

# Giant Pericardial Cyst with Features of Right Heart Compression

Amarjyoti Rai Baruah<sup>1</sup>, Ruprekha Das<sup>2</sup>

<sup>1</sup>MBBS, MS (Gen Surgery), MCh (CTVS)  
Prof and HOD of Dept of CTVS, Gauhati Medical College and Hospital, Gauhati, Assam  
<sup>2</sup>MBBS, MS (Gen Surgery), MCh (CTVS).  
Registrar, Dept of CTVS Gauhati Medical College and Hospital

Corresponding Author

Ruprekha Das

C/O Dr Amarjyoti Rai Baruah Prof & HOD Dept of CTVS Gauhati Medical College and Hospital, PO- Indrapur Guwahati-29, Assam E mail. Dasruprekha[at]gmail.com

**Abstract:** Pericardial cyst is uncommon congenital anomalies. Mostly asymptomatic but may be present with medical emergencies like cardiac tamponade. Here we are reporting a case of 50 years old male, presented with dyspnea, prominent neck veins with pedal edema. A CECT scan of thorax and echocardiography revealed a large pericardial cyst with approximately 12x10x6 cm in the right lateral and inferior aspect of heart compressing the right heart chamber. Patient was decided to be managed by surgical intervention via left thoracotomy approach A large pericardial cyst filled with dark colored fluid and debris, was evacuated and cyst wall was resected. There was immediate symptomatic relieve of patient during post operative period. The surgical resection has been demonstrated as the definitive cure for pericardial cyst with of hemodynamic compromise by evident compression of the right chamber. Since operative risks are low in both open thoracotomy and minimally invasive techniques, it is reasonable to offer resection for all pericardial cysts in otherwise healthy patients for whom the risk of surgery is low.

**Keywords:** pericardial cyst, tamponade, right heart compression

## 1. Introduction

Pericardial cysts are uncommon congenital abnormalities and usually has a diameter ranging from 1 to 5 cm [1, 2]. Pericardial cysts with a diameter over 10 cm are known as 'giant pericardial cysts', and they are extremely rare. Pericardial cysts occur almost exclusively in adults in the fourth and fifth decades of life in the right costophrenic angle [3]. Most pericardial cysts are asymptomatic and diagnosed incidentally. They become with compression of adjacent organs and usually present as cough, discomfort, chest pain and dyspnea. An asymptomatic pericardial cyst can be treated conservatively with only follow-up, however, when they become symptomatic or there is gradual increase in size cases require surgical removal.

## 2. Material and Method

A 50 years old male patient, presented with complains of progressive dyspnea, chest discomfort, prominent neck veins and pedal edema for last one month. On examination central venous pressure was noted 12cm of water, decreased breathe sound and chest. Blood pressure was recorded 100/56 mm of mercury A CECT scan of thorax revealed a large pericardial cyst with approximately 12x10x6 cm in the right lateral and inferior aspect of heart compressing the right heart chamber (Figures 1 and 2). There was Right sided pleural effusion with fissural extension.

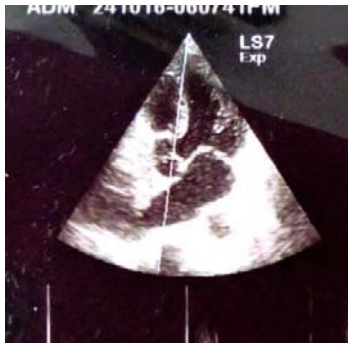


Figure 1: CECT thorax showing pericardial cyst with right pleural effusion



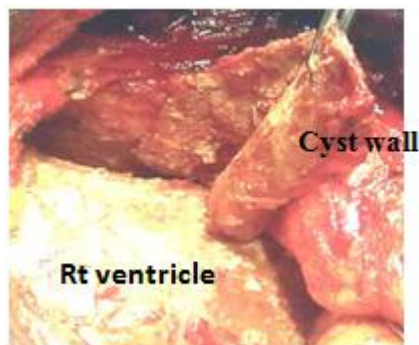
Figure 2: CECT thorax showing pericardial cyst with right heart compression

A transthoracic echocardiography revealed extrinsic compression of right heart chambers by a large pericardial cyst of 10x 8 cm<sup>2</sup>. The left ventricular function was relatively normal with ejection fraction 65% and no significant changes in heart valves. (Figure 3)



**Figure 3:** Transthoracic echocardiography showing compression over right heart with a large pericardial mass

Abdominal ultrasound shows congested liver with prominent hepatic veins and mild ascitis. Patient was admitted immediately, started with diuretics and supportive measures. Patient was decided to be managed by surgical removal of cyst due to hemodynamic compromise with possibility of hemorrhage, inflammation or malignant transformation of cyst. In operating room under general anesthesia, chest opened with right posterior lateral thoracotomy via 5<sup>th</sup> intra costal space. There was right sided pleural effusion and mild pleura-pericardial adhesion. Adhesiolysis was done by sharp dissection. A large pericardial cyst 10x 11x 6 cm was found to be present over right heart compressing the right heart, extending from the superior vena cava to the lower right diaphragmatic wall. The walls of the cyst were grossly thickened and adhered to the wall of right ventricle and right atrium. Cyst was filled with dark colored fluid and debris which was evacuated. Cyst wall was resected out except over some parts of Right atrial surface which was grossly adherent with possible risk of injury to myocardium (Figure4)



**Figure 4:** Intraoperative picture of cyst wall

Following surgery, patient recovered well in immediate post operative period with decrease in CVP (8 cm of water). Patient was discharged on the 6th postoperative day. Histopathologic analysis confirmed the presence of a pericardial cyst with mesenchymal tissue on the cyst wall. In follow-up of 1 month, the patient had complete remission of clinical symptoms. Postoperative echocardiogram showed a thickened pericardium, with normal ventricular function.

### 3. Discussion

Pericardial cysts presenting with life threatening condition like cardiac tamponade, bronchial or right heart

compression are very uncommon. Few of such cases with right heart compression have been reported worldwide. The possibilities of such dramatic features are most likely due to hemorrhage, inflammation and malignant transformation of pre existing asymptomatic pericardial cyst. Nina et al. reported a case of a cyst measuring 13 cm in size with symptom, such as progressive dyspnea, right-sided chest pain and dry cough due to mediastinal compression [1]. McMillan et al. presented a case complicated by a pericarditis [4] and Lesniak-Sobelga et al. also showed a case compressing the right ventricle [5]. Rumi Matono et al. presented such a case of 20 years old pericardial cyst with sudden deterioration with cardiac compression with rapid growth [6].

Pericardial cyst may resolve spontaneously, most commonly due to rupture to the pleural cavity. Asymptomatic Patients with pericardial cyst can be observed for a long period without surgical intervention. Percutaneous drainage of cyst is an option for patients with high medical risk for surgery. In the patient we have discussed earlier is a potential candidate with progressive symptoms of congestion with tamponading features with hemodynamic compromise. Both thoracoscopy and thoracotomy approach are accepted approach for surgery. The outcome is very satisfactory with symptomatic relieve and improved hemodynamic status following surgery.

### 4. Conclusion

The surgery was the best treatment option in our case that we have encountered due to the giant size of the cyst and the presence of hemodynamic compromise with evident compression of the right chamber. Since there is always a risk of sudden and rapid growth of cyst anytime during the follow up course, it is reasonable to offer resection for all pericardial cysts in otherwise healthy patients for whom the risk of surgery is low.

### References

- [1] Nina VJ, Manzano NC, Mendes VG, Filho N. Giant pericardial cyst: case report. *Rev Bras Cir Cardiovasc* 2007; 22:349-351.
- [2] Maisch B, Seferović PM, Ristić AD, Erbel R, Rienmüller R, Adler Y, Tomkowski WZ, Thiene G, Yacoub MH, Task Force on the Diagnosis and Management of Pericardial Diseases of the European Society of Cardiology. Guidelines on the diagnosis and management of pericardial diseases executive summary. The Task force on the diagnosis and management of pericardial diseases of the European Society of Cardiology. *Eur Heart J* 2004; 25:587-610.
- [3] Sabiston & Spencer Surgery of the Chest, 8th edition, page 1487
- [4] McMillan A, Souza CA, Veinot JP, Turek M, Hendry P, Alvarez GG. A large pericardial cyst complicated by a pericarditis in a young man with mediastinal mass. *Ann Thorac Surg* 2009; 88:11-13.
- [5] Lesniak-Sobelga AM, Olszowska M, Tracz W, Pasowicz M, Samitowski Z, Pieniazek P, Klimeczek P, Banys R, Musialek P, Tekieli L, Sadowski J. Giant

pericardial cyst compressing the right ventricle. Ann Thorac Surg 2008; 85:1811.

- [6] Rumi Matono, Fumihiro Shoji\*, Tokujiro Yano and Yoshihiko Maehara Interactive CardioVasc Thoracic Surgery Volume 10, Issue 6Pp. 1056-1058. Surgical resection of a giant pericardial cyst showing a rapidly growing feature