Solitary fibrous tumour of the pleura: surgical treatment, analysis our cases from September 1999 to April 2013

Healthcare

Keywords: Solitary fibrous tumor of the pleura, clinical features, imaging, pathology, treatment SFT: Solitary fibrous tumours.

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Abstract

Rationale: Solitary fibrous tumours (SFT) of the pleura are rare tumours, originated from the mesenchimal tissue, underlying the mesothelial layer of the pleura. This tumors present unpredictable clinical course, probably related to their histological and morphological characteristics.

Objective: The aim of the study was to evaluate beneficial effect of surgical treatment of Solitary fibrous tumours (SFT) of the pleura.

Material and Patients: Twenty-three (23) patients affected by SFT of the pleura were referred to us for surgical resection in our clinic in SU"Shefqet Ndroqi" from September 1999 to April 2013.

Results: Surgical excision required 18 posterolateral thoracotomies, five anterior lateral thoracotomies and no one video-assisted thoracoscopy. Average tumor diameter was 8.5 cm (range, 4.5-25 cm) and weight was 130 g (range 5-2,560 g). In all our patients resections were complete. No intraoperative or perioperative medical or surgical complications occurred. Median chest-drain duration timed 3 (range 2-5) days and median hospital stay was 5 (range 4-7) days. We have no perioperative mortality. Only one patient experienced tumour recurrence.

Conclusions: Surgical resection of benign solitary fibrous tumors is usually curative, but local recurrences can occur years after seemingly adequate surgical treatment. Malignant solitary fibrous tumours generally have a poor prognosis. Clinical and radiological follow-up are indicated for both benign and malignant solitary fibrous tumors.

Introduction

Primary neoplasms of the pleura are rare tumours with unpredictable behaviour. They are divided into two major categories: diffuse (mesothelioma) and localized tumours. Diffuse pleural tumours are more common than solitary ones. They arise from the mesothelial tissue. Localized pleural tumours have a mesenchymal rather than a mesothelial origin. Therefore, the term 'localized mesothelioma' was replaced by 'solitary fibrous tumours of the pleura' (SFTPs). They have been known by a variety of names that reflect their clinical course and controversies surrounding their histogenesis [1, 2, and 3]. More than 800 cases of SFTP have been reported in the literature. Wagner reported the first primary localized pleural tumour in 1870. Klemperer and Rabin were the first who published the accurate pathological description of this tumour in 1931, in which they classified mesothelioma as either 'localized' or 'diffuse'. In 1942, Stout and Murray claimed that localized mesothelioma had a mesothelial origin. Advances in immunohistochemical studies and electron microscopy have proved the mesenchymal origin of these tumours [4]. Lack keratin reactivity and positive CD34 antigen differentiates fibrous tumor from mesothelioma [5].

Objective

The aim of the study was to evaluate beneficial effect of surgical treatment of Solitary fibrous tumours (SFT) of the pleura.

Material and Patients

Twenty-three (23) patients affected by SFT of the pleura were referred to us for surgical resection in our clinic in SU ”Shefqet Ndroqi” from September 1999 to April 2013. Basic biocemichal and spirometric tests had been carried out on patients. Chest radiograph and computed tomography of the chest were performed in all patients. Immuno-histochemical reactions were positive for CD34 but weren't done in all patients. Diagnosis was made by biopsy with Fine Needle Aspiration or VATS. Median follow-up period was 70 months. During this period patients were submitted to chest X-ray with 6-months interval to evaluate possible local recurrence.

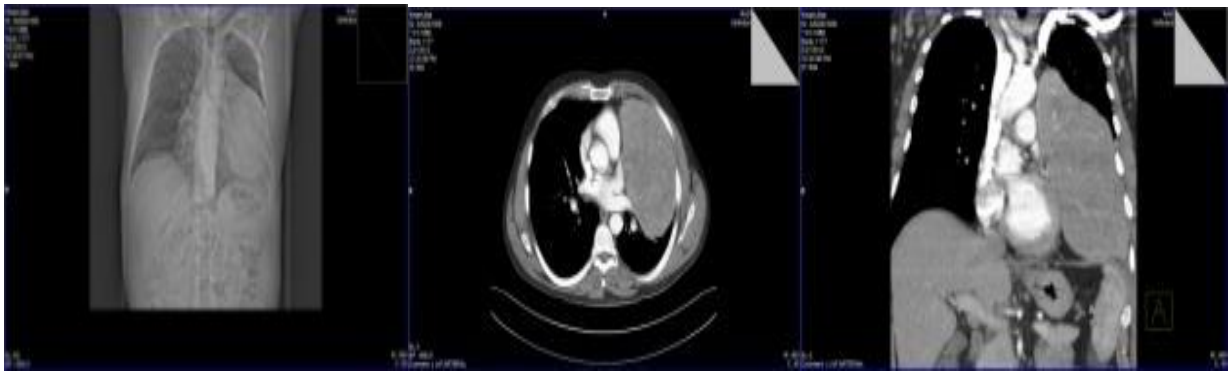

Figure 1: P-A radiography and CT- scan of left sisde pleural tumor, in 68-old man patient.

Results

Of total 23 patients 14 were males and 9 females with median age of 51 years (range 21-73yrs). Ten patients 10 (43%) were asymptomatic and predominant clinical symptoms or signs were dyspnea 2 (10%), coughing 6 (23%), chest pain 4 (19%), finger clubbing 2 (10%) and hypoglycemia 1 (5%). Hypoglycemia was related to a pathological incretion of insulin-like growth factor 2 by the tumor.

Table 1: Localized fibrous tumor of the pleura, clinical feature.

Symptoms characteristic	**23 patients**
Asymptomatic	10
Symptoms	
Chronic cough	6
Chest pain	4
Dyspnea	2
Fever	4
Hypertrophic pulmonary osteoartropathy with or without clubbing	1
Hypoglycemia	1
Pleurisy	1
Weight loss	1
Pneumonitis	1
Delirium	1

Surgical excision required 18(eighteen) posterolateral thoracotomies,five (5) anterior lateral thoracotomies and no one video-assisted thoracoscopy. fourteen(14) tumors arose from visceral pleura and wedge resection was performed, eight(8) tumors arose from parietal pleura and extra pleural resection was carried out without any chest-wall resection, one(1) tumour growth within the lung lobe and required lobectomy. Average tumor diameter was 8.5 cm (range, 4.5-25 cm) and weight was 130 g (range 5-2,560 g).

Table 2: Pathologic features between benign and malignant localized fibrous tumor of pleura.

Feature	**Benign (n=9)**		**Malignant (n=14)**		**N**
	N	**%**	**%**		
Gross					
Pedunculated	2	29	-		
Atypical location	2	14	2	14	
Size (>10 cm)	5	71	7	50	
Necrosis and hemorrhage	1	14	3	42	
Microscopic					
Increased cellularity	2	29	10	71	
Pleomorphism	1	14	12	86	
Mitosis (> 4 mf/10 hpf)	-	-	11	78	

In all our patients resections were complete. Paraneoplastic syndromes like hypoglycemia and clubbing receded after surgery. No intraoperative or perioperative medical or surgical complications occurred. Median chest-drain duration timed 3 (range 2-5) days and median hospital stay was 5 (range 4-7) days.

Figure 2: Gross features of solitary fibrous pleural tumor after total resection

Perioperative mortality rate was 0%. Median follow-up was 70 (range 2-189) months: during this period patients were submitted to chest X-ray with 6-months interval to evaluate possible local recurrence. Only one patient experienced tumor recurrence,the tumor was detected and excised by redo-thoracotomy.At cut section seven cases (34%) revealed focal necrosis and hemorrhagic zones. Patients with malignant solitary pleural tumor are treated with multimodality treatment, cooperating with oncology clinic.

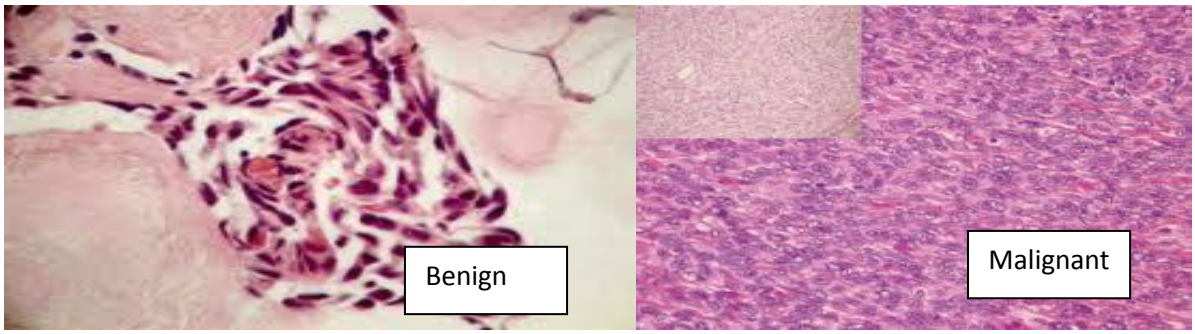

Figure 3: Histological features of solitary fibrous pleural tumor after total resection.

Discussion

Most of malignant pleural diseases have metastatic origin. About 80 % of cases present benign SFT tumor, while 12-22 % of cases represent malignant form [2]. The diagnosis of SFT is quite important because the surgery resection is indicating regardless of tumor size.

According to the tumors characteristic 9 (39 %) of cases was benign origin and 14 cases (61 %) malignant tumors. Based on the data from the literature we have a higher percentage of benign cases (39 %) and we believe that this is based in the scarce number of cases in the study. About 80 % of SFT originated from the visceral pleura, while 20 % originated from the parietal pleura [6]. Although they are tumors of considerable size (up to 40 cm diameter), almost half of them are asymptomatic [7].

In this study thirteen cases had tumors originating from the visceral pleura and wedge resection was necessary, in eight cases had tumors originating in the parietal pleura. The average size of tumors with greater diameter was 8.5 cm (minimum 4.5 cm and maximum 25 cm). By average of tumors was 130 grams (min 5.2 grams and max. 560 grams). Less than ½ of patients 10 (43 %) were asymptomatic at admission. In the group of patients with clinical signs greatest number of cases cough 5 cases (23 %), followed by chest pain in 3 cases (19 %). The treatment of choice for both forms of these tumors is complete surgical resection "en bloc".

The results of other studies show that prognosis of benign lesions is very good. In about 80 % of cases the recurrences can occur after the first resection and requires further repeated intervention with better performance [8].

Prognosis of malignant forms of tumor is not good, because about 61 % of cases may have tumor recurrences of which more than half may have the disease progress within 2 years. Adjuvant chemotherapy and /or radiotherapy for the cases with malignant localized tumors of the pleura are controversial [8, 9].

In this study patients were followed by chest X-rays every 6 months to assess possible local recurrences. Recurrences we had only one case in the 26 month follow -up through radiography and is redo – thoracotomy intervent. Patients with malignant tumor of the pleura solitary fibrotic we have treated them in collaboration with multimodal oncologic clinic. In any case we had no perioperative mortality.

Conclusions

Surgical resection of benign solitary fibrous tumours is usually curative, but local recurrences can occur years after seemingly adequate surgical treatment. Malignant solitary fibrous tumours generally have a poor prognosis. Clinical and radiological follow-up are indicated for both benign and malignant solitary fibrous tumours.

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