

## Non Malignant Mature Mediastinal Teratoma: 5 Observations

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### Original Research Article

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**Abstract:** Mediastinal teratoma is a germinal tumor that results from embryologic disorders or germ primitive cells in the mediastinum. It's a retrospective study concerning 5 patients addressed to our center for mediastinal tumor. Main symptoms were chest pain, dyspnea and pleural effusion syndrome. Computer tomography and chest x-rays were done for 4 patients. We found a bulky mass in left pleura, an anterior and right mediastinal Cyst, an anterior and left upper mediastinal Cyst, a bulky mass anterior in the mediastinum. In one patient, echocardiography showed a pericardial effusion with compression of cardiac chambers. Surgery was cystectomy through a posterolateral thoracotomy in many cases or a median sternotomy in one case. There was any major complication. Mediastinal teratoma have to be suspected in a tumor at the chest x-rays of a young adult. Its treatment remains complete resection of the tumor by surgery to avoid a recurrence tumor.

**Keywords:** Teratoma, mediastinum, Cyst, thoracotomy, sternotomy.

### INTRODUCTION

Teratoma is a tumor with a variety of foreign cells or tissues which involve from all three embryonic cell layers: ectoderm, mesoderm and endoderm [1, 2]. Mediastinal teratoma is a germinal tumor that results from embryologic disorders or germ primitive cells in the mediastinum. It has a low incidence. The mediastinum mostly on the anterior region is the second localization after gonads.

Mediastinal teratoma may be cystic or not, mature or immature, benign or malignant [3, 4]. Mature teratomas are benign and represent 50-70% of germ cell tumors, 10% of mediastinal tumors and 80 à 88% of mediastinal teratomas [1, 5]. We reported five cases of mature benign mediastinal teratomas.

### PATIENTS AND METHODS

It's a retrospective study concerning 5 patients addressed to our center for mediastinal tumor.

All patients were operated after investigations. Parameter related to clinical, biological, radiological signs; histology and treatment was studied.

### RESULTS

Main symptoms were chest pain, dyspnea and pleural effusion syndrome (Table-1). Computer tomography and chest x-rays were done for 4 patients. Surgery was cystectomy in many cases (Table-2). There were any major complications (Table-3).

**Table-1: Summary of 5 cases**

| Cases number | Gender/ Age  | Symptoms and examination   | Investigations  |
|--------------|--------------|--|---|
| 1            | 66 years / F | - Chest pain<br>- Dry cough<br>- Left pleural effusion syndrome                                  | - Chest X- rays : Left pleural effusion<br>- CT: Bulky mass in left pleura  |
| 2            | 15 years / M | - Chest pain<br>- Dyspnea<br>- Dry cough<br>- Right pleural effusion syndrome                    | - Chest X-rays :Right pleural effusion<br>Mass in para hilar region<br>- CT: anterior and right mediastinal Cyst                        |
| 3            | 22 years / F | - Chest pain<br>- Dyspnea<br>- Cough with expectoration<br>- Loss of body weigh                  | - Chest X- rays :Mass in para hilar region<br>- CT: anterior and left upper mediastinal Cyst<br>- $\beta$ -hCG and $\alpha$ FP : normal |
| 4            | 54 years / F | - Chest pain<br>- Cough with expectoration<br>- Dyspnea<br>- Decrease air entry in the left lung | - Chest X rays : Left pneumonia<br>CT: Bulky mass anterior in the mediastinum<br>- $\beta$ -hCG and $\alpha$ FP : normal                |
| 5            | 15 days / M  | - Dyspnea<br>- Respiratory dystress syndrome<br>- Pericardial effusion syndrome                  | - Echocardiography : pericardial effusion<br>compression of cardiac chambers  |

**Table-2: surgical management**

| Cases number             | 1  | 2   | 3                              | 4  | 5  |
|--------------------------|--|---|--------------------------------|--|--|
| <b>Incisions</b>         | -Left posterior and lateral Thoracotomy                                | - Right posterior and lateral Thoracotomy | - Left axillary thoracotomy    | - Left Hemiclamshell   | - Median sternotomy  |
| <b>Intervention type</b> | - Pleural drainage<br>- Partial Resection of the cyst<br>- Pleurectomy | Complete Resection of the cyst            | Complete Resection of the cyst | - Complete Resection of the tumor<br>- Left superior Lobectomy | -Pericardial drainage<br>- Complete Resection of the tumor |

**Table-3: Results after surgery**

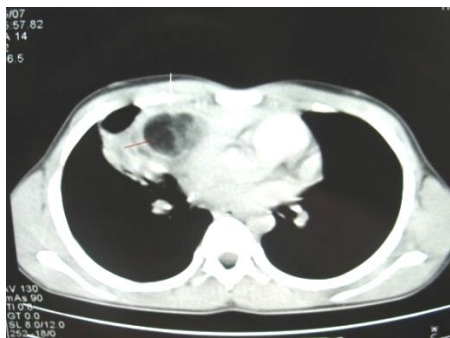
| Observations | Pathological findings  | Complications                    | Follow up  |
|--------------|--|----------------------------------|--|
| <b>1</b>     | - Lobules of cartilage<br>- Malpighian epithelium<br>- Pancreatic tissue<br>- Glandular epithelium   | - Wound infection<br>- Pyothorax | - 1 year<br>- Recurrence of the tumor<br>- Lost at follow up |
| <b>2</b>     | -Well differenciated intestinal tissue<br>- Lobules of cartilage<br>- Mature neurovascular bundles<br>- Pancreatic tissue                          | None                             | Lost at follow up  |
| <b>3</b>     | - Fatty tissue with lipocyte<br>- Respiratory epithelium, lobules of cartilage,<br>- Sebaceous glands and hair follicles<br>- Glandular epithelium | None                             | 2 years  |
| <b>4</b>     | - Malpighian epithelium<br>- Fatty tissue with lipocyte<br>- Fibrous tissue<br>- Lobules of cartilage  | Wound infection                  | -2 years<br>- Doing well                                     |
| <b>5</b>     | Endodermic, mesodermic and neuroectodermic tissus  | None                             | - 4 years<br>- Doing well                                    |



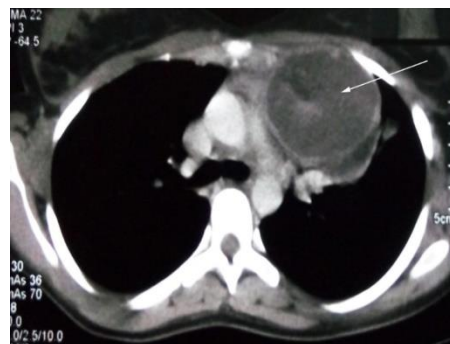
**Fig-1: Tumor in the pleura in CT (arrow)**



**Fig-2: Opacity in parahilar region at chest x-rays (arrow)**



**Fig-3: Mediastinal Cyst at CT**



**Fig-4: Hilar and apical tumor at CT (arrow)**

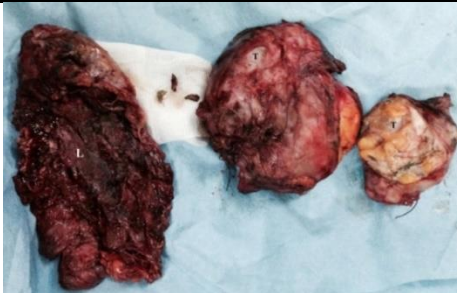


Fig-5: L: left superior lobe, T: tumor

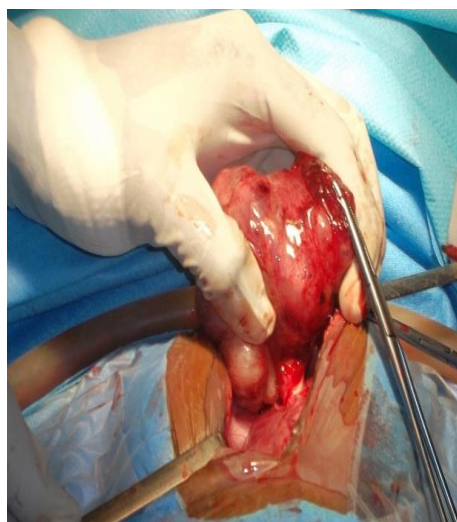


Fig-6: Tumor resection by sternotomy

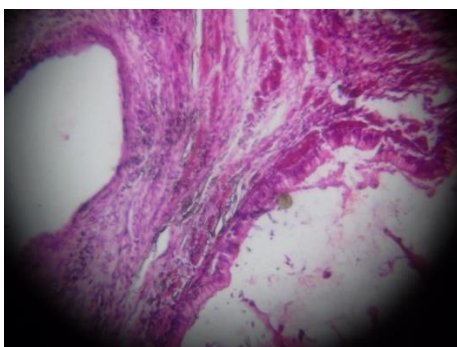


Fig-7: Histological findings; glandular and malpighian epithelium

## DISCUSSIONS

Mature mediastinal teratoma can be seen at all ages as in our cases [6]. Female predominance was reported in the literature and was confirmed by our report with 3 females and 2 men [7, 2]. Mature mediastinal teratoma appears to be asymptomatic for long time in 20-50%; or reveals by atypical symptoms [8, 9, 10]. Mature mediastinal teratomas are unfrequently published and the diagnosis is done usually when complications acquired: tumor growth, compression of a big tumor, rupture (into the bronchus: trichoptysie, into pleura or the pericardium), infection of the tumor or malignant degeneration. Chest pain, cough and dyspnea are the main symptoms [11, 2, 7].

We noticed 2 cases of pleural effusion syndrome without fever due to rupture of the tumor into the pleura. It's why it is important to suspect ruptured mediastinal mature teratoma in the case of recurrent pleurisy associated with a cyst in the computed tomography scan (CT).

The anterior mediastinum is the main location. In our study we noted 100% location at the anterior mediastinum as the same as Ayadi-Kaddour [3] and Chang [2]. Other locations are sometime described like into the pericardium as an infant in our cases; into the oesophagus, the thymus gland and the posterior mediastinum etc..., Moeller reported 2 cases of mature mediastinal teratoma in the posterior mediastinum [12,

13]. Usually chest X-rays is the first exam during investigations. The CT is the gold standard exam. It reveals the tumor; the kind type cystic or not and its extension related to the others structures. Calcification component if noted is usually related to teratoma [3, 14]. Biological markers: alpha-fœto-proteine etc... are usually in a normal range in the case without malignancy [7]. Pathologic examination is necessary to confirmed diagnosis of mature mediastinal teratoma. It shows many kinds of histologic findings which derives from the endoderm; the ectoderm or the mesoderm. It's important to take many specimen of the tumor to look for an undifferentiated zone which can evolve to malignancy [15, 4]. Malpighian epithelium and cartilage tissues are much seen in our cases. Pancreatic tissue which can release proteolytic enzymes and lead to adhesences tissues is founded in 2 patients [3]. Mature teratoma is benign tumor; it's why complete surgical resection has to be safely done. Surgery is sometime difficult related to adhesences with the other structures around the tumor. But surgery don't have to be done lately because complications and malignancy can arrived [3, 16]. The posterolateral thoracotomy is usually done when they are complication like rupture in the pleura; but sternotomy is done to expose the bulky tumor. A hemiclamsshell approach was done because we made a left lobectomy during the resection of the tumor by a sternotomy approach. Video assisted thoracoscopy (VATS) is advantageous because it reduces the surgical time, pain after surgery and hospitalization time. It allows quick recovery without major skin incision [2]. VATS was not done in our study because of bulky tumor and many adhesences. After surgery, 2 patients suffered from wound infection and were well managed with wound dressing and antibiotics. One patient had a pyothorax and was well managed with chest drainage and antibiotics. At the follow up, 3 patients was lost after 4 months and 2 years. In one case, recurrence of the incompletely resected tumor was noted. It's why it's important to do a complete resection of the tumor and follow well the patients. Results depend on the skills of the surgeon, completely resection of the tumor or not. Usually good evolution is found with 100% survival rate [15].

## CONCLUSION

Lack of specific symptoms related to mature mediastinal teratoma explains its late diagnosis and treatment. It's why mediastinal teratoma have to be suspected in a tumor at the chest x-rays of a young adult. Its treatment remains complete resection of the tumor by surgery to avoid a recurrence tumor. Pathological examination confirmed the diagnosis of mature or immature teratoma.

## DISCLOSURES

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