Percutaneous Aspiration of Large Pericardial Cysts Prior to VATS Excision

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Abstract

We report two cases of large congenital pericardial cysts measuring (65 x 80 x 115) mm and (60 x 65 x 100) mm respectively, diagnosed by chest x-ray, computed tomography (CT) of the chest, and clarified more by echocardiography. Both 2 cases were treated by video assisted thoracoscopic surgery (VATS) where percutaneous aspiration of the cyst was performed to make subsequent cyst excision easier by clarifying the surgical anatomy of the field and giving room for manipulation .This technique avoids thoracotomy as an alternative option for treating large pericardial cyst. The postoperative courses were uneventful for both patient.

Keywords: Pericardial cyst, Excision, Video assisted thoracic surgery.

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Introduction

Pericardial cysts are usually benign intrathoracic conditions, occurring in 1/100.000. Most cases are incidentally diagnosed by chest X-ray, CAT scan, MRI and echocardiography [1]. Video assisted thoracoscopic surgery (VATS) is an acceptable treatment for pericardial cyst when surgery is indicated. In some occasions, thoracotomy is performed for large cysts.

We describe two cases of large pericardial cysts; one was symptomatic and the other was not, despite its large size. Both were treated by percutaneous decompression of the cyst prior to thoracoscopic excision. This proved to be very helpful in shortening the time of the procedure and facilitating cyst excision, in addition to the well- known benefits of the minimal invasive surgery of VATS.

Cases Report

Case one:

A 32 year old female of African origin was referred to our thoracic surgery clinic after routine chest X- ray for a pre-employment medical checkup. Her medical history revealed vague retrosternal discomfort for many years. Otherwise, the patient was asymptomatic. Past medical and social history was irrelevant. Her general examination was normal.

Preoperative laboratory assessments included serological tests for hydatid disease that were normal. Chest X-ray and computed tomography (CT) of the chest showed a large

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pericardial cyst occupying the right cardiophrenic angle and measuring (65mm x 80mm x 115mm). Echocardioghaphy showed the cyst was well defined, elliptical in shape and without apparent communication with the pericardium. An upper GI endoscopy was performed to exclude a gastrointestinal cause for the retrosternal pain and was normal.

Figure 1. Lateral chest X-ray showing a well defined lesion occupying the right anterior cardiophrenic angle

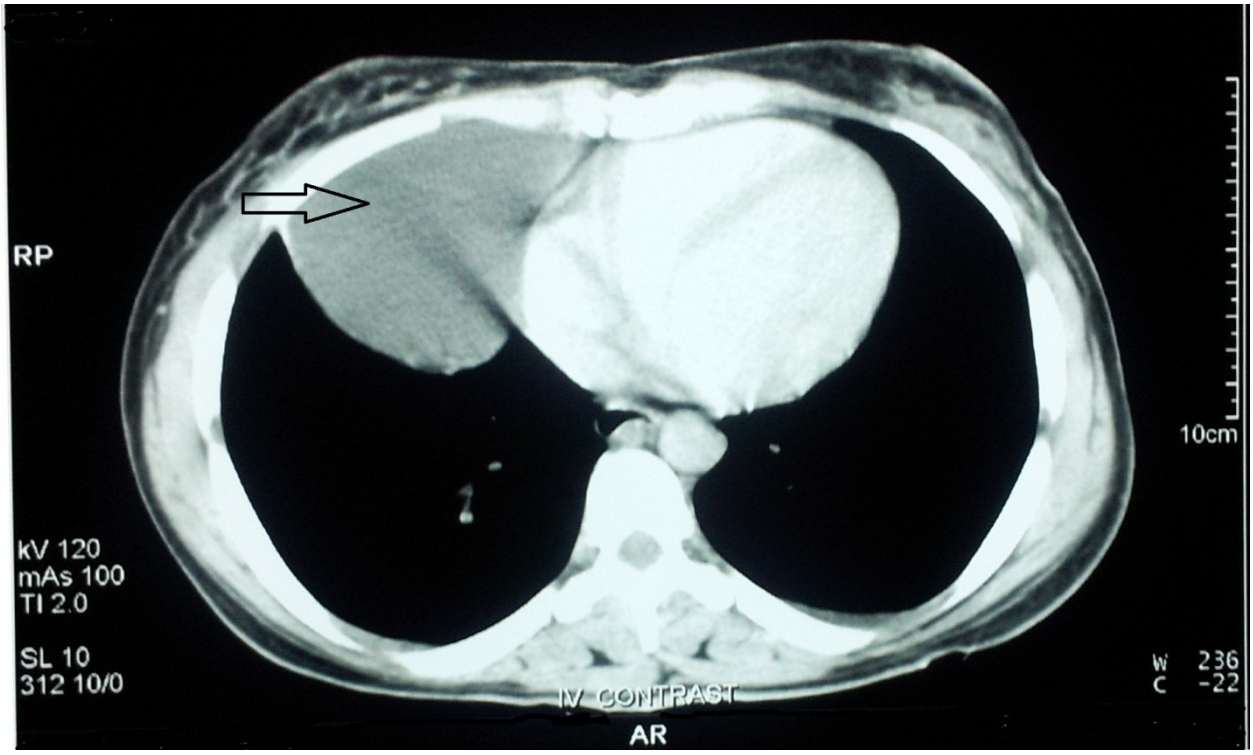

Figure 2. Axial CT of the chest showing anterior right cardiophrenic angle lesion. The attenuation of the content measured 19.1 Hounsfield unit (HU). Arrow pointing to the cyst

Case two:

A 45 year old female, known to have an asymptomatic right pericardial cyst for more than 10 years, was referred to our thoracic surgery clinic because of increase in the size of the cyst detected during follow and the patient's concern. She was diabetic on oral hypoglycemic agents for more than 5 years; otherwise she had no other medical problems. Her general examination was normal. Serological test for hydatid disease was negative. CAT scan of the chest revealed a well defined, thin walled cystic lesion occupying the right cardiophrenic angle, measuring (60mm x 65mm x 100mm) (Fig.1,2). Echocardiography showed the lesion as unilocular cystic without communication with the pericardial cavity.

Procedure:

Surgery was performed under general anesthesia using double lumen tube with single lung ventilation. The two patients underwent three ports VATS excision where after introduction of the 1st port for the camera, the cyst aspirated percutaneously using a long needle; the fluid was crystal clear; a sample was sent for cytology. Before proceeding with any further manipulation, the site of puncture was closed with a 5mm endoclip to avoid spillage of the cyst content to the thoracic cavity (Figure 3). This prior cyst aspiration and decompression made the grasping and manipulation of the cyst very easy. In both cases, the cysts were then excised completely and sent for histopathology examination. Chest tube size 28F was inserted.

The postoperative period was uneventful, the chest tubes were removed in the first postoperative day in both cases and both patients were discharged on the 3rd postoperative day.

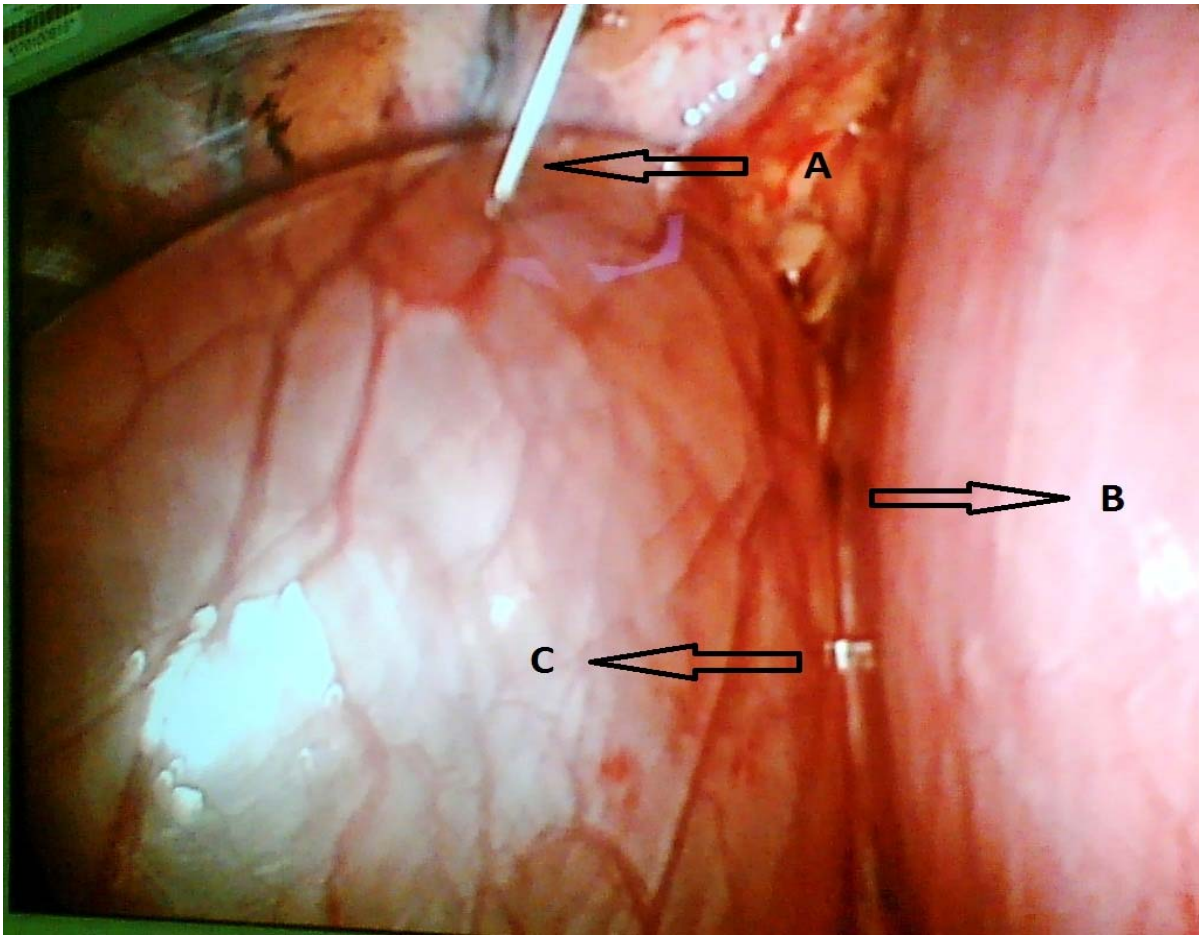

Figure 3 .Thoracoscopic view showing transcutneos aspiration of the cyst prior to excision. Arrows: A, the needle; B, the diaphragm and C the cyst

Both cytology and histopathology confirmed the diagnosis of simple benign pericardial cyst.

Discussion:

Pericardial cysts are usually benign congenital mediastinal abnormalities resulting from incomplete fusion of fetal mesenchymal lacunae forming the pericardium [2], but they may also be acquired after cardiothoracic surgery [3]. They represent 5-10% of all the mediastinal masses. Usually they are asymptomatic; however, some may cause compressive symptoms such as chest pain and dyspnoea. Rare serious complications have been reported such as rupture, cardiac compression, atrial fibrillation, and even sudden death [4,5]. Their most common location is the right cardiophrenic angle; however, they may be located anywhere throughout the mediastinum, or may grow as dumbbell-shaped pericardial cyst in both sides

of the chest [6]. It's the second most common mediastinal cyst after bronchogenic cysts[7]. They are usually identified on the third or fourth decade of life and are equally common in males and females. Clinically and radiologically, they resemble other mass lesions of the pericardium. The imaging studies that are most useful for diagnosis are echocardiography, CAT scan and MRI. Transesophageal echocardiography is useful in showing the exact location of a pericardial cyst and in differentiating a cyst from other entities, such as a fat pad, ventricular aneurysm, aortic aneurysm, or solid tumor. Most pericardial cysts typically appear as non-enhanced well-delineated masses adjacent to the pericardium. The content is characterized by its water density on CT (range 0–20 Hounsfield units). They may be attached directly to the pericardium or by a pedicle and are usually unilocular, well-marginated, spherical or teardrop-shaped cysts.

The treatment of pericardial cysts may include observation, percutaneous drainage, or resection. There are reported cases of spontaneous resolusion of pericardial cysts following observation for asymptomatic ones [8]. Another option for the treatment is echocardiography guided percutaneous aspiration but with a recurrence rate of approximately 33% [9]. Surgical excision is indicated for symptomatic cysts (dyspnea, chest pain, dysphagia, cough, depending on their dimensions and location), and for the large asymptomatic cysts as they are usually associated with increased risk of complications. Uncertainty of the diagnosis could be considered another indication for surgery.

VATS excision for the pericardial cysts is an excellent intervention without serious morbidity and mortality as compared to thoracotomy, but large cysts may necessitate using double- balloon catheter during VATS for aspiration and decompression to make the resection easier and more feasible [10].

Robotic surgical excision of the pericardial cyst is an advanced modality which has proved to be a feasible surgical procedure in treatment of pericardial cysts [11].

Conclusion:

In our experience, we believe that transcutaneous aspiration of the large pericardial cyst followed immediately by VATS resection of the cyst shortens the time of surgery and helps avoiding open thoracotomy. It also reduces the risk of intraoperative complications by clarifying the anatomy and allowing more space for manipulation and subsequent excision.

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رشف كيس كبير من التامور عبر الجلد قبل استئصاله بوساطة منظار تجويف الصدر

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الملخص

قمنا بتسجيل حالتين لكيس تاموري خلقي كبير بحجم (65×80×115) ملم و(60×65×100) ملم على التوالي، وقد تم تشخيصهم بوساطة الأشعة السينية للصدر والتصوير المقطعي للصدر بالإضافة إلى فحص الأمواج فوق الصوتية للقلب. وقد تم استئصال كلا الكيسين بوساطة منظار تجويف الصدر بعد رشف الكيسين عبر جدار الصدر الذي يجعل الاستئصال أسهل لأنه يوضح التشريح الجراحي للمنطقة ومجال أكبر للمناورة لمعدات تنظير تجويف الصدر. إن هذه الطريقة تمنع الحاجة لعمليات فتح الصدر لاستئصال أكياس التامور الخلقية الكبيرة. كلا الحالتين تم استئصالها بالمنظار دون حدوث مضاعفات تذكر.

الكلمات الدالة: كيس من التامور، الاستئصال بالمنظار.