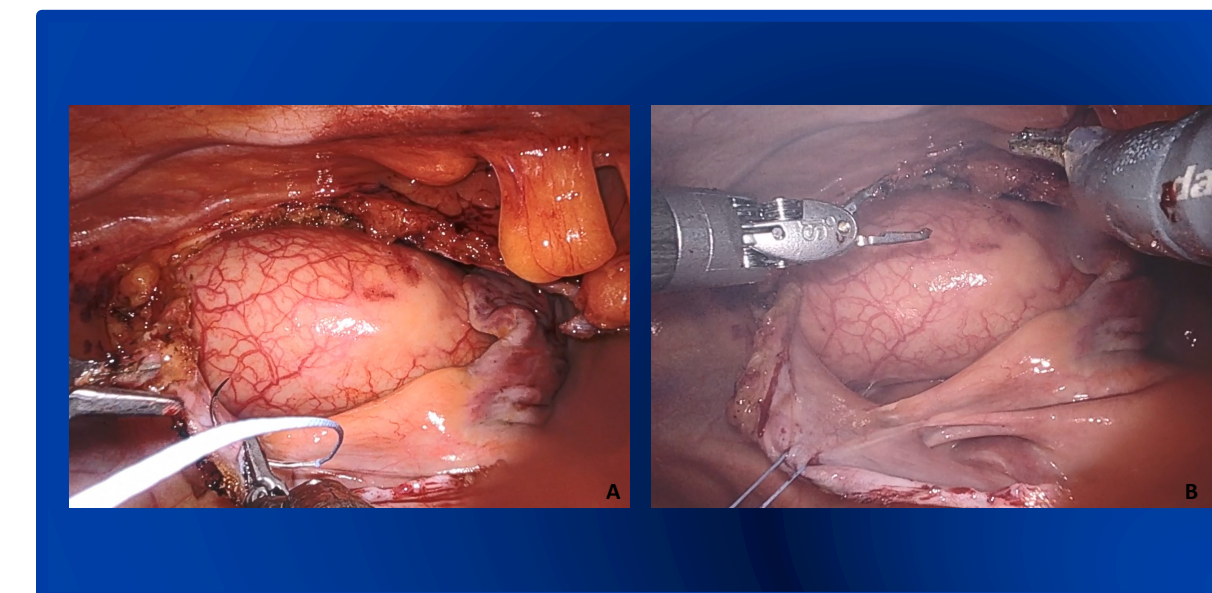
Clipping of the left atrial appendage via the transverse sinus is a safe and effective method for left atrial appendage management during robotic assisted mitral valve repair.

OPERATIVE PROCEDURE

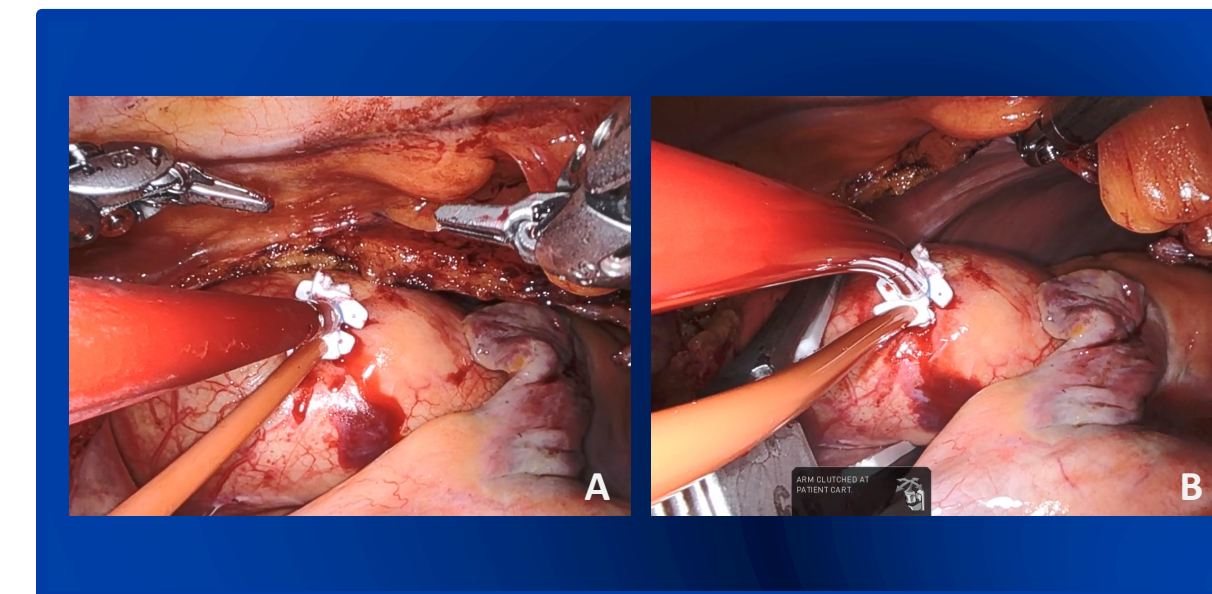


Patient is positioned supine with a bump under the right scapula and the right arm below the level of the table.

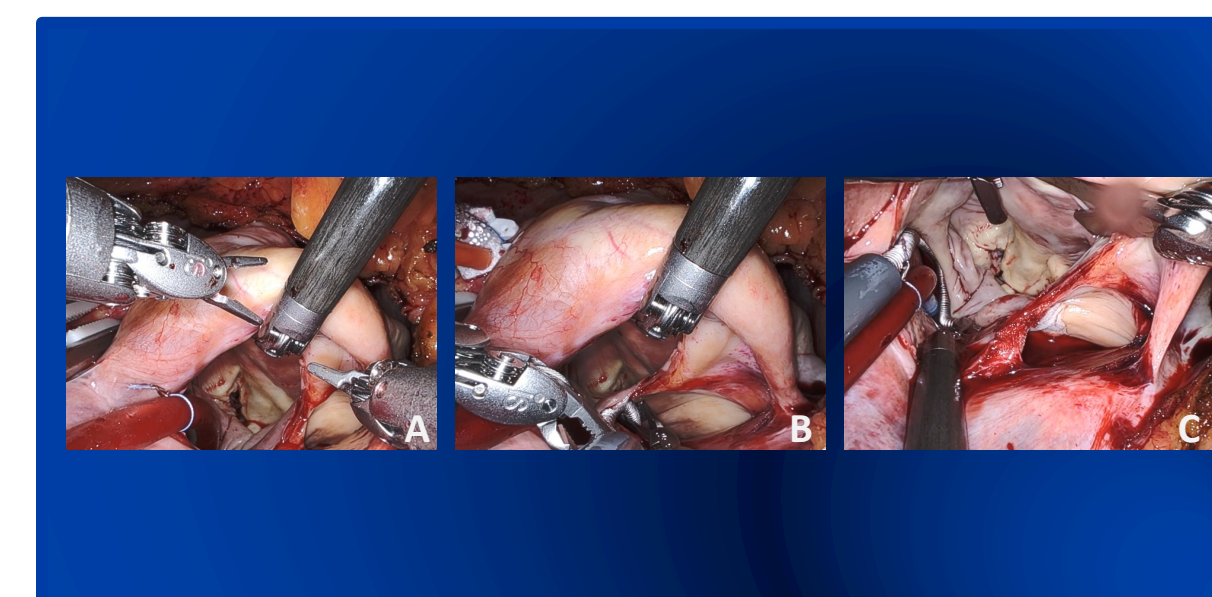
Femoral arterial and venous cannulation and IJ cannulation for CPB.



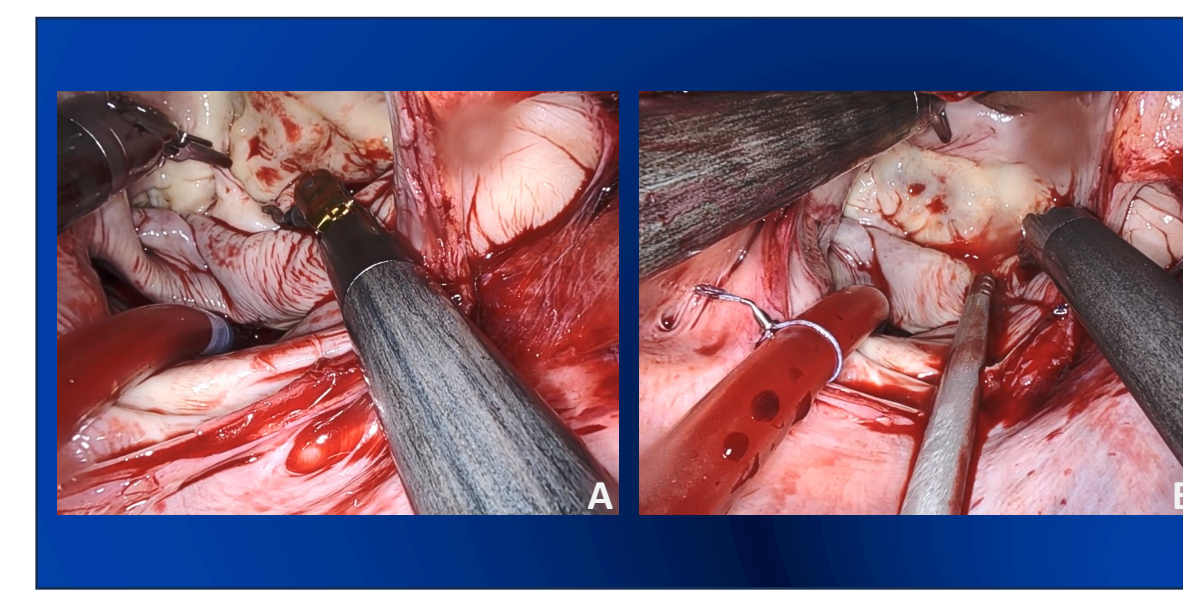
Mediastinal fat is resected, and the pericardium is suspended.



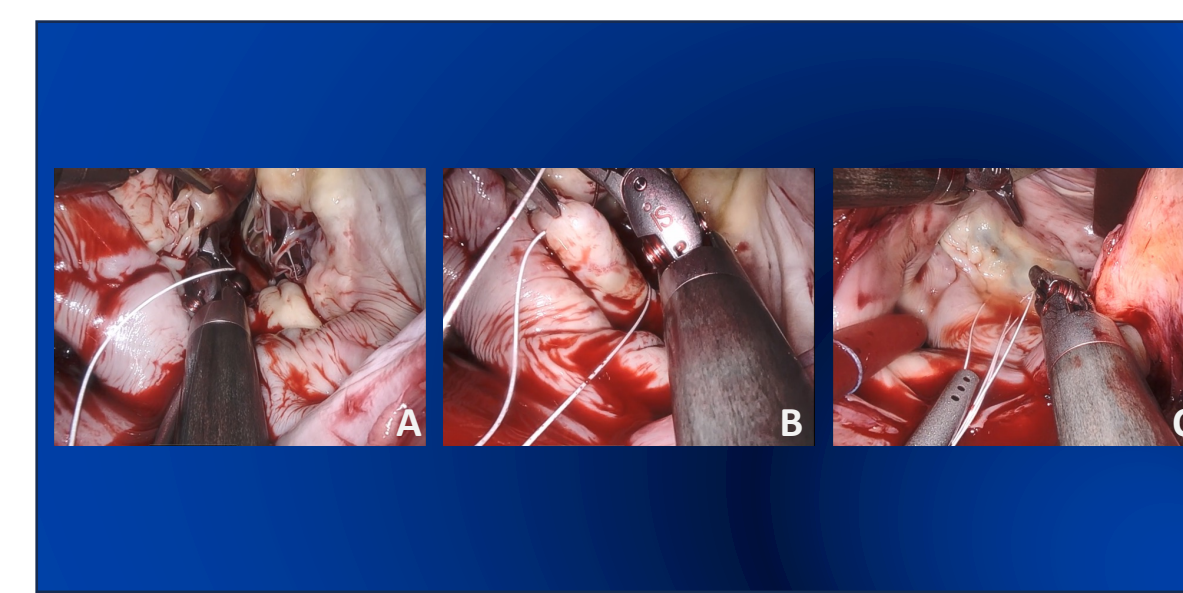
Antegrade cardioplegia needle is placed in the ascending aorta (A) and the aorta is subsequently cross clamped (B).



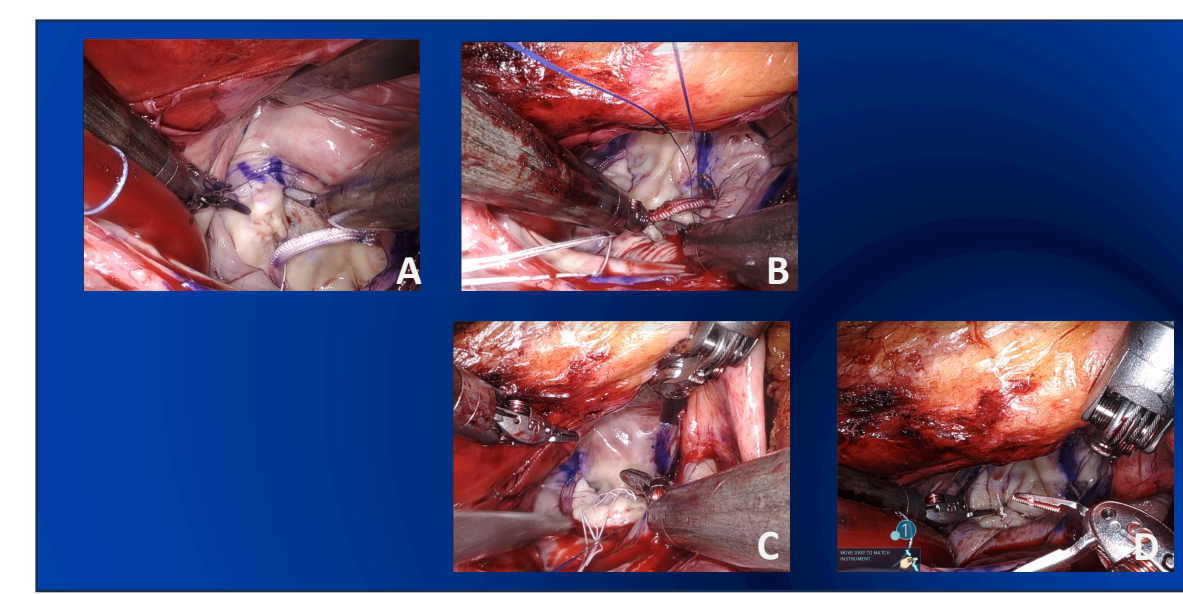
The left atrium is opened to decompress the heart (A) and after completion of cardioplegia, a left sided cryoablation is performed. The epicardial coronary sinus lesion is performed first (B) followed by the intraatrial lesion set (C).



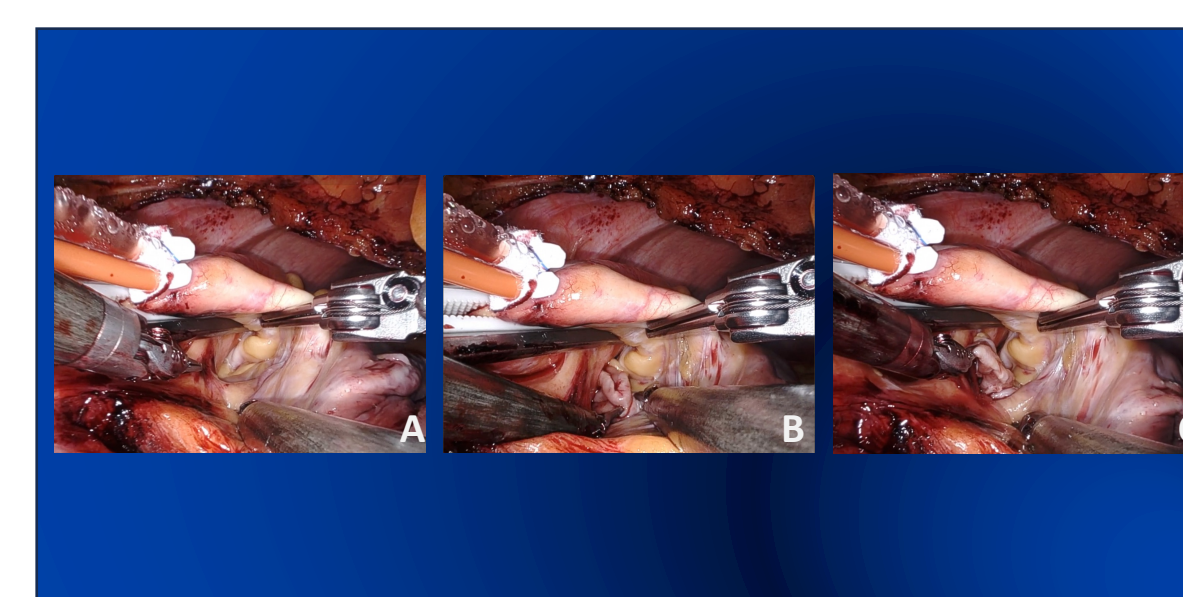
The mitral valve is inspected and as seen here (A) a ruptured cord is present on the P2 scallop. (B) A water test with cold del Nido cardioplegia further demonstrates the P2 jet.



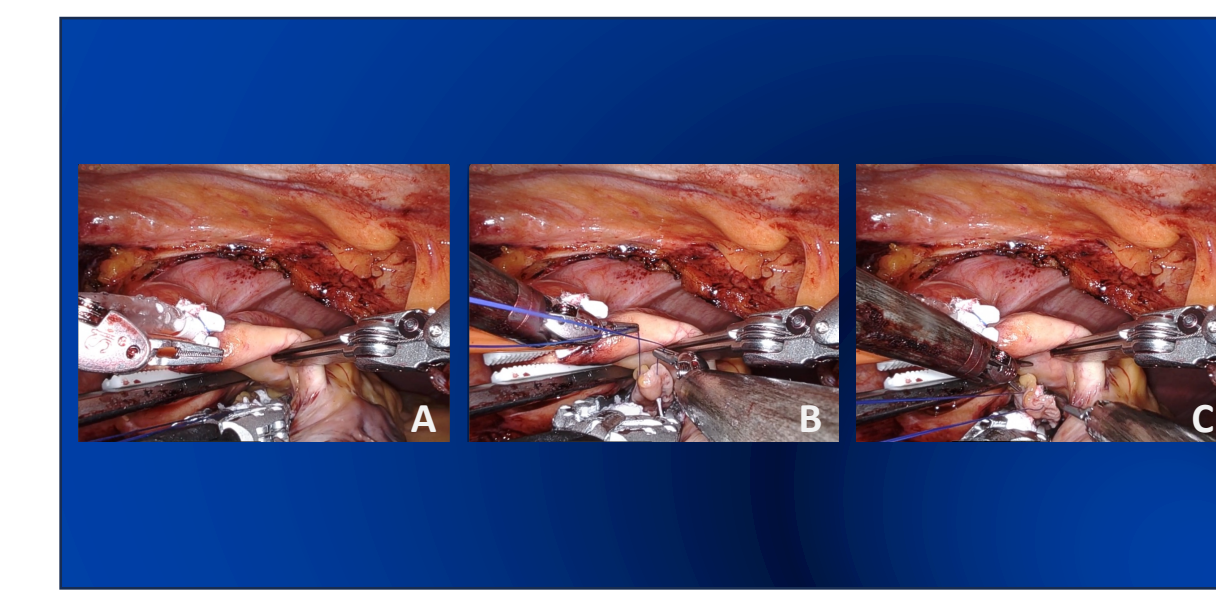
Neocords are placed. (A) A figure of 8 suture is placed on the papillary muscle followed by locking sutures placed on the edge of the leaflet (B, C).



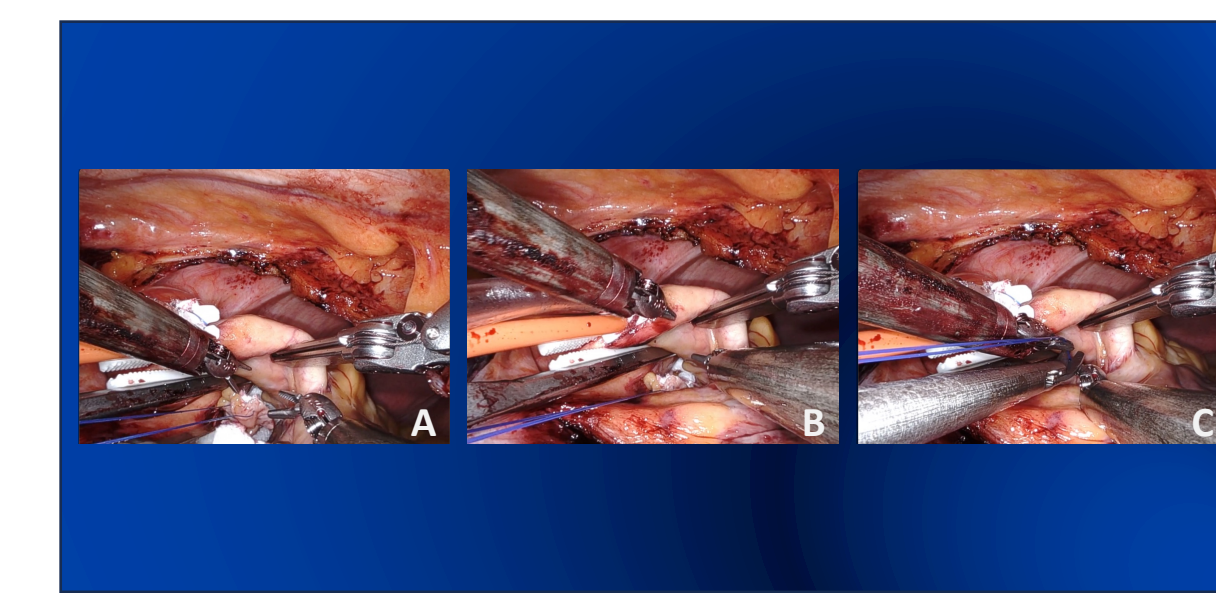
An annuloplasty band is placed with 2 running sutures from the (A) lateral trigone and then (B) the medial trigone being secured (C) at the center of P2. (D) The neocords are then secured.



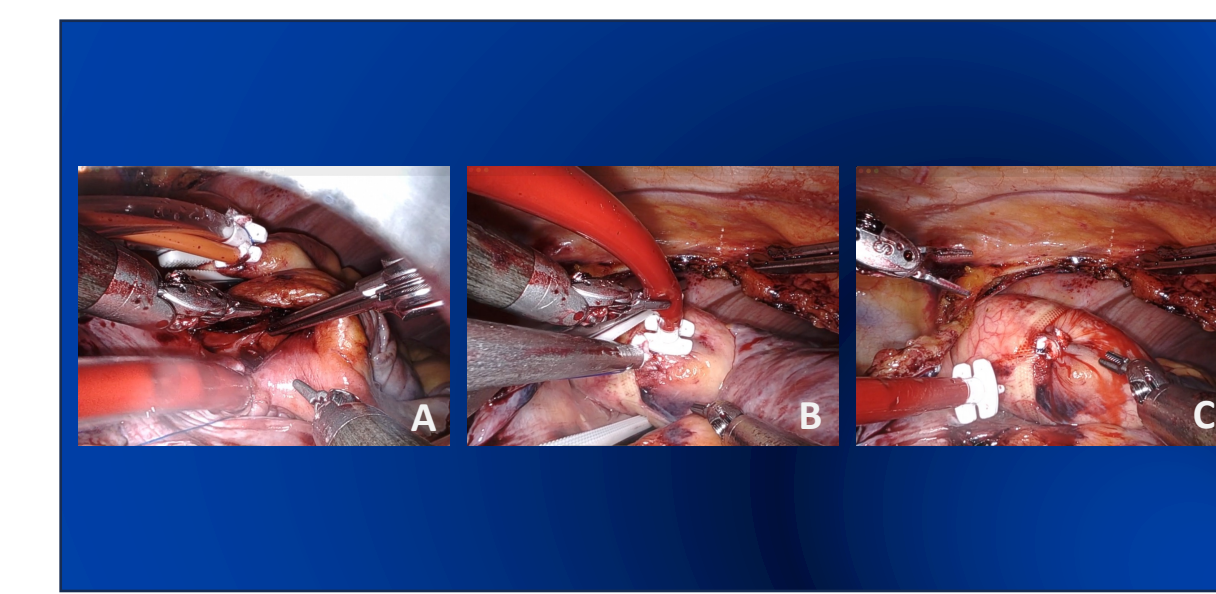
(A) The ascending aorta is retracted with the atrial retractor (arm 3) to expose the transverse sinus, and the left atrial appendage is gently delivered into the surgical field (B, C).



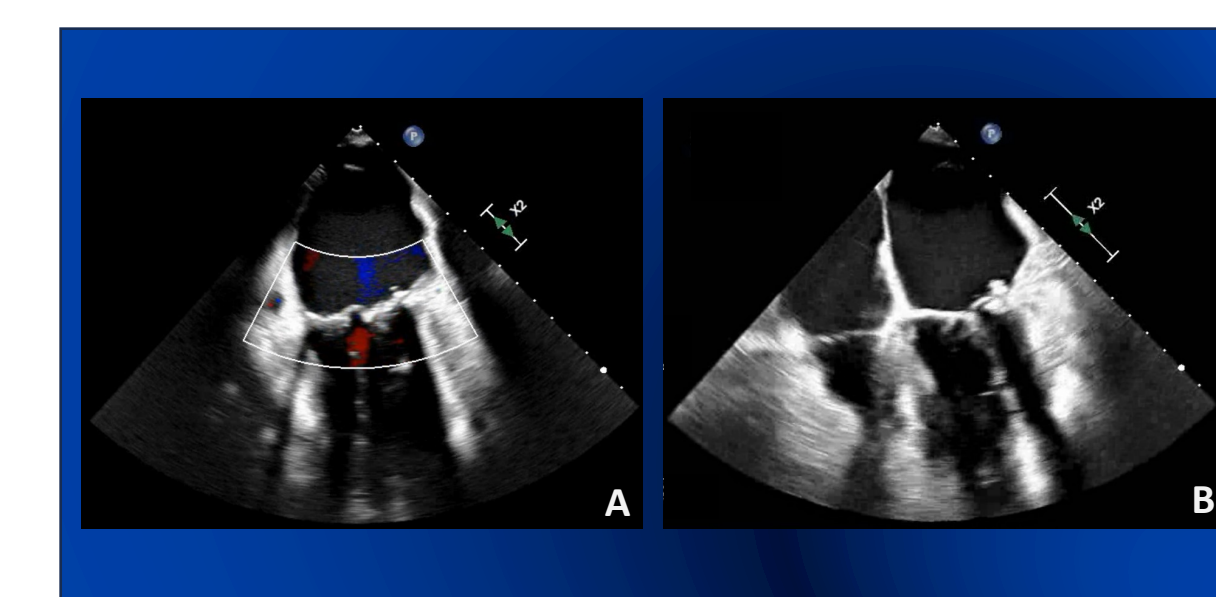
After placement of a pledgeted traction suture at the tip of the appendage (A), the suture is fed through the AtriClip device, which is gently manipulated (B, C) to the base of the appendage with the assistance of the retraction suture.



The device is deployed (A), the appendage is returned to anatomic position (B), and the retraction suture is cut and removed (C).



The remainder of the operation is completed in the usual fashion with closure of the left atrium (A), cross clamp removal (B) and cardioplegia catheter removal (C). The patient is weaned from CPB and hemostasis is achieved.



Post CPB TEE demonstrates no residual mitral regurgitation (A) and absence of a left atrial appendage (B).

DISCLOSURES

A Luckert: Intuitive Surgical Solutions (Consultant)

D Brinster: Cook Medical (Consultant), Terumo Aortic (Consultant), W.L. Gore & Associates (Consultant).

NC Patel: Intuitive Surgical Solutions (Consultant), Vascular Graft Solutions (Advisory Board)

REFERENCES

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Wang E, Sadleir P, Sourinathan V, Weerasooriya R, Playford D, Joshi P. Thoracoscopic Left Atrial Appendage Occlusion with the AtriClip PRO2: An Experience of 144 Patients. Heart Lung Circ. 2024 Aug;33(8):1215-1220. doi: 10.1016/j.hlc.2024.02.010. Epub 2024 Apr 10. PMID: 38604885.

CONTACT INFORMATION

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