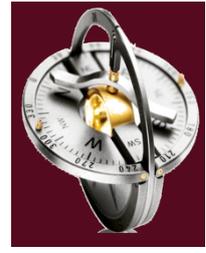


## International Medicine

<https://www.theinternationalmedicine.com/>



### Video Presentation

# Radical pericardiectomy via left anterolateral thoracotomy (UKC's modification): a video presentation

Ujjwal K. Chowdhury , Niwin George, Lakshmi Kumari Sankhyan, Sukhjeet Singh, Abhinavsingh Chauhan, Anish Gupta, Priyanka Chowdhury

*Department of Cardiothoracic and Vascular Surgery, All India Institute of Medical Sciences, New Delhi, India*

Received: 01 June 2019 / Accepted: 27 June 2019

In order to decrease the perioperative mortality rates of 7.6% in our series and 6-19% in several large series published after 1985 and postoperative low cardiac output syndrome between 24-28% following total pericardiectomy, the author proceeded to perform several technical modifications as enunciated in the video to achieve further radical excision of the pericardium posterior to the phrenic nerve and diaphragmatic pericardium [1-3].

For uniformity with other studies, total pericardiectomy was defined as wide excision of the pericardium with the phrenic nerves defining the posterior extent, the great vessels including the intrapericardial portion of superior vena cava and superior vena cava-right atrial junction defining the superior extent, and the diaphragmatic surface, including the inferior vena cava-right atrial junction defining the inferior extent of the pericardial resection. Radical pericardiectomy was defined as excision of the pericardium as defined under total pericardiectomy including the removal of the pericardium posterior to the phrenic nerve and the diaphragmatic pericardium. Constricting layers of the epicardium were removed whenever possible. The atria and venae cavae were decorticated as a routine [1-3].

We report herein the surgical details of radical pericardiectomy performed without utilizing cardiopulmonary bypass via modified left anterolateral thoracotomy as developed by the corresponding author.

A 42-year-old lady diagnosed with calcific chronic constrictive pericarditis in New York Heart Association Class IV underwent radical pericardiectomy via modified left anterolateral thoracotomy. The postoperative recovery was uneventful.

We conclude that using several technical modifications of pericardial excision, it is possible to achieve radical pericardiectomy via modified left anterolateral thoracotomy, particularly removing the constricting pericardium over the anterolateral, diaphragmatic surfaces of left ventricle, anterior and diaphragmatic surfaces of right ventricle until the right atrioventricular groove without utilizing cardiopulmonary bypass.

### Surgical procedure

1. The patient is positioned obliquely for modified left anterolateral thoracotomy with both groins prepared in case of inadvertent injury to the cardiac chambers and/or great vessels during pericardiectomy and the urgent institution of cardiopulmonary bypass.
2. The chest is entered through left fourth intercostal space.
3. The left lung is retracted posteriorly with a wet sponge for adequate surgical exposure. The left phrenic pedicle is identified.

Address for Correspondence: Ujjwal K. Chowdhury, Department of Cardiothoracic and Vascular Surgery, All India Institute of Medical Sciences, New Delhi, India. E-mail: [ujjwalchowdhury@gmail.com](mailto:ujjwalchowdhury@gmail.com)

DOI: 10.5455/im.302644355

This is an Open Access article under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<https://creativecommons.org/licenses/by-nc/4.0/>)

4. Using cautery between 8-10 mv, two full-length parallel incisions are made 5-10 mm anterior and posterior to the left phrenic pedicle with the pulmonary artery as the superior and diaphragm as the inferior extent of the incision.
5. The phrenic pedicle with its accompanying vessels is atraumatically lifted up from the heart in between two vesiloops.
6. Multiple silk stay sutures are placed on the incised pericardial edges to facilitate dissection. Posterior to the phrenic pedicle, the posterior pericardial flap is raised along with the epicardial peel of Allison to expose the posterolateral surface of the left ventricle and left atrial appendage. The correct plane is identified by visualizing the underlying epicardial yellow fat and coronary vessels. This flap is further divided into two halves at the center for adequate exposure and excised.
7. Using cautery, a new cleavage plane is created between the posterior surface of the sternum and anterior surface of the pericardium.
8. The cleavage plane is extended beyond the sternum to identify the right phrenic pedicle.
9. Using cautery, a new dissection plane is developed between the diaphragmatic pericardium and diaphragm.
10. Anterior to the phrenic pedicle, multiple silk stay sutures are placed and the anterior pericardial flap is raised to expose the left ventricle, right ventricle and pulmonary artery in that order. The flap is further divided into two halves. The flap is excised 5 mm anterior to the right phrenic pedicle extending to superior cavo-atrial junction superiorly and inferior cavo-atrial junction inferiorly.
11. The diaphragmatic pericardium is dissected along the diaphragm to create a flap and excised.

**Conflict of interest**

The authors declare no conflict of interest.

**Funding**

The authors declare no financial support.

**References**

1. Chowdhury UK, Subramaniam GK, Kumar AS, Airan B, Singh R, Talwar S, et al. Pericardiectomy for constrictive pericarditis: a clinical, echocardiographic, and hemodynamic evaluation of two surgical techniques. *Ann Thorac Surg* 2006;81:522-9.
2. Chowdhury UK, Narang R, Malhotra P, Choudhury M, Choudhury A, Singh SP. Indications, timing and techniques of radical pericardiectomy via modified left anterolateral thoracotomy (UKC's modification) and total pericardiectomy via median sternotomy (Holman and Willett) without cardiopulmonary bypass. *J Prac Cardiovasc Sci* 2016;2:17-27.
3. Chowdhury UK, Seth S, Reddy SM. Pericardiectomy for chronic constrictive pericarditis via left anterolateral thoracotomy. *J Operative Tech Thorac Cardiovasc Surg* 2008;13:14-25.