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EXCISION OF MEDIASTINAL MASS" PESHAWAR EXPERIENCE OF 100 CASES IN FOUR YEARS

Abdul Baseer Aamir Bilal

ABSTRACT

OBJECTIVE: To know the outcome of mediastinal mass excision over a 4 year period.

MATERIAL & METHODS: This observational descriptive study was conducted at department of cardiothoracic surgery, Lady Reading Hospital Peshawar from January 2003 to December 2006. Computerized clinical data of 100 cases of mediastinal mass excision was retrospectively analyzed. Apart from routine investigations, all the patients had a CT scan done. All excised lesions were sent for histopathology. Detailed examination of clinical record was made to determine the outcome.

RESULTS: Out of 100 cases 57 were males and 43 were females with a mean age of 34 years. The age ranged from 2 month to 68 years. The histological diagnosis of the excised lesions were retrosternal goiter in 25% cases (n = 25), germ cell tumors in 24% (n = 24), thymoma in 22% of which 10 had myasthenia gravis(n = 22), neural tumors in 23%(n = 23), hydatid cyst in 03% (n = 03), bronchial cysts in 02% (n = 02), pericardial cysts in 01 % (n = 01), and duplicated oesophageal cyst in 1% cases (n = 01).

CONCLUSION: Surgery is the management of choice for patients with mediastinal lesions. It allows for establishing certain histological diagnosis and curative excision of the lesion, when it is necessary, with low operative risk.

Key words: Mediastinum, Mass, Excision

INTRODUCTION

Mediastinal masses are frequently asymptomatic and first noted on routine chest radiograph. In most cases, evaluation should proceed to spiral computed tomography (sCT) of the chest with iodinated contrast material. The specific location and appearance of tumours on sCT is instrumental in planning further diagnostic and treatment strategies. Primary tumours in the anterior mediastinum account for half of all mediastinal masses. They comprise various benign and malignant neoplasms, but a wide variety of nonneoplastic lesions (developmental, inflammatory) can present as a localised mass in this compartment. The most common primary anterior mediastinal tumours are thymoma, teratoma and lymphoma; all other lesions are rare. Nonneoplastic conditions include thymic cysts, lymphangioma and intrathoracic goitre. Masses of the middle mediastinum are typically congenital cysts, including foregut and pericardial cysts, while those that arise in the posterior mediastinum are often neurogenic tumors. Understanding the pathology, clinical presentation, imaging and diagnosis of the major tumour types is instrumental in the safe and efficient work-up of a mediastinal mass.[1,2] A variety of mediastinal masses may present in children. Imaging is generally confined to chest radiograph and CAT scan of the chest, although other studies may prove helpful depending upon the circumstances. MRI is particularly helpful for neurogenic tumors in the posterior mediastinum. The most common tumor in the anterior mediastinum is lymphoma with germ cell tumors second. In general, lymph nodes in areas outside the mediastinum provide access for tissue diagnosis when lymphoma is present. Germ cell tumors are generally benign, but surgical excision is indicated to rule out malignant elements and to treat symptoms which are often present through compression of nearby structures.

Neurogenic tumors are the most common lesions in the posterior mediastinum.[3] Patients with primary mediastinal masses and cysts will usually undergo surgical resection.[1,4]

In our study we want to know the outcome of the mediastinal mass excision.

* *Address for correspondence:*
Department of Cardiothoracic Surgery,
Post Graduate Medical Institute,
Lady Reading Hospital, Peshawar.

MATERIALS & METHODS

From January 2003 to December 2006 a retrospective descriptive analysis was done of 100 cases of excision of mediastinal masses at Department of Cardiothoracic Surgery, Post Graduate Medical Institute, Lady Reading Hospital, Peshawar. (57 were males and 43 were females with a mean age of 34 years. The age range was 02month-68 years).

The database included data regarding all age, sex. Biopsy proven mediastinal lesions were excluded from the study. All those with inoperable tumors on preoperative assessment (clinical examination, general fitness, CT thorax) and unfit for surgery were excluded from the study. Similarly those found irresectable on operative table were excluded as well. All patients had apart from routine investigations, CT thorax. The excised mediastinal lesions were sent for biopsy to know the histological diagnosis. Retrosternal goiters were routinely approached transcervically. Sternotomy was done in thymoma cases whereas right and left posterolateral thoracotomy approaches were made in other cases according to the site and position of the mediastinal mass.

RESULTS

Out of 100 cases 57 were males and 43 were females with a mean age of 34 years. The age ranged from 2 month to 68 years. The histological diagnosis of the excised lesions were retrosternal goiter in 25% cases (n = 25), germ cell tumors in 24% (n = 24), thymoma in 22% of which 10 had myasthenia gravis(n = 22), neural tumors in 23%(n = 23), hydatid cyst in 03% (n = 03), bronchial cysts in 02% (n = 02), pericardial cysts in 01 % (n = 01), and duplicated oesophageal cyst in 1% cases (n = 01).

76 cases were asymptomatic while 24 cases were symptomatic. Of symptomatic cases 11 patients (46%) had dyspnea, chest pain in 08 cases (33%) and dry cough in 05 (20.8%) cases.

DISCUSSION

Tumors of the mediastinum represent a wide diversity of disease states. The location and composition of a mass is critical to narrowing the differential diagnosis. The most common causes of the anterior mediastinal mass include thymoma; teratoma; thyroid disease; and lymphoma. Masses of the middle mediastinum are typically congenital cysts, including foregut and pericardial cysts, while those that arise in the posterior mediastinum are often neurogenic tumors. The clinical sequelae of mediastinal masses can range from being asymptomatic to producing symptoms of cough, chest pain, and dyspnea.[5] Mediastinal tumors and cysts are relatively uncommon lesions requiring histologic confirmation.[4] Majority of our patients76%with mediastinal masses (whether benign or malignant) were asymptomatic and the absence of symptoms was more associated with benign disease. Majority of lesions were situated in the anterosuperior mediastinum.[6]

Mediastinal goiters are frequently diagnosed, particularly in the elderly population. Surgery for mediastinal goiters should always be considered, even in elderly patients because of the high risk of tracheal compression and the low morbidity of the surgery. Most mediastinal goiters are benign and can be removed through a cervical approach. Sternotomy should only be performed in cases of previous cervical thyroidectomy, invasive carcinoma, or ectopic goiter.[7] in our series RSG was present in 25% of cases. We are able to remove all RSG, through cervical approach.

Thymoma is a primary tumor of the thymus epithelial cells. It may be asymptomatic or accompanied with atypical clinical symptoms or paraneoplastic syndromes, such as myasthenia gravis. The biological behavior of thymomas is unpredictable. The invasion of the capsule or the adjacent tissues is the major diagnostic criterion for the malignant behavior of these tumors.[8,9] Our series had 22% thymomas of which about half them had myasthenia gravis.

Mediastinal germ cell tumors are uncommon tumors that occur predominantly within the anterior mediastinum and frequently present as a very large mass with local compression. Symptoms are typically vague and represent the local mass effects of the tumor. Chest computed tomography and examination of serum tumor markers provide the critical workup before a tissue diagnosis is obtained. Seminomas are extremely sensitive to both chemotherapy and radiation and are primarily treated nonsurgically. Benign teratomas without malignant elements are extremely resistant to both chemotherapy and radiation and are treated exclusively with surgical resection with excellent outcomes.[10] In our series 24%

had germ cell tumour all of them under went surgical excision.

The incidence of posterior mediastinal tumors relative to all tumors of the mediastinum is 23% to 30%. Primary tumors of posterior mediastinum are usually neurogenic, accounting for 19%-39% of all mediastinal tumors and 75%of all posterior mediastinal tumors.[11, 12]

The remaining 25% of posterior mediastinal tumors are a heterogenous group of rare tumors including lymphoma, teratoma, sarcoma etc. In addition,many lesions arising outside the mediastinum may project into the posterior compartment and mesquarde as posterior mediastinal mass.[13] in our series posterior mediastinal tumour comprised 23% of all cases. Majority of them were neurofibromas. Approximately, 40% of mediastinal masses are asymptomatic, and are discovered incidentally on routine chest radiography. Symptoms are usually due to compression or direct invasion of surrounding mediastinal structures or due to paraneoplastic syndromes. Symptoms may include chest pain, cough, dyspnea or neurological abnormalities.[14] Asymptomatic patients are more likely to have benign lesions; whereas symptomatic patients are more often malignant.[15] In our series, 76% of patients were asymtomtic and 24% were symptomatic. In our series too, the most given symptoms were chest pain, cough and dyspnea. CT scan of the chest is considered the primary diagnostic modality in patients with posterior mediastinal tumors, however; MRI has become the single best examination when intraspinal extension is suspected.[16, 17] We used CT scan in all cases for diagnostic work up and operability assessment.

Surgery, mostly by open technique is the main line of treatment for posterior mediastinal tumors, aiming at complete excision.[18] Video-assisted thoracoscopic surgery (VATS) is a newly developed technique, the advantages of which mainly benefit the patient. Its feasibility and indications have been described widely, but to the best of our knowledge no report of the successful VATS management of a large mediastinal mass has ever been documented.[19] We performed open thoracotomy and surgical excision in all of our cases. The advantages of VATS are many but we don't have the facility of VATS in our center. Congenital cysts of the mediastinum are an uncommon but important diagnostic group, early recognition of these relatively rare lesions would lead to immediate and appropriate surgical intervention. Early surgical intervention is also important because definitive histologic diagnosis can only be established by means of surgical extirpation.[20] In our series four cases were diagnosed as having congenital cysts. Of them two have bronchial cyst and one each had pericardial and enteric cyst. All of them underwent complete surgical excision.

CONCLUSION

Surgery is the management of choice for patients with mediastinal lesions. It allows for establishing histological diagnosis and curative excision of the lesion, with low operative risk.

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